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Kristina L. Baird
Administrator of the Courts

June 30, 2022

Memorandum:

To: All Prospective Bidders

From: Administrator of the Courts

Re: Amendment no. 3
Ref: IFB 22-22; Rehabilitation of Guam Historic Courthouse

Below are responses to questions submitted to my office:

1. On the motorized window shades, are we supposed to quote for Mechoshade only? The specification states, substitution is not permitted which is a conflict with dwg. A1.5 & A 1.6 callout.

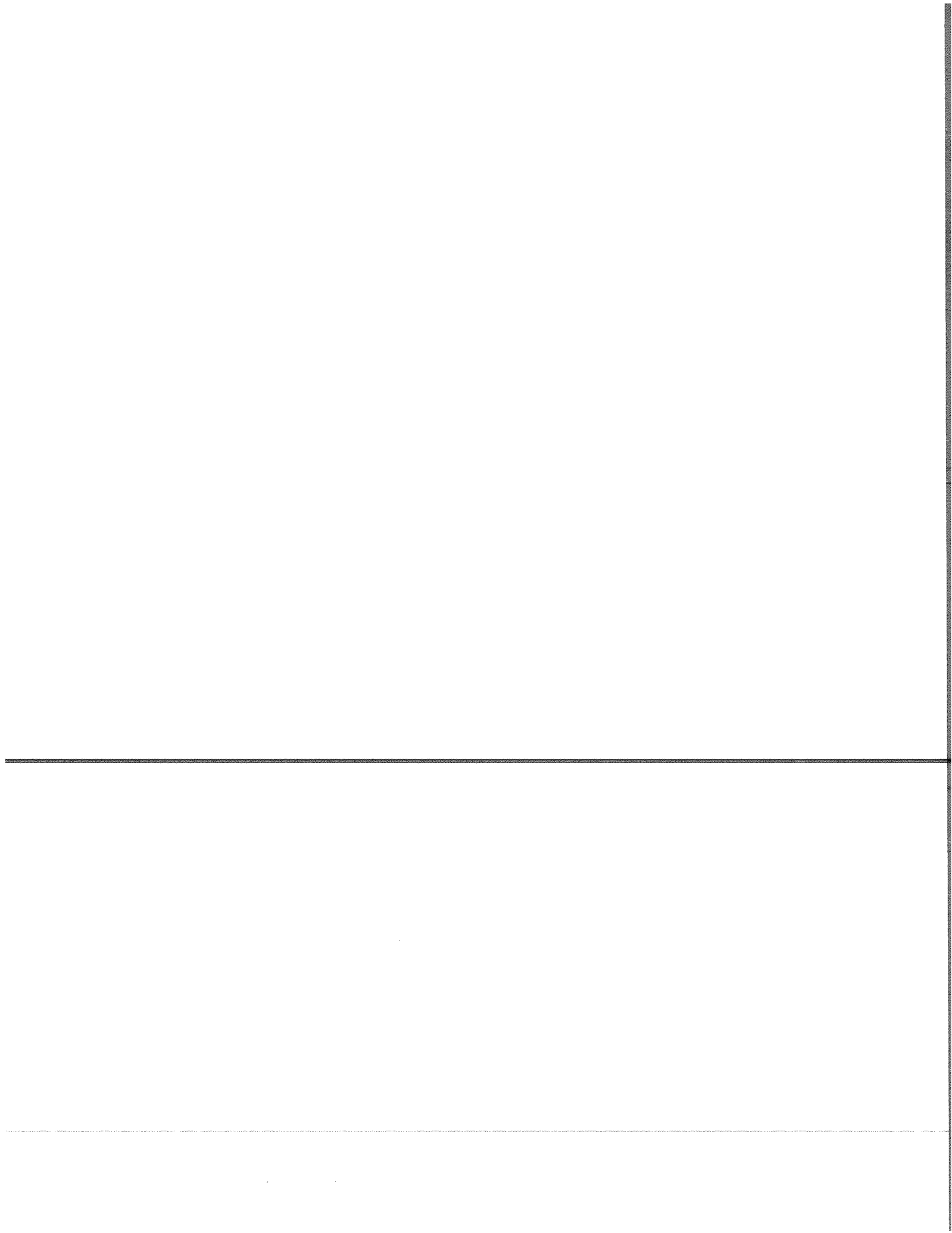
Response: No, you do not need to quote for Mechoshade only. Mechoshade is only used as a "Basis of Design" for SPECIFICATION SECTION 12496 Motorized Window Shade. Substitution is permitted. See page 12496-7 of Attachment - A, PART 2 Manufacturers, 2.1 which lists Mecho, Draper and Open, Approved Equal.

2. Also, our vendor came back to us today asking for a specific model or system for the shades. Our specification only gives us options but does not state what particular model, system, solar shade cloth, blackout shade cloth, etc.

Response: See Attachment B - Mecho cut sheet with features highlighted in RED. Please use these features as your guide for specifying your product submission.

3. We are still waiting for price proposals from our vendors on electrical materials (panel boards, light fixtures, etc.) and finishes (motorized window shades, toilet partitions, operable panel partitions, etc.), can we please request a two (2) week extension on the bid date.

Response: Deadline to submit bids is changed from July 6, 2022 at 2pm, Guam Standard Time to July 11, 2022 at 2pm, Guam Standard Time.



4. Request if there is a possible Extension of time for the Construction Duration? November 30, 2022 is kind of too tight for completion.

Response: At this time, the Judiciary is unable to extend the completion date as requested. However, the terms of the contract that will be awarded under this IFB will allow justified delays approved at the discretion of the Administrator of the Courts.

Please be reminded that this Amendment shall be acknowledged in your proposal. Failure to acknowledge this Amendment no. 3 shall result in disqualification from this IFB.

Should you have any questions please contact the Procurement Office at (671) 475-3175/3393 or email at mantonio@guamcourts.org and/or jpcpepeda@guamcourts.org.


KRISTINA L. BAIRD

Cc: IFB File/P&FMD

SECTION 12496

MOTORIZED WINDOW ROLLER SHADES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Roller shades, motorized operation and accessories.
 - 1. Intelligent encoded electronic drive system
 - 2. Motor controls, interfaces, and accessories.
- B. Shade fabric.

1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Wood blocking and grounds for mounting roller shades and accessories.
- B. Section 09260 - Gypsum Board Assemblies: Coordination with gypsum board assemblies for installation of shade pockets, closures and related accessories.
- C. Section 09510 - Acoustical Ceilings: Coordination with acoustical ceiling systems for installation of shade pockets, closures and related accessories.
- D. Division 16 - Electrical: Electric service for motor controls.

1.3 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- B. Cradle to Cradle Products Innovation Institute (C2C):
 - 1. C2C (DIR) - C2C Certified Products Registry.
- C. National Fire Protection Association (NFPA):
 - 1. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
 - 2. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.
- D. Underwriters Laboratories (UL):
 - 1. UL (GGG) - GREENGUARD Gold Certified Products; Current Edition.
 - 2. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

- E. Window Covering Manufacturers Association (WCMA):
 - 1. WCMA A100.1 - Safety of Window Covering Products; 2018.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. 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.
- B. Preinstallation Meeting: One week prior to commencing work related to this section. Require attendance of all affected installers.
- C. Sequencing:
 - 1. Do not fabricate shades until field dimensions for each opening have been taken with finished conditions in place. "Hold to" dimensions are not acceptable.
 - 2. Do not install shades until final surface finishes and painting are complete.

1.5 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
 - B. Product Data: Manufacturer's catalog pages and data sheets for products specified including materials, finishes, dimensions, profiles, mountings, and accessories.
 - 1. Preparation instructions and recommendations.
 - 2. Styles, material descriptions, dimensions of individual components, profiles, features, finishes, accessories, and operating instructions.
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- 3. Storage and handling requirements and recommendations.
 - 4. Mounting details and installation methods.
 - 5. Manufacturer's Instructions: Include storage, handling, protection, examination, preparation, and installation.
 - 6. Project Record Documents: Record actual locations of control system components and show interconnecting wiring.
 - 7. Operation and Maintenance Data: Component list with part numbers, and operation and maintenance instructions.
 - 8. Motorized Shades: Power requirements. Typical wiring diagrams including integration of EDU controllers with building management system, audiovisual and lighting control systems as applicable.
 - 9. Motorized Shades: Power requirements. Typical wiring diagrams including

integration of EDU controllers with building management system, audiovisual and lighting control systems as applicable.

- C. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances, wiring diagrams and relationship to adjacent work.
 - 1. Prepare shop drawings on AutoCad or MicroStation format using base sheets provided electronically by the Architect.
 - 2. Prepare control wiring diagrams based on zones, switching and operational requirements provided by the Architect in electronic format.
 - 3. Include one-line diagrams, wire counts, coverage patterns, and physical dimensions of each item.
 - 4. Provide location plan showing all switch and control zones as per the performance requirements of the specifications. All switches, sensors and other control accessories must clearly be shown and called out in a bill of materials.
 - A. Shade Automation Schedule: For all shade control zones, provide a detailed schedule of all shade movements throughout the year for a theoretical clear sky. This schedule shall clearly show the time of date, time of day and shade position.
 - 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. Verification Samples: For each finish product specified, one complete set of shade components, unassembled, demonstrating compliance with specified requirements.
 - 5. Shadecloth Sample: Mark face of material to indicate interior faces.
 - a. Test reports indicating compliance with specified fabric properties.
 - b. Verification Samples: 6 inches (150 mm) square, representing actual materials, color and pattern.
- D. Maintenance Data: Bill of materials for all components with part numbers. Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.
- E. Warranty: Provide manufacturer's warranty documents as specified in this Section.
- F. Warranty: Manufacturer's warranty documents as specified in this Section.
- G. Maintenance contracts.

1.6 QUALITY ASSURANCE

- A. Product Listing Organization Qualifications: An organization recognized by OSHA as a

- Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.
- B. Manufacturer Qualifications: 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. Installer for Roller Shade System - 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.
1. Requirements for Roller Shade Installer/Contractor:
- a. Roller Shade Hardware, shade fabric, motor, and all related controls shall be furnished and installed as a complete two-way communicating system and assembly.
- b. Roller Shade Installer/Contractor shall list all components and systems included in their bid, including but not limited to, the prime manufacturer of the motor control and automated equipment and shall be financially responsible for any change orders and/or back charges required by the BMS, AV, or Lighting Control Systems contractors to interface with the automatic solar tracking system and the motorized roller shade system.
- D. Product Listing Organization Qualifications: Organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.
- E. Fire-Test-Response Characteristics: Passes NFPA 701 small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.
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- F. Electrical Components: NFPA Article 100 listed and labeled by either UL or ETL or other testing agency acceptable to authorities having jurisdiction, marked for intended use, and tested as a system. Individual testing of components will not be acceptable in lieu of system testing.
- G. Requirements for Electronic Hardware, Controls, and Switches: Roller shade hardware, shade fabric, EDU, and all related controls shall be furnished and installed as a complete two-way communicating system and assembly.
- H. ShadeCloth Anti-Microbial Characteristics: 'No Growth' per ASTM G 21 results for fungi ATCC9642, ATCC9644, ATCC9645.
- I. Environmental Certification: Submit written certification from the manufacturer, including third party evaluation, recycling characteristics, and perpetual use certification as specified. Initial submittals, which do not include the Environmental Certification 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.

- J. Third Party Evaluation: 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.
- K. Recycling Characteristics: 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.
- L. Perpetual Use Certification: 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.
- M. Turn-Key Single-Source Responsibility for Wiring Motorized Interior Roller Shades: To control the responsibility for performance of motorized roller shade systems, assign the design, engineering, and installation of motorized roller shade systems, motors, controls, and low voltage electrical control wiring specified in this Section to a single manufacturer and their authorized installer/dealer. The Architect will not produce a set of electrical drawings for the installation of control wiring for the motors, or motor controllers of the motorized roller shades. Power wiring (line voltage), shall be provided by the roller shade installer/dealer, in accordance with the requirements provided by the manufacturer. Coordinate the following with the roller shade installer/dealer:
 - 1. Contractor shall provide power panels and circuits of sufficient size to accommodate roller shade manufacturer's requirements, as indicated on the mechanical and electrical drawings.
 - 2. Contractor shall coordinate with requirements of roller shade installer/dealer, before inaccessible areas are constructed.
 - 3. Roller shade installer/dealer shall run line voltage as dedicated home runs (of sufficient quantity, in sufficient capacity as required) terminating in junction boxes in

locations designated by roller shade dealer.

4. Roller shade installer/dealer shall provide and run all line voltage (from the terminating points) to the motor controllers, wire all roller shade motors to the motor controllers, and provide and run low voltage control wiring from motor controllers to switch/ control locations designated by the Architect. All above-ceiling and concealed wiring shall be plenum-rated, or installed in conduit, as required by the electrical code having jurisdiction.

5. Contractor shall provide conduit with pull wire in all areas, which might not be accessible to roller shade contractor due to building design, equipment location or schedule.

1.7 MOCK-UP

A. Provide a mock-up of one roller shade assembly for evaluation of mounting, appearance and accessories.

1. Locate mock-up in window designated by Architect.
 2. Mockup Size: Full size.
 3. Mockup Size (WxH): 3 x 3 feet (0.94 x 0.94 m) minimum.
 4. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
 5. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
 6. Do not proceed with remaining work until, mock-up is accepted by Architect.
 7. Retain mock-up during construction as a standard for comparison with completed work.
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8. Do not alter or remove mock-up until work is completed or removal is authorized.
 9. Full-sized mock-up may become part of the final installation.
 10. Full-sized mock-up will become the property of the Owner to be used for spare parts.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver 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 Window Treatment Schedule.
- B. Store and handle products per manufacturer's recommendations.

1.9 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.
- B. Power and control wiring shall be complete and certified, fully operational with uninterrupted communication on the lines and minimal noise certified by a commissioning agent specified in other sections.
 - 1. MechoNet, 485, RS232, POE, ICON, Lonmark and Dry Contract Network: Noise on the line not to exceed shade manufacturer's limits.

1.10 WARRANTY

- A. Roller Shade Hardware and Chain Warranty: Manufacturer's standard non-depreciating warranty for interior shading.
 - 1. Shade Hardware: 10 years unless otherwise indicated.
 - a. Mecho/5 with ThermoVeil, EuroVeil, EuroTwill, Soho, Equinox, Midnite, Chelsea, or Classic Blackout shade fabric: 25 years.
 - b. ElectroShade with ThermoVeil, EuroVeil, EuroTwill, Soho, Equinox, Midnite, Chelsea, or Classic Blackout shade fabric: 25 years.
 - 2. Standard Shadecloth: Manufacturer's standard twenty-five year warranty.
 - 3. Ecoveil Shadecloth: Manufacturer's standard ten year warranty.
 - 4. Roller Shade Motors, Motor Control Systems, and Accessories: Manufacturer's standard non-depreciating five year warranty.
 - 5. Roller Shade Installation: One year from date of Substantial Completion, not including scaffolding, lifts or other means to reach inaccessible areas, which are deemed owners responsibility.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Project requirements, manufacturers offering products which may be incorporated into the work include the following:
 - 1. Mecho,
42-03 St.; Long Island City, NY 11101; ASD Tel: 718-729-2020; Fax: 718-729-2941; Email: marketing@mechoshade.com; Web: www.mechoshade.com.
 - 2. Draper
Draper, Inc. 411 South Pearl St. PO Box 425 Spiceland, IN 47385
 - 3. Substitution: Open, Approved Equal
- B. Section 01600 - Product Requirements: Product Options: Substitutions permitted.

2.2 ROLLER SHADES, MOTORIZED OPERATION AND ACCESSORIES

A. Shade System; General:

1. Motorized Shades: Comply with NFPA 70.
2. Components capable of being removed or adjusted without removing mounted shade brackets, cassette support channel, or _____.
3. Operates smoothly when raising or lowering shades.
4. Cradle-to-Cradle certified and listed in C2C (DIR).
5. Electrical Components: Listed, classified, and labeled as suitable for intended purpose. Test as total system. Individual component testing is acceptable.
 - a. Components: FCC compliant where applicable.

B. Basis of Design: ElectroShade® with WhisperShade IQ2 EDU. As manufactured by MechoShade Systems LLC. Motor operated fabric window shade system complete with mounting brackets, roller tubes, hembars, hardware, and accessories.

1. Voltage: 120 VAC
 2. Voltage: 24 VDC
 3. Description: Single roller.
 4. Description: Double roller.
 5. Drop Position: Regular roll.
 6. Drop Position: Reverse roll.
 7. Mounting: Ceiling mounted.
 8. Mounting: Recess mounted in ceiling pocket.
 9. Mounting: Wall mounted.
 10. Mounting: Window jamb mounted.
-
11. Size: (WxH): _____.
 12. Size: As indicated on drawings.
 13. Fabric: As indicated under Shade Fabric article.
 14. Brackets and Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
 - a. Material: Steel, 1/8 inch (3 mm) thick.
 - b. Double Roller Brackets: Configured for light-filtering and room-darkening shades in one opening.
 - 1) Light-Filtering Fabric: Room-side of opening.
 - 2) Light-Filtering Fabric: Glass-side of opening.
 - 3) Room-Darkening Fabric: Room-side of opening.
 - 4) Room-Darkening Fabric: Glass-side of opening.

- c. Multiple Shade Operation: Provide hardware as necessary to operate more than one shade using a single motor.
 - d. Radiused Center Support Brackets: Provide brackets and connectors for radiused window applications.
 - 1) Maximum Offset: 22.5 degrees on each side for a 45 degree total offset.
 - 2) Maximum Offset: 8 degrees on each side for a 16 degree total offset.
15. Roller Tubes:
- a. Material: Extruded aluminum.
 - b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
 - c. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge. Shade band to be removable and replaceable without removing roller tube from brackets or inserting spline from the side of the roller tube.
16. Hembars: Designed to maintain bottom of shade straight and flat.
- a. Style: Full wrap fabric covered bottom bar, flat profile with heat sealed closed ends.
 - b. Style: Exposed aluminum bottom bar with matching finials.
 - 1) Profile: Rectangular.
 - 2) Profile: _____.
 - 3) Color: Manufacturer's standard coordinated with shade fabric selected.
 - 4) Color: To be selected from manufacturer's standard color selection.
 - 5) Color: _____.
 - c. Style: _____.
 - d. Room-Darkening Shades: Provide a slot in bottom bar with wool-pile light seal.
17. Accessories:
- a. Fascia: Removable extruded aluminum fascia, size as required to conceal shade mounting, attachable to brackets without exposed fasteners.
 - 1) Finish: Baked enamel.
 - 2) Finish: Clear anodized.

- 3) Finish: Fabric wrapped to match shade.
 - 4) Finish: _____.
 - 5) Capable of installation across two or more shade bands in one piece.
-
- 1) Color: Black.
 - 2) Color: White.
 - 3) Color: Bronze.
 - 4) Color: Gray.
 - 5) Color: _____.
 - 6) Profile: Square.
 - 7) Profile: Radiused.
 - 8) Profile: _____.
 - 9) Configuration: Captured, fascia stops at captured bracket end.
 - 10) Configuration: Continuous, fascia extends past continuous bracket.
 - 11) Configuration: Captured and continuous, as indicated on drawings.
- b. Ceiling Pockets: Premanufactured metal shade pocket with removable closure panel, for recess mounting in acoustical tile or drywall ceilings; size and configuration as indicated on drawings.
- c. Ceiling Pockets with Prewired Raceway:
- 1) Basis of Design: ElectroPocket; Model _____. As manufactured by MechoShade Systems LLC. UL 325 listed, extruded aluminum shade pocket for recess mounting in acoustical tile or drywall ceilings; size and configuration as indicated on drawings.
 - a) Removable closure panel.
 - b) Ceiling tile support.
 - c) _____.
 - 2) Designed to accommodate installation of motor control and wiring accessories within pocket including, but not limited to, line voltage disconnect modular connector, MechoNet Wireless Controller, IQ2 Dual or Single Splitter, and non-plenum rated daisy chain wiring.
- d. Room-Darkening Channels, Standard: Extruded aluminum side and

center channels with brush pile edge seals, SnapLoc mounting base, and concealed fasteners. Channels to accept one-piece exposed blackout hembar to assure side light control and sill light control.

- e. ShadeLoc Channels: Extruded aluminum side and center channels consisting of mounting base, SnapLoc channel for capturing zippered edges of shade band, and rubber foam cushions to adjust for field conditions.

C. Basis of Design: UrbanShade. As manufactured by MechoShade Systems LLC. Fabric window shade system complete with mounting brackets, roller tubes, hembars, hardware, and accessories.

- 1. Shade Type: Single Roller. Motorized, with dry contact closure control.
- 2. Shade Type: Single Roller. Motorized, with wireless control.
- 3. Shade Type: Single Roller. Motorized, with RS485 control
- 4. Shade Type: Double Roller. Motorized, with dry contact closure control.
- 5. Shade Type: Double Roller. Motorized, with wireless control.
- 6. Shade Type: Double Roller. Motorized, with RS485 control

- 1. Drop Position: Regular. Fabric falls off roller tube, close to glass
- 2. Drop Position: Reverse. Fabric falls off the room-side of the roller tube.

- 1. Mounting: Ceiling mounted.
- 2. Mounting: Recess mounted in ceiling pocket.
- 3. Mounting: Wall mounted.
- 4. Mounting: Window jamb mounted.

- 1. Size: (WxH): _____.
- 2. Size: As indicated on drawings.
- 3. Fabric: As indicated under Shade Fabric article.
- 4. Brackets and Mounting Hardware: Stamped steel. As recommended by manufacturer for mounting indicated accommodating shade fabric roll-up size and weight.

- a. Double Roller Brackets: Configured for light-filtering and room-darkening shades in one opening.
 - 1) Light-Filtering Fabric: Room-side of opening.
 - 2) Light-Filtering Fabric: Glass-side of opening.
 - 3) Room-Darkening Fabric: Room-side of opening.

- 4) Room-Darkening Fabric: Glass-side of opening.
5. Roller Tubes: Extruded aluminum. Capable of being removed and reinstalled without affecting roller shade limit adjustments.
 - a. Size: As recommended by manufacturer; for installation conditions, span, and weight of shades.
 - b. Fabric Attachment: Extruded channel in tube accepts vinyl spline welded to fabric edge.
 - 1) Shade Band: Removable and replaceable without removing roller tube from brackets or inserting spline from the side of the roller tube.
6. Hembars: Maintains bottom of shade straight and flat.
 - a. Style: Full wrap fabric covered bottom bar, flat profile with heat sealed closed ends.
 - b. Style: Exposed aluminum bottom bar with matching finials.
 - 1) Profile: Rectangular.
 - 2) Profile: _____.
 - 3) Color: Manufacturer's standard coordinated with shade fabric selected.
 - 4) Color: To be selected from manufacturer's standard color selection.
 - 5) Color: _____.
 - c. Room-Darkening Shades: Slotted bottom bar with wool-pile light seal.
7. Manual Operation:
 - a. Clutch Operator: Manufacturer's standard material and design integrated with bracket/brake assembly.
 - 1) Brake Assembly: Mounted on a low-friction plastic hub with wrapped spring clutch.
 - a) Brake must withstand minimum pull force of 25 lbs (12 kg) in stopped position.
 - 2) Clutch/Brake Mounting: On support brackets, independent of roller tube components.
 - b. Drive Chain: Continuous loop beaded ball chain. Upper and lower limit stops.
 - 1) Breaking Force: 45 lbf (200 N) minimum.
 - 2) Chain Retainer: Chain tensioning device complying with WCMA A100.1.

- c. Lift Assist Mechanism: Provide manufacturer's standard device, contained in the idler end of roller tube, when hanging weights exceed roller tube weight limits.
- 8. Accessories:
 - a. Fascia: Removable extruded aluminum. Size as required to conceal shade mounting. Attachable to brackets without exposed fasteners.
 - 1) Finish: Baked enamel.
 - a) Color: Black.
 - b) Color: White.
 - c) Color: Bronze.
 - d) Color: Gray.
 - e) Color: _____.
 - 2) Finish: Clear anodized.
 - 3) Finish: Fabric wrapped to match shade.
 - 4) Finish: _____.
 - 5) Can be installed across two or more shade bands in one piece.
 - 6) Profile: Square.
 - 7) Profile: Radiused.
 - 8) Profile: _____.
 - 9) Configuration: Captured, fascia stops at captured bracket end.
 - 10) Configuration: Continuous, fascia extends past continuous bracket.
 - 11) Configuration: Captured and continuous, as indicated on drawings.
 - b. Ceiling Pockets: ManualPremanufactured metal shade pocket with removable closure panel, for recess mounting in acoustical tile or drywall ceilings; size and configuration as indicated on drawings.
 - c. Ceiling Pockets with Prewired Raceway:
 - 1) Basis of Design: ElectroPocket Model _____. As manufactured by MechoShade Systems LLC.
 - 2) Standards compliance: UL 325 listed.
 - 3) Extruded aluminum shade pocket for recess mounting in acoustical tile or drywall ceilings. Size and configuration as indicated on drawings.
 - a) Removable closure panel.
 - b) Ceiling tile support.

- 4) Accommodates motor control and wiring accessories in the pocket including, line voltage disconnect modular connector, MechoNet Wireless Controller, IQ2 Dual Splitter, and non-plenum rated daisy chain wiring.
 - d. Room-Darkening Channels, Standard: Extruded aluminum side and center channels with brush pile edge seals, SnapLoc mounting base, and concealed fasteners. Channels to accept one-piece exposed blackout hembar to assure side light control and sill light control.
 - D. Basis of Design: MagnaShade. As manufactured by MechoShade Systems LLC. Single Roller, motor operated fabric window shade system complete with mounting brackets, roller tubes, hembars, hardware, and accessories.
 1. WhisperShade IQ2 EDU, line voltage (120 VAC)
 2. RTS wireless controls.
 3. Feature Requirements:
 - a. Hardware: Allows removal and remounting of shade motor without removing shade roller tube or drive from cassette support channel.
 - b. Shade Hardware System: Allow the following features.
 - 1) Field adjustment of EDU or replacement of operable hardware components without removal of installed cassette support channel.
 - 2) Allow access below motor head for setting or adjusting limits without disassembling the installed system.
 - 3) Factory assemble components to greatest extent possible.
-
1. Drop Position: Regular. Fabric falls off roller tube, close to glass
 2. Drop Position: Reverse. Fabric falls off the room-side of the roller tube.
 3. Drop Position: Reverse. Fabric falls off the room-side of the roller tube.
 4. Mounting: Ceiling mounted.
 5. Mounting: Wall mounted.
-
1. Size: (WxH): _____.
 2. Size: As indicated on drawings.
 3. Fabric: As indicated under Shade Fabric article.
 4. Mounting Hardware:
 - a. Cassette Support Channel: Continuous channel attached to structure at

- manufacturer's recommended spacing; with bottom closure panel and end caps.
- b. Roller Shade Cradle: Prefabricated extruded aluminum cradle. Clips into cassette support channel. Fully supports shade assembly. Low friction and wear-free surface.
 - c. Floating Hardware System: Manufacturer supplied device. Attaches to motor mounting plate and roller tube allowing tube to move horizontally and vertically as roll up diameter of shade system increases or decreases during operation. Floating design ensures roller tube is straight, with no deflection.
5. Roller Tubes:
- a. Size: 2-1/2 inch (63.5 mm) maximum diameter. Selected for suitability of installation conditions, span, and weight of shades.
 - b. Fabric Attachment: Manufacturer's method for securing shade fabric to roller tube.
6. Hembars: Maintain bottom of shade straight and flat.
- a. Style: Exposed aluminum bottom bar with matching finials.
 - 1) Color: Manufacturer's standard coordinated with shade fabric selected.
 - 2) Color: To be selected from manufacturer's standard color selection.
 - 3) Color: _____.
7. Secondary Shade System: ElectroShade system mounted to raceway at bottom of MagnaShade, as specified.
8. Accessories:
- a. Fascia: Removable extruded aluminum. Size as required to conceal shade mounting. Attach to cassette support channel without exposed fasteners.
 - 1) Finish: Baked enamel.
 - a) Color: Black.
 - b) Color: White.
 - c) Color: Bronze.
 - d) Color: Gray.
 - e) Color: _____.
 - 2) Finish: Clear anodized.

2.3 INTELLIGENT ENCODED ELECTRONIC DRIVE SYSTEM

A. Electronic Drive Unit (EDU) System General Requirements:

1. A UL 325 listed solution.
 - a. Component certification in lieu of system testing is not acceptable.
2. Listing Label and Motor Rating: To be visible for inspection without dismounting of shade assembly to remove motor or EDU from shade roller tube.
3. Size and Configuration: As recommended by manufacturer for type, size, and arrangement of shades.
4. Conceal EDU inside shade roller tube.
5. EDU Rated Speed: The same nominal speed for shades in the same room.
6. Maximum Hanging Weight of Shade Band: 80 percent of rated lifting capacity of shade EDU and tube assembly.
7. Capable of upgrading firmware from anywhere on network without touching the motor.

B. Line Voltage EDU (120 VAC):

1. Basis of Design: MechoShade Systems LLC; WhisperShade IQ2 System. Tubular, asynchronous, integral AC motor and reversible capacitor. 120 VAC, single phase, 60 Hz; temperature Class B, thermally-protected, totally enclosed, maintenance-free. Powered by line voltage power supply connection equipped with locking disconnect plug assembly furnished with EDU.
2. Audible Noise: 46 dBA measured 3 ft (914 mm) from motor unit, depending on motor torque.
3. Nominal Speed: 34 RPM. Not to vary due to load/lift capacity.
4. Isolated, low voltage power supply for powering external accessories connected to either the dry contact or network port.
 - a. Products requiring accessories to be powered by a plug-in or externally-supplied power supply are not acceptable.

C. Low Voltage EDU (24 VDC):

1. Basis of Design: 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 connection equipped with disconnect plug assembly furnished with EDU.
2. Audible Noise: 38 dBA measured 3 ft (914 mm) from motor unit, depending on motor torque.
3. Nominal Speed: 10 to 28 RPM. Configurable. Speed managed such that it does

- not vary due to load/lift capacity.
4. Low voltage power supply for powering external accessories connected to either the dry contact or network port.
 - a. Products that require accessories to be powered by a plug-in or externally-supplied power supply are not acceptable.
 5. Override Mode: Place motor into Override Mode when local switch commands shade to new position.
 - a. Local switch command sources:
 - 1) Keypad connected to EDU dry contact inputs.
 - 2) Third-party system connected to EDU dry contact inputs.
 - 3) Network keypad or other device that serially communicates with EDU and configured to issue override commands as if it were a local switch connected to EDU dry contact inputs.
 - b. Entering Override Mode: Monitor and log positioning commands from automation devices. Do not act until exiting Override Mode.
 - c. Return from Override Mode: Position shade to last commanded position in log.
 - d. Automated Return from Override Mode:
 - 1) Override Return Timer: When Override Mode is entered by changing shade position with local switch as described above, Enable override return timer to make these changes temporary such that automation can regain control of shade after configurable time duration (default of 60 minutes).
 - 2) Pocket temperature sensor integral to EDU to track pocket temperature.
 - a) When shade is in Override Mode and Heat Gain Sensing is Enabled: Sensor determines when direct sunlight and associated solar heat gain has left the window.
 - 1) When this condition occurs, after the shade has been overridden to cover the window, EDU to return from Override Mode if Override Return Timer has not done so already in order for automation controllers to once again optimize shade position for exposure to daylight.
 6. Preventative Maintenance:
 - a. Internally monitor important operating parameters to ensure motor and

its shade assembly are functioning properly.

- b. Performance Degradation: Provide visual indication via feedback LED and communicate warnings on repetitive basis through its serial port.
 - c. Warning Conditions: Logged and queryable. Allow sending of multiple warnings until condition is acknowledged.
 - d. Stop shade rotation for parameters of critical concern until reset by trained technician after being serviced.
 - e. Devices capable of receiving warnings include SolarTrac automated solar-evaluation control system.
 - f. Tracked Parameters to include:
 - 1) Operating life (cycles, hours).
 - 2) Pocket temperature.
 - 3) Internal motor temperature.
 - 4) Vibration.
 - 5) Stall.
 - 6) Power reset.
 - 7) Maintenance Mode.
 - 8) Speed regulation.
 - 9) Position targeting.
 - 10) Movement without command.
 - 11) One Bus availability.
 - g. Detectable Potential Warning Conditions to Include:
 - 1) Assembly vibration/bearing wear warning.
 - 2) Tube/shade assembly drop.
 - 3) Fabric hung-up/telescoping.
 - 4) Motor mount warning.
 - 5) Lifecycle replacement warning.
 - 6) Brake/limit failure.
 - 7) Network warning.
 - 8) Motor internal temperature warning.
 - 9) Pocket temperature warning.
-

2.4 MOTOR CONTROLS, INTERFACES, AND ACCESSORIES

- A. Unless indicated to be excluded, provide required equipment as necessary for a complete operating system providing the control intent specified. Provide components and connections necessary to interface with other systems as indicated.

- B. Digital Network Controls:
1. Basis of Design: MechoShade Systems LLC; MechoNet. Low-voltage network utilizes standard Category 5/6 UTP cable; maximum of 4,000 feet (1,219 m), 250 nodes.
 2. Reprogram control without requiring wiring modifications.
 3. Ten-year non-volatile power failure memory for system configuration settings.
 4. Network Interface Components:
 - a. MechoNet Network Interface; MNI Series: Four configurable motor/EDU ports (models available for RJ45 or terminal block wiring); four configurable switch ports; one infrared (IR) remote control port; one configurable serial port for RS232/RS485 communication.
 - b. IQ2 Dual Splitter: Two motor/EDU ports; two switch ports.
 - c. IQ/MLC2 Motor Group Controller: Four ports for line-voltage standard (non-intelligent) motors (120 or 230 VAC; 600 W, 1/4 HP maximum).
 - d. IQ Gateway; one for each floor where controlling across multiple floors.
- C. Low-Voltage Wall Controls; IQ Switch:
1. Momentary dry contact switch enables manual local control or network control of any individual shade motor or shade group/sub-group on MechoNet network.
 2. Control Functions:
 - a. Open: Automatically open controlled shades to fully open position when button is pressed.
 - b. Close: Automatically close controlled shades to fully closed position when button is pressed.
 - c. Presets: For selection of predetermined shade positions.
 - d. Dual Stations: For individual control of two shades/groups.
 3. Finish: White.
 4. Single Station: 5-button (open, close, and three intermediate stop positions).
 5. Double Station: 10-button (open, close, and three intermediate stop positions for each of two shades/groups).
- D. Wireless Controls:
1. MechoNet Wireless Controllers:
 - a. Serves as gateway, router, and controller between EnOcean wireless devices and MechoNet network.
 - b. Communicates with EnOcean wireless devices via 902 MHz RF. Supports wireless daylight sensors, occupancy/vacancy sensors, and switches.

- c. Controller to manage up to 16 EnOcean wireless devices.
- d. Controller to be configurable to one of two modes of operation:
 - 1) SolarTrac Mode: Relays EnOcean wireless sensor and control information to SolarTrac automatic solar-evaluation control system.
 - 2) Solar Activated Control Mode: Utilizes EnOcean wireless sensor and control information for internal automation algorithms to adjust shade positions.
 - a) Adjusts shade positions based daylight sensors input optimizing visual comfort. Enables five shade positions; full-up, full-down, and three configurable intermediate preset stop positions. Default of three positions; full-up, full-down, and preset number two.
 - b) Configurable daylight thresholds for shade positions. Includes configurable hysteresis setting, default of 20 percent, preventing frequent cycling of shades during fluctuating daylight conditions.
 - c) Configurable delay timers inhibit shade position changes due to short duration changes in daylight conditions. Default of 300 seconds delay for up, 60 seconds delay for down.
 - d) Night Mode: Configurable night time shade position to support light pollution, privacy, and/or energy conservation requirements. Configurable daylight threshold. Default of 18.6 footcandles (200 lux), Duration: Default of 60 minutes to enter night mode, 30 minutes to exit night mode.
 - e) Occupancy/Vacancy: Where wireless occupancy/vacancy sensors are specified, enables configurable unoccupied/vacant mode shade position (default of full-down) to optimize energy conservation. Configurable timers for detection of unoccupied and occupied states.
 - f) Manual Override: Where local switches are specified. Enables manual temporary override of shade positions for configurable duration. Default of 60 minutes.
 - g) Retract Mode: Manages changes to light level based on shade position for comfort and increasing exposure of occupant to daylight. Shades move up in stepped one-position increments as daylight levels drop. Each step is maintained for

one minute while controller retests daylight conditions before authorizing the next step until target is reached.

- e. Capable of being powered by a dedicated low-voltage power supply or through certain MechoNet devices without additional power supplies.
 - f. Multiple sensors to be configurable to automate the same shade control zone in order to ensure operation based on worst case comfort conditions across the zone.
 - g. Sensors to be configural be configurable to automate multiple shade control zones.
 - h. Maintain a circular log of previous 48 hours of data received from each of 16 possible wireless devices. Data to be capable of being downloaded and stored for record keeping, performance optimization, or troubleshooting purposes.
2. Wireless Daylight Sensors:
- a. Monitors daylight through curtainwall and communicates with MechoNet Wireless Controller and IQ3-DC. Adjusts shade position based on user-defined light thresholds.
 - b. Powered by integral photovoltaic cells. No batteries or external power supplies.
 - c. Data Transmission:
 - 1) Provide the following data with each message:
 - a) Charge level.
 - b) Illuminance: 0 to 6,100 footcandles (0 to 65,656 lux).
Plus or minus 5 percent accuracy.
 - 2) Transmit message when daylight level changes by three percent.
 - 3) Transmit "heartbeat" message once per minute during daylight and once per hour at night for determining when maintenance/support is required.
 - d. Mountable horizontally, vertically, and upside-down on mullion without screws.
3. Wireless Occupancy Sensors:
- a. Monitor room/area occupancy. Communicate with MechoNet Wireless Controller and IQ3-DC optimizing shade positions.
 - b. Solar-powered with battery backup.
 - c. Passive infrared (PIR) sensing.
 - d. Ceiling-mounted with 360 degree angle of detection optimized for ceiling

height between 8 and 10 feet (2.4 and 3.0 m).

4. Wireless Self-Powered Rocker Switches:
 - a. Communicates with MechoNet Wireless Controller and iQ3-DC. Adjusts shade positions based on switch operation.
 - b. Enables manual local control or network control of any individual shade motor or shade group/sub-group on MechoNet network.
 - c. Self-powered via rocker switch operation.
 - d. Finish: White.

E.H. Automatic Solar-Evaluation Control System:

1. Basis of Design: MechoShade Systems LLC; SolarTrac. Utilizes ASHRAE Clear Sky algorithms to incrementally adjust shade positions maximizing energy management, daylighting, occupant view, and occupant comfort. Sky model calculated on a daily basis.
2. System Capacity: Supports 65,000 zones/65,000 motors.
3. Platform: Windows Service. Supports Windows PC, Windows Server, and Windows Virtual Machine.
4. Communications Riser/Backbone: Manufacturer-approved communications riser/backbone and switches for communication at floor/areas. Support dedicated Ethernet network, building/BMS Ethernet network, and RS485 riser/backbone implementation.
5. Algorithms: Calculate the following on a continuous basis; once every five seconds, 24 hours per day, 365 days per year, for each window.
 - a. Solar Heat Gain: Btu/hour/sq foot (W/sq m) multiple times per minute.
 - b. Incident angle.
 - c. Profile angle.
 - d. Direct radiation.
 - e. Diffuse radiation.
 - f. Surface azimuth.
 - g. Solar surface azimuth.
 - h. Algorithms to include consideration of:
 - 1) Window geometry/profile, including window overhangs.
 - 2) Allowable solar depth of penetration.
 - 3) Sky condition based on input from roof-mounted solar radiometers.
6. Internet Weather: Supports Internet weather coupled with wireless daylight sensors for determination of sky conditions where roof-mounted solar radiometers cannot be used.
7. Shade Positioning:

- a. Align shades up to 256 positions.
 - b. Calculate positioning resolution once every minute.
 - c. Stagger operation of shade motors for electrical load balancing.
- 8. Override Capability:
 - a. Automatic Override of Shade Positions for the Following:
 - 1) Cloudy Sky Conditions: Based on input from roof-mounted solar radiometers. Shades go to predetermined position maximizing occupant view and available daylight.
 - 2) Bright Conditions: Based on input from wireless daylight sensors and user-defined allowable brightness ratio. Requires Brightness Override Module. Shades go to predetermined position to maximize occupant comfort.
 - 3) Dark Conditions: Based on input from wireless daylight sensors. Requires Darkness Override Module. Shades go to predetermined position to maximize occupant view and available daylight.
 - 4) Facades and Zones: In shadow due to adjacent structures (e.g. buildings, trees, etc) as determined by three-dimensional model and user-defined timing parameters; requires Shadow Override Module option; shades to go to predetermined position to maximize occupant view and available daylight.
 - 5) Reflections from adjacent structures or features (e.g. buildings, bodies of water, etc.) as determined by three-dimensional model; requires Reflection Module option; shades to go to predetermined position to maximize occupant comfort.
 - b. Manual temporary override of shade positions:
 - 1) IQ Switch low-voltage wall controls or touchscreen manual override panels.
 - 2) Browser Interface: Enables control of individual shade motors, shade groups, or zones. Administrative settings allow for assignment of shade control restrictions for specific users.
 - c. Configurable resumption of automatic control following manual temporary override event based on wake, sunrise, sunset, sleep, time duration, and specific times.
- 9. Data Logging:
 - a. Periodic: Roof-mounted solar radiometer and wireless daylight sensor data, Internet weather. Store at rate of once per minute.

- b. On Change: Shade position, shade status, overrides, alerts/errors, sky conditions, user login/logout, setting/configuration changes, remote access commands/overrides (e.g. BMS, A/V, etc).
- 10. Browser User Interface:
 - a. Interactive Floor Plan: Graphical map of each floor for setup, monitoring, and control. Pan and zoom navigation.
 - b. Access to adjustable parameters and displays current values including but not limited to:
 - 1) Radiation.
 - 2) Shade position.
 - 3) User-defined requirements.
 - c. Display current sky conditions based on input from roof-mounted solar radiometers.
 - d. Zone/Sensor Monitoring: Display current operation of selected zones or sensors.
 - e. Manual/Master Override:
 - 1) Interactive Floor Plan: Graphical map of each floor showing shade groups, zones, and sensors with current position of each zone.
 - 2) Universal Command View: Enables whole floor/building control.
 - f. Alerts/Notifications:
 - 1) Display real time event notification including gateway or motor not responding, motor in wrong position, motor overridden, and zone overridden.
 - 2) Display manual overrides from touchscreen manual override panels.
 - g. Reports/Analysis:
 - 1) Data Storage/Event Log: Continuous daily activities record.
 - 2) Current Day's Activity: Visual record of zone operations by intermediate stop locations.
 - 3) Trending Reports:
 - a) Daily: Includes sky, sensors, event log, and timeline.
 - b) Shade Position: Percentage of time shade spent at each position.
 - c) Override: Reason for override and percentage of day shade spent overridden up/down.

- 4) Zone history analysis.
 - h. Multi-level user access. 1,000 user accounts, with 100 simultaneous users. Utilize security certificates.
- 11. Configurable Zone Properties:
 - a. Minimum move timer: For restricting frequent shade movement.
 - b. Wake and sleep time and position.
 - c. Window geometry (overhangs, fins, sill height).
 - d. Profile angle; minimum and maximum.
 - e. Auto position; minimum and maximum.
 - f. Night position.
 - g. Cloud position.
 - h. Position and threshold for overcast.
 - i. Bright overcast.
 - j. Bright clear.
 - k. Bright cloudy.
 - l. Darkness sky conditions.
 - m. Sunset/sunrise offset and position.
 - n. Allowable solar penetration; maximum.
 - o. Solar heat gain; minimum.
 - p. Solar heat gain thresholds per preset position.
 - q. Number of preset positions.
 - r. Multi-tier zone settings (number of tiers or window heights).
 - s. Tandem mode zones.
 - t. Retract mode enable/disable.
 - u. Sensor bindings (which sensors affect selected zone).
- 12. Integration with Other Systems: Support third party systems including building management systems (BMS), lighting control systems, audio-visual (A/V) systems, HVAC control systems, and energy dashboards via BACnet (BTL certified), Ethernet UDP, Ethernet TCP/IP, REST API, and RS485.
- 13. Campus Support: Management of multiple buildings through single user interface.
- 14. Accessories:
 - a. Solar Radiometers: Rooftop measurement of sky conditions. Quantity of three unless otherwise indicated.
 - b. Sunrise/Sunset Sensors: Supplementing solar radiometers. Accurate measurement of sky conditions during sunrise/sunset periods.
 - c. MechoNet Wireless Daylight Sensors: As specified for automatic override of

shade positions for bright conditions. Communicates wirelessly to MechoNet Wireless Controller configured for SolarTrac mode.

- d. MechoNet Wireless Occupancy Sensors: As specified for automatic override of shade positions based on occupancy status. Communicates wirelessly to MechoNet Wireless Controller configured for SolarTrac mode.
- e. Touchscreen Manual Override Panels: Manual temporary override of shade positions. Enables manual control of shades via touchscreen interface with graphical map of shades for local area.
- f. Low-Voltage Wall Controls; IQ Switch: As specified for manual temporary override of shade positions.

F.I. Automatic Solar-Tracking Control System:

- 1. Basis of Design: MechoShade Systems LLC; SunDialer; www.mechoshade.com/#sle. Solar evaluation and sky modeling system.
 - a. Utilize ASHRAE Clear Sky algorithms incrementally adjusting shade positions in order to maximize energy management, daylighting, occupant view, and occupant comfort; sky model calculated on a weekly basis.
- 2. System Capacity: 24 zones.
- 3. Communications Riser/Backbone: Manufacturer-approved communications riser/backbone and switches for communication at each floor/area.
 - a. Support dedicated Ethernet network, building/BMS Ethernet network, and RS485 riser/backbone implementation.Algorithms Calculating for Each Window: Weekly basis (52 model days per year).
- b. Solar heat gain. Btu/hour/sq foot (W/sq m) multiple times per min.
- c. Incident angle.
- d. Profile angle.
- e. Direct radiation.
- f. Diffuse radiation.
- g. Surface azimuth.
- h. Solar surface azimuth.
- 4. Algorithms to include consideration of:
 - a. Window geometry/profile, including window overhangs.
 - b. Allowable solar depth of penetration.
 - c. Sky condition (e.g. clear, cloudy, overcast), as determined by microclimatic model based on input from roof-mounted solar radiometers.

5. Shade Positioning: Aligning shades to 256 positions.
 - a. Calculate shade positioning resolution once every minute.
6. Override Capability:
 - a. Automatic override of shade positions:
 - 1) Dark (cloudy) sky conditions, based on input from roof-mounted solar radiometers.
 - a) Shades go to predetermined position maximizing occupant view and available daylight.
 - 2) Event scheduler: Configurable via control software. Enables override of shade zones based on date range or absolute time range.
 - b. Manual override of shade positions using:
 - 1) IQ Switch low-voltage wall controls. Software user interface.
 - a) Requires one SunDialer IP Interface unit per system.
 - 2) VirtualSwitch Override: Browser user interface over local area network.
 - a) Enables control of individual shade motors, groups, or zones.
 - b) Administrative settings allowing assignment of shade control restrictions for specific users.
7. Data Logging:
 - a. Periodic: Roof-mounted solar radiometer data. Storage Rate: once per minute.
 - b. On Change: Shade position, overrides, sky conditions.
8. Integration with Other Systems: Third party systems including building management systems (BMS), lighting control systems, audio-visual (A/V) systems, HVAC control systems, and energy dashboards via Ethernet TCP/IP and RS485.
9. Configurable Zone Properties:
 - a. Wake and sleep time and position.
 - b. Window geometry (overhangs, fins, sill height).
 - c. Profile angle; minimum and maximum.
 - d. Auto position; minimum and maximum.
 - e. Night position.
 - f. Cloud position.
 - g. Sunset/sunrise offset and position.
 - h. Allowable solar penetration; maximum.
 - i. Solar heat gain; minimum.
 - j. Solar heat gain thresholds per preset position.
 - k. Number of preset positions.
10. Controller: 12-zones with sensor ports for solar radiometer and IP interface.

- a. One required per project; minimum.
 - b. Requires internet connection for remote connectivity.
- 11. Controller: 12-zone controller without sensor ports.
- 12. Accessories:
 - a. Solar Radiometers: For rooftop measurement of sky conditions. Two required unless otherwise indicated.
 - b. Sunrise/Sunset Sensors: Supplemental to rooftop solar radiometers for accurate measurement of sky conditions during sunrise/sunset periods.
 - c. Low-Voltage Wall Controls; IQ Switch: As specified for manual temporary override of shade positions.

2.5 ROLLER SHADE FABRICATION

- A. Field measure finished openings prior to ordering or fabrication.
Coordinate horizontal tolerance dimensions with mounting specified under "Description" of roller shade system.
- B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
 - 1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch (13 mm) [] space between bottom bar and window stool [finished floor] [window stool] [].
 - 2. Horizontal Dimensions: Inside Mounting.
If "light gap dimension" is critical, use this paragraph to define parameters.
 - a. Fill openings from jamb to jamb.
If "light gap dimension" is critical, use this paragraph and choice box to define parameters.
 - b. Symmetrical Light Gaps on Both Sides of Shade: 3/4 inch (19.05 mm) total.
 - c. Symmetrical Light Gaps on Both Sides of Shade (inch/mm): [] total.
 - 3. Horizontal Dimensions: Outside mounting.
 - a. Cover window frames, trim, and casings completely.
 - b. Extend shades beyond jambs on each side: 2 inches (50 mm).
 - c. Extend shades beyond jambs on each side (inch/mm): []
- C. Openings Requiring Continuous Multiple Shade Units with Separate Rollers: Locate roller joints at window mullion centers; butt rollers end-to-end.
The size and location of openings to be covered will determine fabric performance requirements.
View Mecho's shadecloth selector [here](#).

2.6 SHADE FABRIC

- A. Basis of Design: Shade fabric as manufactured by MechoShade Systems LLC.

1. Solar Shade cloths:
 - a. Fabric: Soho: 1100 series. 1 percent open. 2 x 2 basket-weave pattern of fine yarn PVC and polyester blend, same colors as in 1600 (3 percent open) and 1900 series, (5 percent open).
 - b. Fabric: Soho: 1600 series. 3 percent open. 2 x 2 basket-weave pattern of fine yarn PVC and polyester blend, same colors as in 1100 (1 percent open) and 1900 series, (5 percent open).
 - c. Fabric: Soho: 1900 series. 5 percent open. 2 x 2 basket-weave pattern of fine yarn, PVC and polyester blend, same colors as in 1100 (1 percent open) and 1600 series, (3 percent open).
 - d. Fabric: ThermoVeil: 0900 series. 0 to 1 percent visually translucent extra-dense linear weave pattern.
 - e. Fabric: ThermoVeil: 1000 series. 2 to 3 percent open, dense linear-weave pattern.
 - f. Fabric: ThermoVeil Basket Weave: 1300 series. 5 percent open, 2 by 2 dense basket-weave pattern, colors match 1500 (3 percent open), also 126 inches (3200 mm) wide.
 - g. Fabric: ThermoVeil Basket Weave: 1500 series. 3 percent open 2 by 2 dense basket-weave pattern, colors match 1300 (5 percent open), also 126 inches (3200 mm) wide.
 - h. Fabric: ThermoVeil Basket Weave: 2100 series. 10 percent open 2 by 2 open basket-weave pattern, colors match 1300 (5 percent open) and 1500 (3 percent open).
 - i. Fabric: ThermoVeil Reversible Satin Twill Weave: 3000 series. 1 to 2 percent open, with an alternating predominant color in the warp and weft (fill). Reverse side can be used facing interior if specified.
 - j. Fabric: ThermoVeil Reversible Satin Twill Weave: 3200 series. 1 to 2 percent open, with an alternating predominant color in the warp and weft (fill). Reverse side can be used facing interior if specified.
 - k. Fabric: ThermoVeil Reversible Satin/Diamond Earthtone Twill Weave: 3300 series. 1 to 2 percent open, with an alternating predominant color in the warp and weft (fill). Reverse side can be used facing interior if specified.
 - l. Fabric: EcoVeil Screens: 0950 series. TPO Cradle to Cradle Certified, fabric, non-PVC, 1 X 1 basket-weave pattern at 1 percent open. Colors match 1350 (5 percent open) and 1550 (3 percent open).
 - m. Fabric: EcoVeil Screens: 1350 series. TPO Cradle to Cradle Certified, fabric,

non-PVC, 1 X 1, basket-weave pattern at 5 percent open. Colors match 0950 (1 percent open) and 1550 (3 percent open).

- n. Fabric: EcoVeil Screens: 1550 series. TPO fabric, Cradle to Cradle Certified, non-PVC, 1 X 1, basket-weave pattern at 3 percent open. Colors match 0950 (1 percent open) and 1350 (5 percent open).
- o. Fabric: EcoVeil Sheer: 6750 series. Cradle to Cradle Certified, woven 100 percent polyester, PVC-free, reversible face, (3 percent open). The first shadecloth to pass NFPA 701 flame tests without added chemical flame retardants.
- p. Fabric: EcoVeil Sheer: 6850 series. Cradle to Cradle Certified, woven 100 percent polyester, PVC-free, reversible face, (1 percent open). The first shadecloth to pass NFPA 701 flame tests without added chemical flame retardants.
- q. Fabric: Acoustiveil Dimout: 0890 series. 0-1 percent open.
- r. Fabric: EuroVeil Basket Weave Pattern: 5300. Thin, fine, screen cloth in broad range of colors. 5 percent open.
- s. Fabric: EuroTwill Reversible Weave: 6000. Finely woven. 3 percent open. Reverse side can be used facing interior if specified.
- t. Fabric: EuroTwill Reversible Weave: 6200. Distinctive, tightly woven twill design, comprised of fine polyester with PVC coating. 1 percent open. Reverse side can be used facing interior if specified.
- u. Fabric: EuroTwill Reversible Weave: 6450. A broke twill-weave design comprised of fine polyester with PVC coating. 3 percent open. Reverse side can be used facing interior if specified.

v. Color: Selected from manufacturer's standard colors.

w. Color: Custom color.

2. Blackout Shadecloths:

- a. Fabric: Equinox Blackout: 0200 series. Opaque.
- b. Fabric: Blackout: Midnite Blackout: 0100 series. Opaque. Acrylic backing, PVC-free, white color reverse side (for exterior). Available 98 inch (24789 mm).
- c. Fabric: Mirrofilm: 0600 series. Transparent.
- d. Fabric: Classic Blackout: 0800 series. Opaque.
- e. Fabric: Chelsea: 0250 series. Opaque.
- f. Fabric: Classic Blackout: 0700 series. Opaque. Vinyl coated fabric blackout material same color reverse side (for exterior).
- g. Color: Selected from manufacturer's standard colors.

- h. Color: Custom color.
- 3. Fabric Properties: Non-flammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.
 - a. Shade Type: Light filtering shades.
 - b. Shade Type: Room darkening shades.
 - c. Shade Type: _____.
 - d. Material Composition: PVC coated polyester yarns.
 - e. Material Composition: 100 percent polyester.
 - f. Material Composition: 100 percent TPO coated polyolefin yarn.
 - g. Material Composition: Polyester with acrylic backing.
 - h. Material Composition: Fiberglass with acrylic backing.
 - i. Material Composition: Vinyl coated fabric.
 - j. Material Composition: _____.
- 4. Material Certificates and Product Disclosures:
 - a. Low-Emitting Material Certification: Greenguard Gold certified and listed in UL (GGG).
 - b. Cradle to Cradle Material Health Certificate:
 - 1) Achievement Level: Silver.
 - 2) Achievement Level: Bronze.
 - c. Health Product Declaration (HPD): Published declaration with full disclosure of known hazards.
 - d. Declare label.
- 5. Performance Requirements:
 - a. Flammability per NFPA 701: Pass. Large or small scale test.
 - b. Fungal Resistance: No growth when tested per ASTM G21.
 - c. Solar Transmittance: _____, nominal.
 - d. Visible Light Transmittance: _____, nominal.
 - e. Solar Absorption: _____, nominal.
 - f. Solar Reflectance: _____, nominal.
- 6. Openness Factor: _____ percent, nominal.
- 7. Weight: _____ oz per sq yd (_____ grams per sq m).
- 8. Roll Width: 63 inches (1600 mm) maximum.
- 9. Roll Width: 72 inches (1829 mm) maximum.
- 10. Roll Width: 78 inches (1981 mm) maximum.
- 11. Roll Width: 84 inches (2134 mm) maximum.
- 12. Roll Width: 96 inches (2438 mm) maximum.

13. Roll Width: 98 inches (2489 mm) maximum.
14. Roll Width: 126 inches (3200 mm) maximum.
15. Roll Width (in/mm): _____.
16. Color: As selected by Architect from manufacturer's full range of colors.
17. Color: _____.
18. Fabrication:
 - a. Fabric Orientation: Railroaded, fabric is turned 90 degrees off the roll.
 - b. Battens: Manufacturer's standard material, full width of shade, and enclosed in welded shade fabric pocket; locate as indicated on drawings.
 - c. Seams for Railroaded Fabric: Manufacturer's standard sewn seam; locate as indicated on drawings.
 - d. Welded Zipper Edge: Full height on both sides of fabric ensuring smooth operation within ShadeLoc channels.

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.
- C. Start of installation shall be considered acceptance of substrates.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.
- C. Coordinate with window installation and placement of concealed blocking to support shades.

3.3 INSTALLATION

- A. Install shades level, plumb, square, and true per manufacturer's instructions and approved shop drawings. Locate so shade band is at least 2 inches (51 mm) from interior face of glass. Allow proper clearances for window operation hardware. Use mounting devices as indicated.
- B. Replace shades exceeding specified tolerances at no extra cost to Owner.
- C. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range. Adjust level, projection, and

- shade centering from mounting bracket. Verify there is no telescoping of shade fabric.
- D. Clean roller shade surfaces after installation, per manufacturer's written instructions.
 - E. Demonstrate operation and maintenance of window shade system to Owner's personnel.
 - F. Manufacturer's authorized personnel are to train Owner's personnel on operation and maintenance of system.
 - 1. Use operation and maintenance manual as a reference, supplemented with additional training materials as required.

3.4 SYSTEM STARTUP

- A. Motorized Shade System: Provide services of a manufacturer's authorized representative to perform system startup.
- B. Turn-Key Single-Source Responsibility for Motorized Interior Roller Shades: Design, engineering, and installation of motorized roller shade systems, motors, controls, and low voltage electrical control wiring specified is to be performed by a single manufacturer and their authorized installer/dealer.
 - 1. The Architect will not provide a set of electrical drawings for installation of control wiring for motors, or motor controllers of motorized roller shades.
 - 2. Power wiring (line voltage), to be provided by roller shade installer/dealer, per requirements provided by manufacturer. Coordinate following with roller shade installer/dealer:
 - 3. Contractor To Provide the Following:
 - a. Power Panels and Circuits: Size to accommodate roller shade manufacturer's requirements, as indicated on mechanical and electrical drawings.
 - b. Coordinate with requirements of roller shade installer/dealer, before inaccessible areas are constructed.
 - c. Line voltage as dedicated home runs, of sufficient quantity, and capacity as required. Terminate in junction boxes at locations designated by roller shade installer/dealer.
 - d. Run line voltage from terminating points to motor controllers. Wire roller shade motors to motor controllers. Run low voltage control wiring from motor controllers to switch/control locations designated by Architect.
 - 1) Above-ceiling and concealed wiring to be plenum-rated, or in conduit, as required by the electrical code having jurisdiction.
 - e. Use conduit with pull wire in areas, not accessible to roller shade contractor due to building design, equipment location or schedule.

3.5 PROTECTION AND CLEANING

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
 - 1. Clean soiled shades and exposed components as recommended by manufacturer.
 - 2. Replace shades that cannot be cleaned to "like new" condition.

3.6 MAINTENANCE

Coordinate manufacturer's warranty requirements with maintenance contracts. If shade controls are specified with lighting controls as part of another section, do not duplicate maintenance contracts.

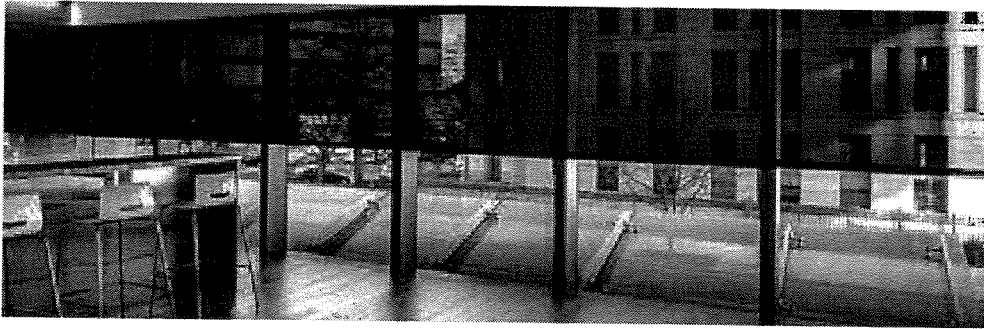
- A. Provide Owner a proposal as an alternate to the base bid and at no extra cost, a separate renewable maintenance contract for service and maintenance of motorized shade system.
 - 1. Include a complete description of preventive maintenance, systematic examination, adjustment, parts and labor, cleaning, and testing, with a detailed schedule.
 - a. Contract Duration: One year from date of Substantial Completion.
 - b. Contract Duration: Two year from date of Substantial Completion.
 - c. Contract Duration: _____ from date of Substantial Completion.
 - B. Automated Solar-Tracking Control Systems: Provide Owner a proposal as an alternate to the base bid and at no extro cost, a separate renewable software maintenance contract.
 - a. Contract Duration: One year from date of Substantial Completion.
 - b. Contract Duration: Two year from date of Substantial Completion.
 - c. Contract Duration: _____ from date of Substantial Completion.
-

END OF SECTION

ElectroShade®

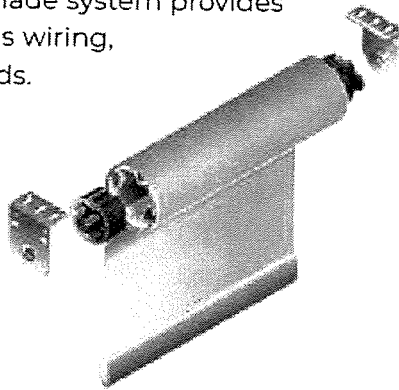
The Most Versatile AC- or DC-Powered Motorized Shade System

ElectroShade motorized shade systems are the recognized industry leader in commercial shade solutions. Our motorized shades utilize patented technology to provide power and performance to create an optimal shade lift experience.



Versatile and Scalable

When it comes to motorized window shade performance, Mecho is the leader. The ElectroShade system provides the flexibility to fit a client's various wiring, budget, and shade operation needs. ElectroShade can cover standard shade sizes while extending to support challenging installation requirements, including conference rooms, high bay windows, and atriums.



Intelligent

ElectroShade has precision-control electronics and MechoNet™ all inside one shade tube. Available with advanced features that can alert you to potential maintenance issues before it creates an interruption in shade functionality.

Quiet & Powerful

ElectroShade has the largest lift capacity in its class, capable of lifting shades up to 600 sq. feet. This means you can lift larger single shades—or more coupled shades. All with quiet operation, as low as 38dBA, ideal where silence is required.

> Learn more about ElectroShade motor options on back

The Go-To Solution

Ideal in any commercial environment where power and silence are required

- Corporate
- Healthcare
- Education
- Hospitality

ETL Listed

ElectroShade motors are ETL listed covering three different safety standards. ETL listing ensures the highest quality, safety, and reliability; streamlining construction and eliminating inspection concerns



Limited Warranty

All ElectroShade motors are covered by Mecho's five-year warranty.



Mecho's extensive line of shade cloth is covered by a separate 25-year warranty with several fabrics holding cradle-to-cradle certifications.

LEARN MORE

mechoshade.com/ElectroShade

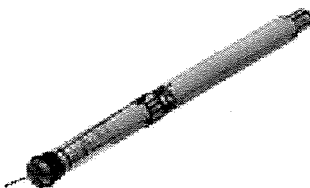


ElectroShade® Motor Options

iQ3 DC

Patent-Pending Obstacle Detection

Obstacle detection helps avoid damaged shades by monitoring the shade movement and sensing changes. This breakthrough feature can help prevent disruptive and costly shade maintenance.



Narrow Windows, Now Motorized

The best-in-class minimum shade width of 21.5" helps ensure the same solution can be applied across a project.

2-Way Wireless Solution

This system ensures commands are received and acted upon. System data is shared with the network to enhance performance and reliability.

Improved Room Economics

Up-to a 60% cost reduction is possible by reducing wiring requirements and eliminating wireless infrastructure equipment.

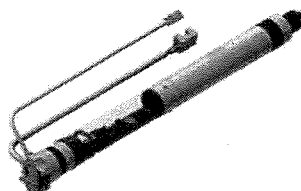
iQ3-DC Features

- Auto return to automation.
- Pocket heat gain sensing.
- Quiet operation (<40dBA)
- Variable speed control between 10-28rpm.
- Best-in-class 4Nm power. Can be extended to 18 Nm via the use of LAMs.
- Integrates with SolarTrac shade automation as well as third party controls. Also can integrate via wireless (EnOcean).

iQ2 DC

Internal Shade System Diagnostics

The iQ2-DC motor alerts building managers to potential maintenance issues before it creates an interruption in shade functionality, preventing shade damage, and reducing repair costs.



Enhanced Performance

With the low-voltage (24VDC) motor, the iQ2-DC can raise bigger single or coupled shades as large as 600 sq. ft.

Strong & Silent

Ideal for libraries, education, and healthcare facilities offering the industry's best power to sound level performance.

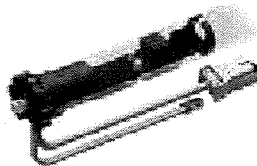
iQ2-DC Features

- Integrates with Mecho's automation systems and EnOcean wireless controllers using MechoNet.
- ETL Listed to UL325.
- Shade adjustments accurate to +/- 1/16th of an inch.
- Low-voltage dry contact control and bi-directional serial networking directly within the head of the motor.

iQ2 AC

Quiet, Powerful Performance

iQ2-AC delivers building-wide performance with a quiet and robust motor tucked into the shade tube that delivers high-torque lifting capacity (6 to 200Nm) that can handle a flexible array of shade sizes.



Wiring Made Simple

iQ2-AC features a daisy-chain wiring for both power and networking, eliminating the need for power equipment in an electrical closet or ceiling.

Networking Gone Native

MechoNet provides network control, in addition to dry contact control along with communication to existing building systems.

iQ2-AC Features

- MechoNet two-way communication.
- ETL Listed to UL325.
- Third-party integration.
- AC motor provides DC power to accessories.
- Networked components are configurable for on-or-off-site operation.

LEARN MORE

mechoshade.com/ElectroShade



ElectroShade® with iQ2-DC

Intelligent, quiet, and powerful shade control

Mecho introduces another best-in-class solution with the patented, ElectroShade with iQ2-DC Drive Unit for our motorized shades. Mecho shading systems that incorporate the iQ2-DC are the most powerful and most advanced on the market. The iQ2-DC is ideal where ever heavy lifting power and quiet operations are required including healthcare, hospitality, corporate office, and education applications.

The iQ2-DC makes motorized shade installation easy and does not require expensive electrical components or electrician time while providing unparalleled performance and efficiency.

Just another example why we are the trusted partner for shading performance, and ensure you enjoy the reputation for quality we have earned over the last 50 years in shading.



Advanced-logic control with encoder seamlessly ties into MechoNet™ and other third-party building management systems

Intelligent

The iQ2-DC is so advanced it will even alert you to potential maintenance issues before it creates an interruption in shade functionality. No other shading system on the market can do this.

Quiet

At only 38dBA, the iQ2-DC is quieter than a whisper in a library making this the "go-to" motor where silence is required.

Powerful

Mecho's iQ2-DC has the largest lift capacity in its class, capable of lifting shades up to 600 sq. feet. This means you can lift larger single shades—or more coupled shades—with a low-voltage motor than our competition.

Features

- Low-voltage (24VDC) cabling for simplified, low-cost wiring and easy installation
- Only UL listed DC motor solution on the market
- Shade adjustments accurate to 1/16th of an inch
- Can be used as a standalone motor or with Mecho's SolarTrac®, SunDialer® automation systems and EnOcean wireless controllers
- Integrates with building lighting, A/V and HVAC management systems
- Easily expandable with room, floor or building level automation with built-in MechoNet™ network utilizing dry-contact and addressable RS485 control
- For multi-banded applications, Mecho's adjustable shade coupler is included to speed the installation process and ensure precise, even and consistent shade heights and eliminate hembar misalignment



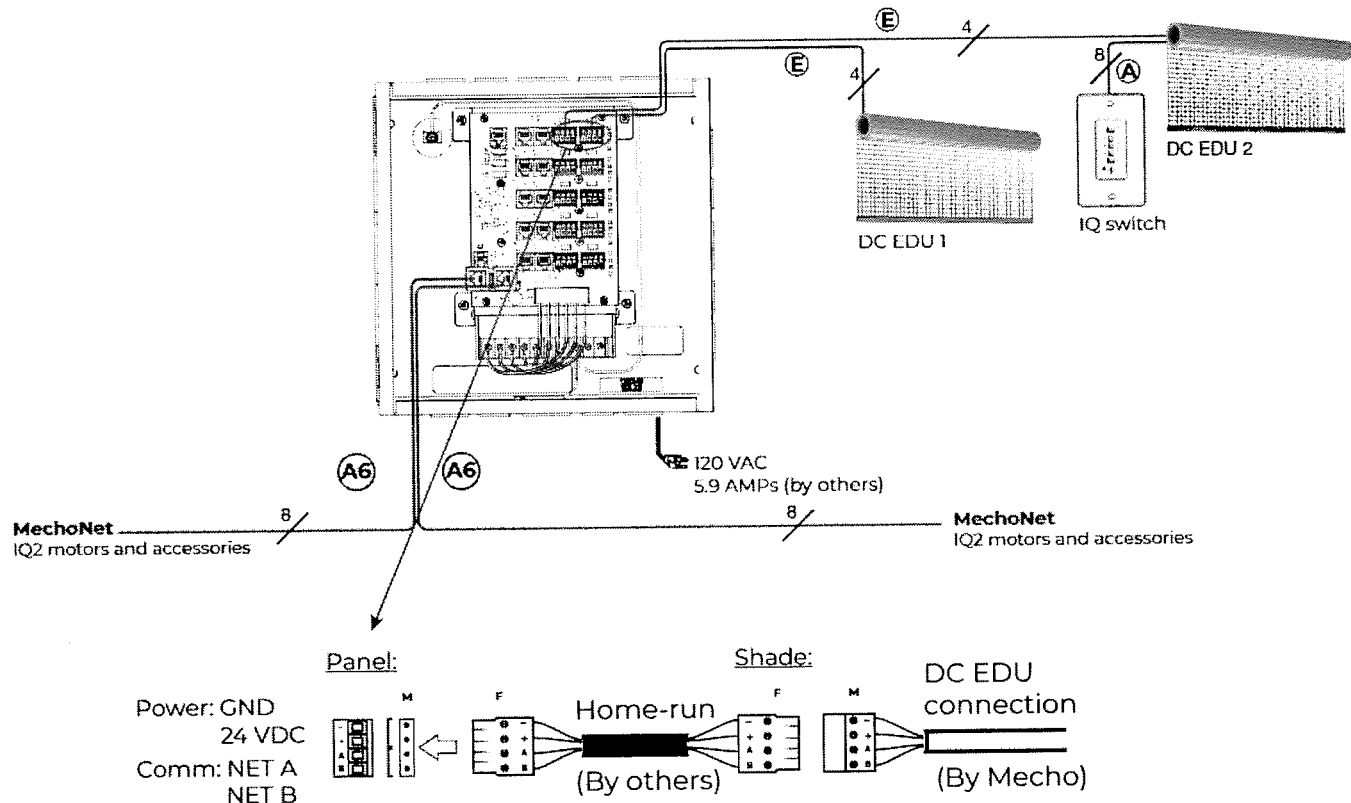
(718) 729-2020
mechoshade.com

ElectroShade® with iQ2-DC

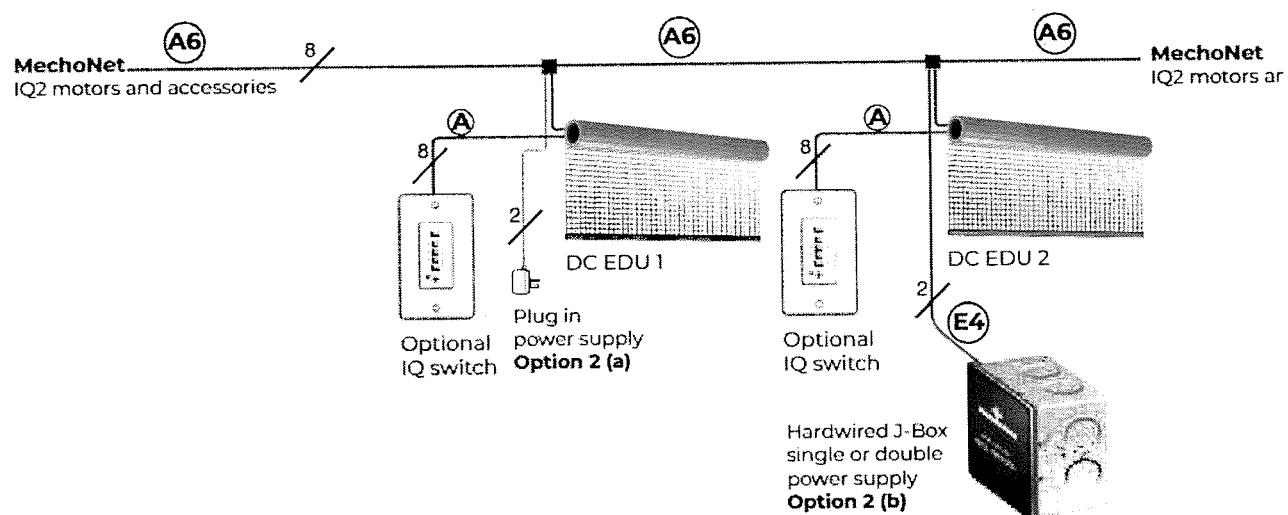
Intelligent, quiet, and powerful shade control

Wiring Diagrams

Option 1: Centralized power supply, home-run wiring



Option 2: Local power, daisy-chain wiring



Mecho
INNOVATIVE DESIGN.
TRUSTED PERFORMANCE.

(718) 729-2020
mechoshade.com

EcoVeil™ Sheer

6850 Series (1% open), 6750 Series (3% open)

This reversible solar fabric features a broken twill weave pattern woven from pigmented yarns. This fabric is made of flame-retardant polyester, is recyclable, PVC-free, and has a soft hand. Visit mechoshade.com to request samples.

Fire Classification | NFPA 701

Shade Cloth Properties | other side

Railroading Available | No



Declare.

Healthier Hospitals



NFPA 701



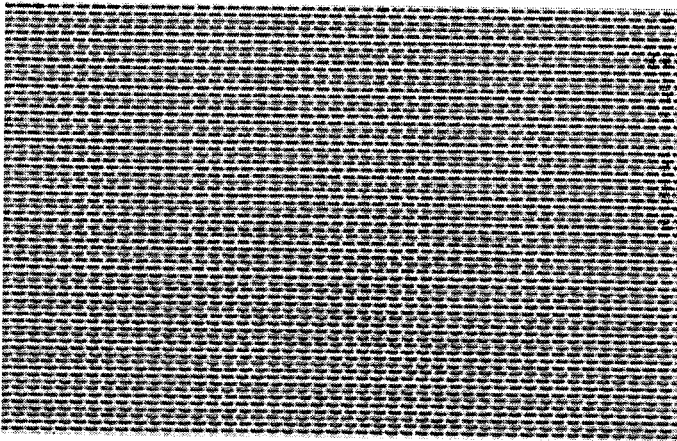
PVC-FREE



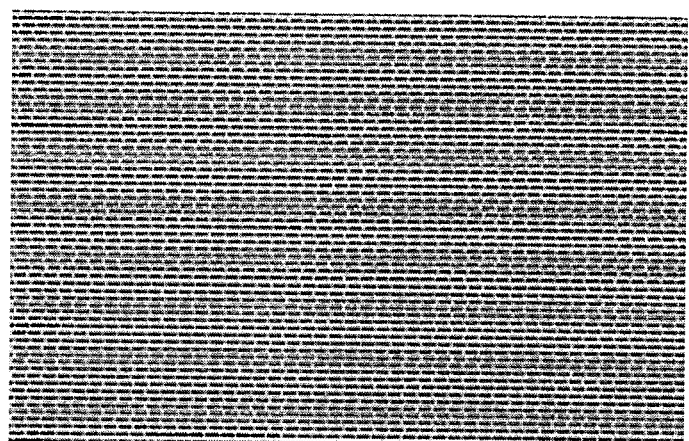
RECYCLABLE



CFR



6855 Clay | 1% open



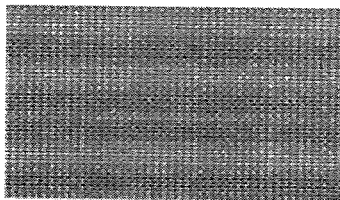
6755 Clay | 3% open

Porcelain
6851 | 6751

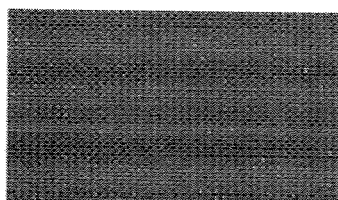
Quartz
6852 | 6752

Glass
6853 | 6753

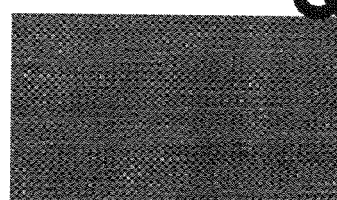
Stone
6854 | 6754



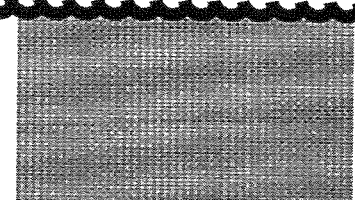
Clay
6855 | 6755



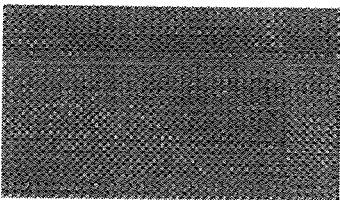
Adobe
6856 | 6756



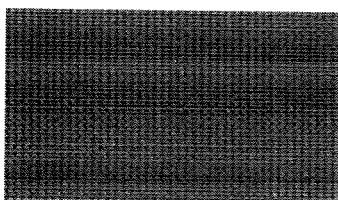
Timber
6857 | 6757



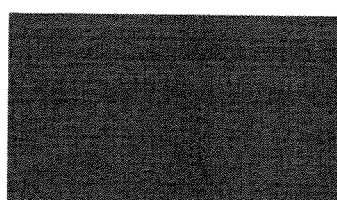
Titanium
6858 | 6758



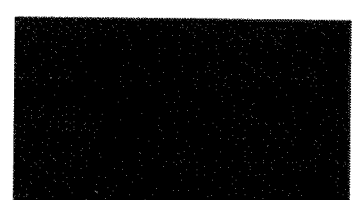
Slate
6859 | 6759



Steel
6860 | 6760



Metal
6861 | 6761



Graphite
6862 | 6762



(718) 729-2020
mechoshade.com

EcoVeil™ Sheer Shade Cloth Properties

6850 Series (1% open)

Acoustic Performance | 0.50 NRC
0.53 SAA

Mesh Weight | 8.88 oz/yd²

Fabric Thickness | 0.0200 in

#	Name	Fabric Content	Solar Optical Properties				Single Shading Coefficient			Insulating Shading Coefficient		
			Ts	Rs	As	Tv	1/8CL	1/4CL	1/4HA	1/2CL	1CL	1HA
6851	Porcelain	100% Polyester	33	60	7	33	0.42	0.41	0.36	0.38	0.37	0.29
6852	Quartz	100% Polyester	33	60	7	34	0.42	0.41	0.36	0.39	0.38	0.29
6853	Glass	100% Polyester	29	56	15	28	0.44	0.43	0.37	0.41	0.39	0.30
6854	Stone	100% Polyester	24	47	29	21	0.49	0.48	0.39	0.46	0.43	0.32
6855	Clay	100% Polyester	12	34	55	11	0.55	0.53	0.42	0.52	0.48	0.35
6856	Adobe	100% Polyester	11	32	56	10	0.56	0.54	0.43	0.53	0.49	0.35
6857	Timber	100% Polyester	5	10	85	4	0.70	0.66	0.49	0.66	0.60	0.41
6858	Titanium	100% Polyester	14	41	45	14	0.51	0.49	0.40	0.48	0.45	0.33
6859	Slate	100% Polyester	5	11	84	5	0.69	0.65	0.49	0.65	0.59	0.41
6860	Steel	100% Polyester	6	18	76	4	0.65	0.61	0.46	0.61	0.56	0.39
6861	Metal	100% Polyester	5	17	77	3	0.65	0.62	0.47	0.61	0.56	0.39
6862	Graphite	100% Polyester	2	7	91	1	0.72	0.67	0.50	0.67	0.61	0.42

6750 Series (3% open)

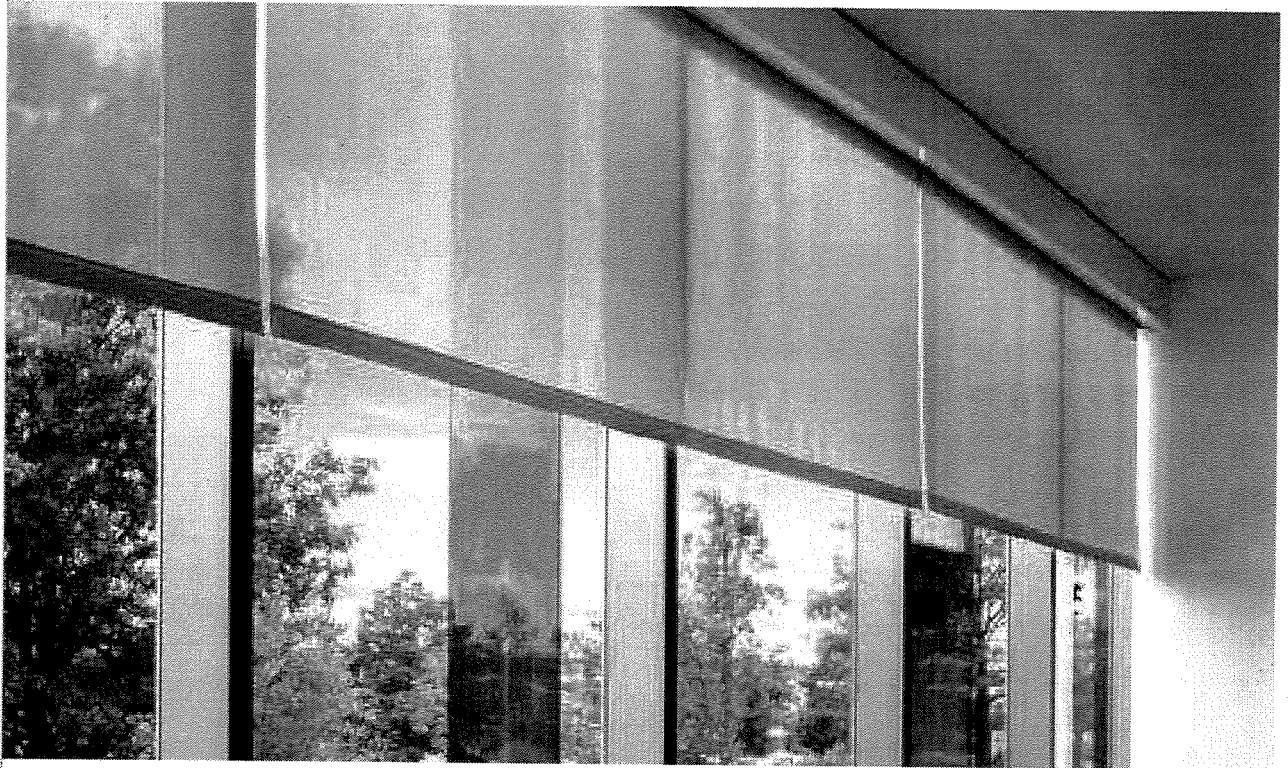
Acoustic Performance | 0.15 NRC
0.19 SAA

Mesh Weight | 7.82 oz/yd²

Fabric Thickness | 0.0190 in

#	Name	Fabric Content	Solar Optical Properties				Single Shading Coefficient			Insulating Shading Coefficient		
			Ts	Rs	As	Tv	1/8CL	1/4CL	1/4HA	1/2CL	1CL	1HA
6751	Porcelain	100% Polyester	38	55	7	38	0.47	0.46	0.39	0.43	0.41	0.31
6752	Quartz	100% Polyester	37	56	7	37	0.46	0.45	0.38	0.42	0.40	0.30
6753	Glass	100% Polyester	36	52	12	34	0.48	0.47	0.39	0.44	0.42	0.31
6754	Stone	100% Polyester	30	45	25	27	0.52	0.50	0.41	0.48	0.45	0.33
6755	Clay	100% Polyester	17	31	52	15	0.59	0.56	0.44	0.55	0.51	0.36
6756	Adobe	100% Polyester	16	28	56	13	0.60	0.57	0.44	0.56	0.52	0.37
6757	Timber	100% Polyester	7	9	84	6	0.71	0.67	0.49	0.67	0.60	0.41
6758	Titanium	100% Polyester	21	38	42	20	0.55	0.53	0.42	0.51	0.48	0.34
6759	Slate	100% Polyester	9	10	81	9	0.71	0.67	0.49	0.66	0.60	0.41
6760	Steel	100% Polyester	11	16	72	9	0.67	0.64	0.48	0.63	0.57	0.40
6761	Metal	100% Polyester	9	15	76	6	0.67	0.64	0.48	0.63	0.58	0.40
6762	Graphite	100% Polyester	6	7	88	5	0.73	0.68	0.50	0.68	0.62	0.42

ARCHITECTURAL ACCESSORIES



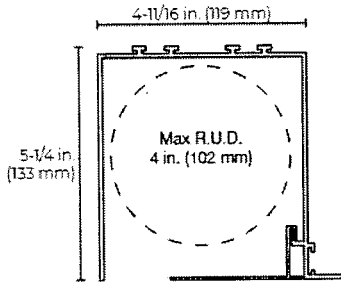
Mecho has the accessories you need to complete your job with ease and a professional appearance. Offering a complete line of color-coordinated aluminum accessories including pockets, side and sill channels, and fascia.



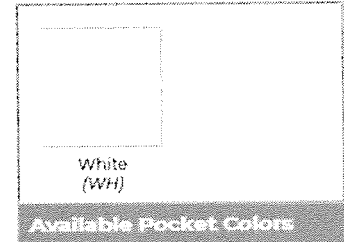
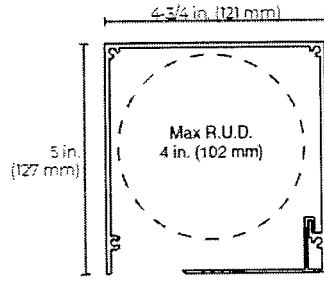
Pockets

Our newest innovation is the revolutionary ElectroPocket™. UL certified to have below the ceiling wiring. ElectroPocket's design eliminates the need for extensive on the job wiring and features a modular design that clips together at the jobsite for ease of installation and transport.

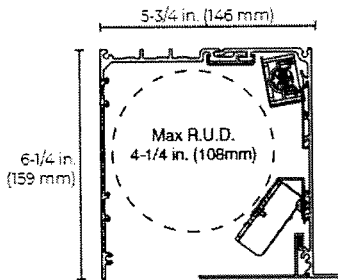
4124 Pocket



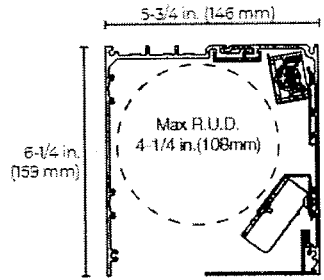
4133 Pocket



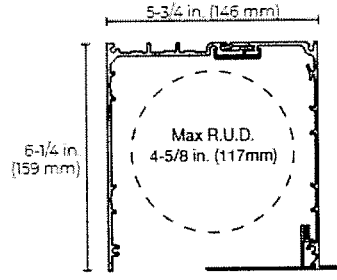
4155 ElectroPocket®



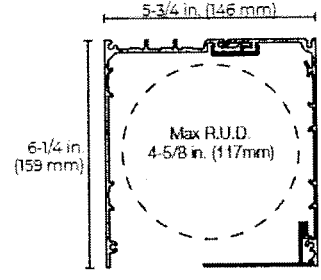
4156 ElectroPocket



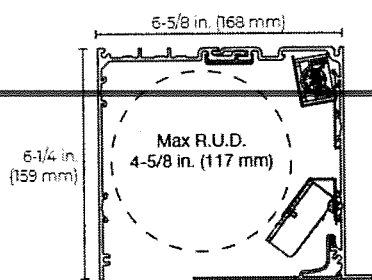
4157 Standard Pocket



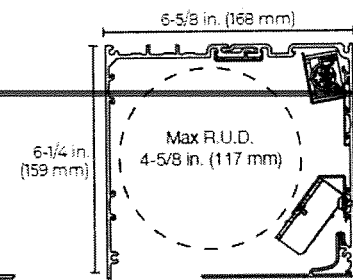
4158 Standard Pocket



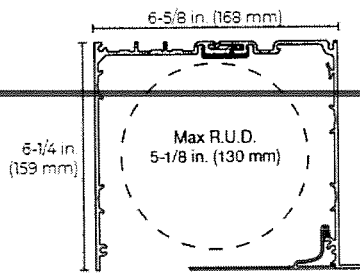
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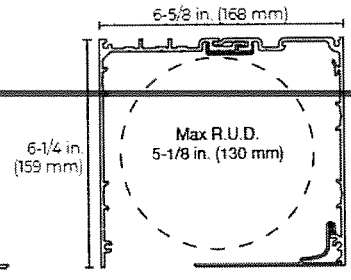
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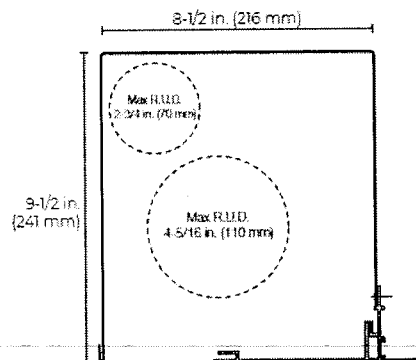
4167 Standard Pocket



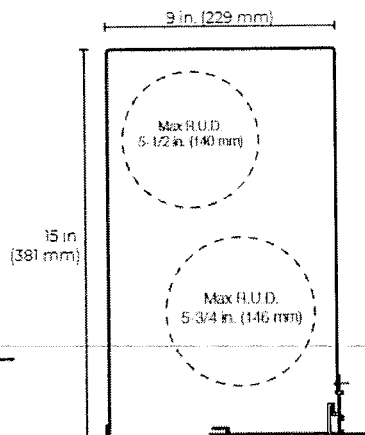
4168 Standard Pocket



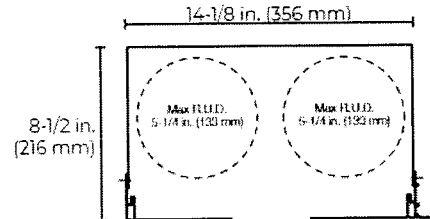
5113 Pocket



6113 DoubleShade Pocket



7113 DoubleShade® Pocket

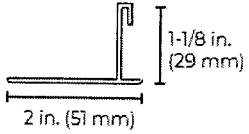


Custom-sized pockets also available.
estimating@mechoshade.com

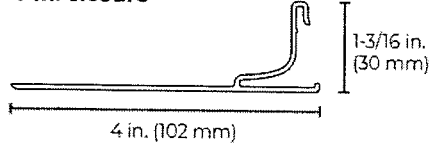
All pockets shown are available with or without tile support.

Closures and Closure Mounts

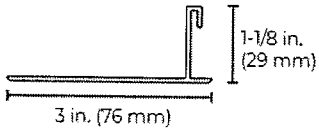
2-in. closure



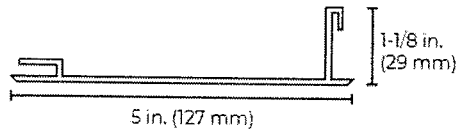
4-in. closure



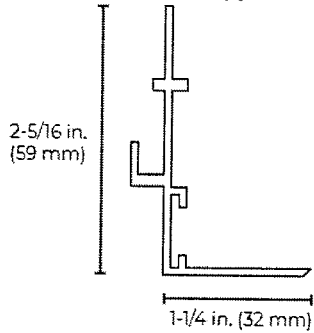
3-in. closure



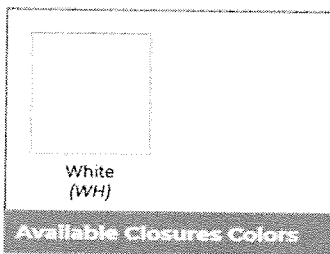
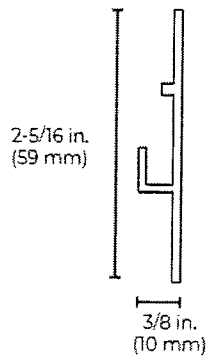
5-in. closure



Closure mount
with tile support

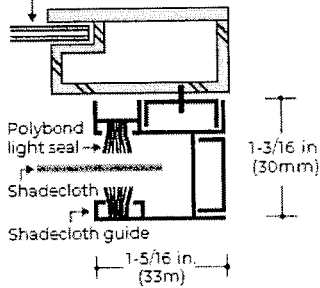


Closure mount

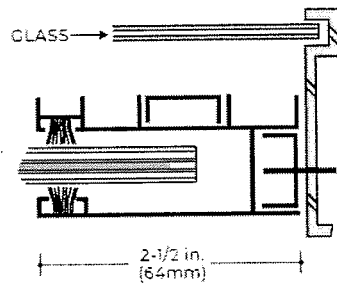


Side Channels

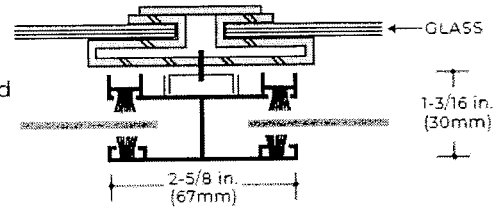
1-5/16 in. (33 mm)
side channel.
GLASS



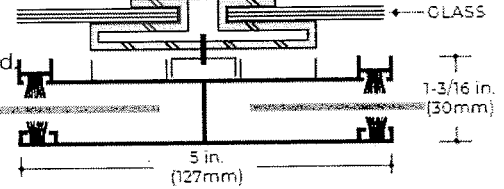
2-1/2 in. (64 mm) side channel with
exposed hemtube and light seal
for shades over 8 ft. 0 in. (2.4 m).



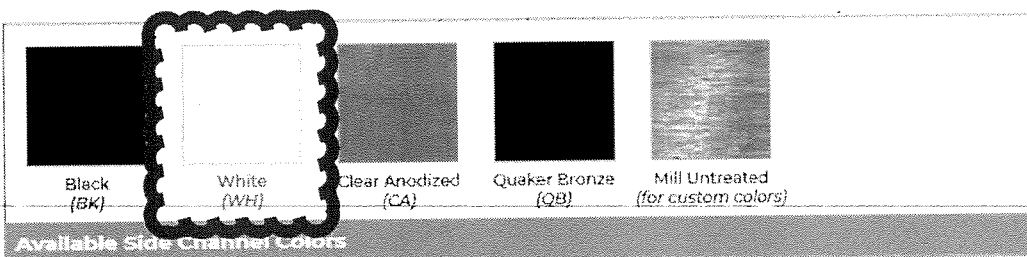
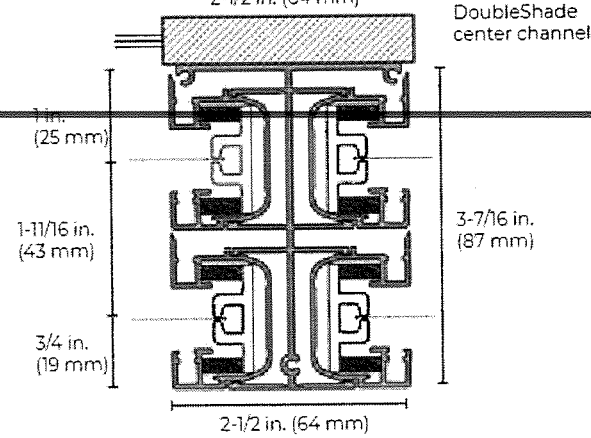
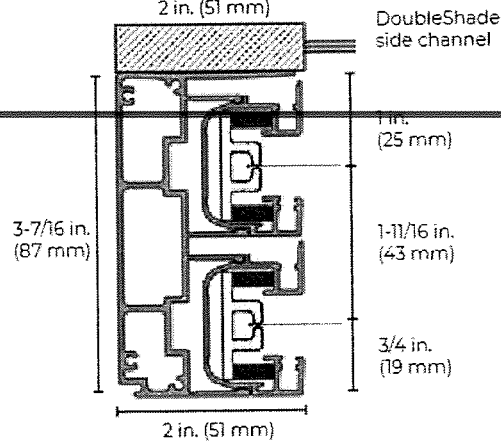
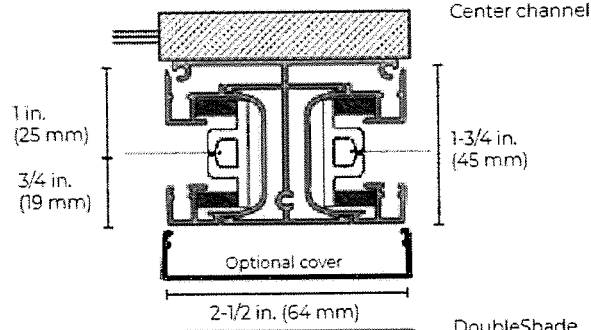
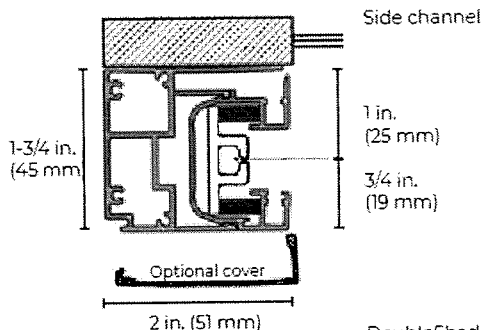
2-5/8 in. (67 mm)
or 5 in. (127 mm)
center channel,
surface mounted



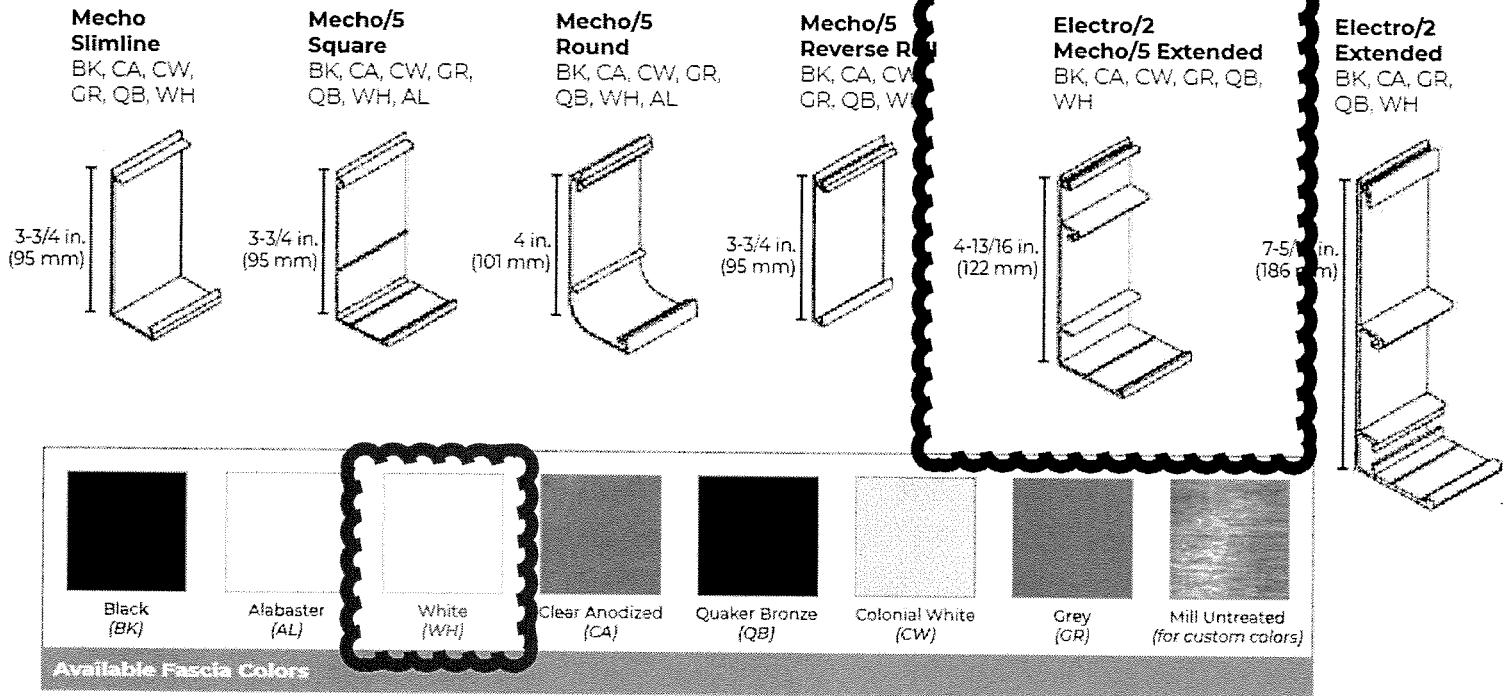
5 in. (127 mm)
center channel,
surface mounted



ShadeLoc Side Channels



Fascia



UrbanShade Fascia

