

PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes:
 - 1. Electronic drive drapery track systems.
 - 2. Drapery control system.
 - 3. Drapery Fabric

1.2 REFERENCES

- A. Association of Electrical and Medical Imaging Equipment Manufacturers (NEMA) WD1-1999 (R2005) - General Color requirements for Wiring Devices.
- B. ASTM International (ASTM) - D4674-89 - Standard Test Method for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Fluorescent Lighting and Window-Filtered Daylight.
- C. National Fire Protection Association (NFPA) 70 (2008) - National Electrical Code.

1.3 SYSTEM DESCRIPTION

- A. Drapery System: Ultra-quiet, precision-controlled electronic drive unit hidden behind draperies, controlling drapery movement.

1.4 SUBMITTALS

- A. Submittals for Review:
 - 1. Shop Drawings: Include following for each drapery track required:
 - a. Drapery locations by room name and number using Architect's plan numbers.
 - b. Description of track system, direction of draw, and track operation.
 - c. Attachments and accessories.
 - d. Electronic drive unit and control locations.
 - e. Low voltage wiring diagrams with system components.
 - f. Power supply locations.
 - 2. Product Data: Include product descriptions, electronic drive unit attributes, control station descriptions, and operational characteristics.
 - 3. Samples: 6 inch long drapery track samples showing profile and finish.
- B. Closeout Submittals:
 - 1. Operation and Maintenance Data.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Minimum 5 years experience in manufacture of low-voltage motorized shading systems.

2. Provide single source for shading system and control systems.
- B. Installer Qualifications: Qualified by factory training and previous experience to install and commission specified products.
- C. Perform work in accordance with NFPA 70.
- D. Pre-Installation Conference:
 1. Convene at site [2] weeks prior to beginning work of this Section.
 2. Attendance: Architect, Construction Manager and drapery track system installer.
 3. Review and discuss:
 - a. Product delivery and storage.
 - b. Staging and sequencing.
 - c. Interface with adjacent work.
 - d. Protection of completed work.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Include installation, programming, and maintenance instructions in product packaging.

1.7 PROJECT CONDITIONS

- A. Do not install drapery track systems until overhead and adjacent work is completed.

1.8 WARRANTIES

- A. Provide manufacturer's 2 year warranty covering parts and labor and 8 year limited parts warranty covering repair or replacement of defective equipment.
- B. Provide manufacturer's 10 year warranty covering repair or replacement of defective equipment.

1.9 MAINTENANCE

- A. Manufacturer:
 1. Provide 24-hour, 7-day technical support for troubleshooting and programming.
 2. Make replacement parts available for minimum of 10 years after date of manufacture.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Contract Documents are based on Sivoia QS Drapery Systems by Lutron Electronics Co., Inc.

2.2 COMPONENTS

- A. Drapery Track System Components:
 1. Tracks:
 - a. Extruded aluminum with drive belts, idler gear housings, master carriers,

- auxiliary carriers, covers, and mounting brackets to suit system layout.
 - b. Color-matched end caps.
 - c. Concealed splicing bars.
 - d. Optional manual-open master carrier with field-adjustable spring release.
 - 2. Electronic drive units:
 - a. Operate independently, without use of external group controllers.
 - b. Audible noise: Maximum 44 dBA measured 3 feet from operator drive unit.
 - c. Power: 24 VDC, approved power supply via NEC Class 2 power source.
 - 3. Controls: Low voltage keypad
- B. System Performance:
- 1. One-touch control of draperies by means of keypad or infrared remote.
 - 2. Store up to 250 programmable stop points including open, close, and any other position.
 - 3. Presets set by 5-second button push and hold from keypad, contact closure input, or handheld remote control.
 - 4. Presets recalled by keypad, contact closure input, infrared receiver, or other lighting control system interface.
 - 5. Keypad adjustment of presets disabled using lockout feature on keypad.
 - 6. Open and close limits programmable from electronic drive unit, wall-mounted keypad, or handheld remote control.
 - 7. 10 year power failure memory.
 - 8. System components electro static discharge protected.
- C. Grouping:
- 1. Keypads and contact closure inputs can control any electronic drive unit without separate group controller.
 - 2. System groups and subgroups configured at point of control without rewiring and without access to electronic drive unit.
 - 3. System may contain multiple electronic drive units.
 - 4. Keypads and interfaces able to operate any group or subgroup of electronic drive units.
 - 5. Controls able to operate any group or subgroup of electronic drive units regardless of window or drapery treatment type.
- D. Integration:
- 1. Electronic drive units integrate with lighting controls without separate interface.
 - 2. Contact closure, RS232, and Ethernet interfaces available to interface with audio/visual equipment and security systems.
- E. System Controls:
- 1. Drapes controlled by built-in shading columns on lighting control or by keypad.
 - 2. Electronic drive units, keypads, and lighting controls contain microprocessors, allowing high level programming from any source.
 - 3. Drapery tracks, skylight shades, window shades, lighting controls, and keypads wired together on same communications link.

- F. Wall Mounted Controls:
 - 1. Low voltage keypads:
 - a. Electronically set and reconfigure drapery track open and close limits, drapery preset positions, system groups, and system subgroups without rewiring or access to electronic drive unit.
 - b. Fit into standard electrical box.
 - 2. Face plates:
 - a. Attach without visible means of attachment.
 - b. Engraved artwork.
 - 3. Product color: Match NEMA WD1.
 - 4. Provide immediate local LED response upon button activation.
 - 5. Backlit buttons.
 - 6. Removable button assemblies allowing field changes.
 - 7. Capable of simultaneously controlling one or more draperies or shades.
 - 8. Type: Two button with raise/lower
- G. Infrared Receivers:
 - 1. Available on system keypads, or as attachment to electronic drive unit.
 - 2. Electronically set and reconfigure drapery open and close limits, drapery preset points, system groups, and system subgroups without rewiring and without access to electronic drive unit.
 - 3. Include circuitry to reduce degraded performance.
- H. Remote Controls:
 - 1. Infrared handheld type.
 - 2. Type: Single drapery group with open/close and favorite preset. Two drapery groups open/close and favorite preset for each group. Lighting and drapery control on/off and favorite preset for lights and open/close and favorite preset for draperies.
- I. Infrared Interfaces:
 - 1. Interface to other control system via dry contact closure input device.
- J. Power Supplies:
 - 1. Electronic drive units powered with 24 VDC from approved power supply; power supply via NEC Class 2 power source.
 - 2. Provide [individual transformer for each electronic drive unit.] [power panel including 10 outputs.]

2.3 FINISHES

- A. Track and Accessories: White baked enamel.
- B. Keypads: Architectural Matte, White color.

2.4 DRAPERY FABRIC

- A. DRAPERY FABRIC: VESCOM/TINOS ACOUSTIC DRAPERY/8078.05/61"W

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved Shop Drawings.
- B. Install drapery systems to provide smooth operation.
- C. Locate controls where directed.
- D. Connect to power supply and control wiring.
- E. Connect to lighting control, audio/visual system.

3.2 ADJUSTING

- A. Adjust for smooth, quiet operation.

3.3 DEMONSTRATION

- A. Demonstrate proper operation and maintenance of drapery systems to Owner.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide window shades and accessories.

1.02 RELATED DOCUMENTS

- A. Applicable portions of the Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to the execution of the Contract, other documents listed in the Agreement and Modifications issued after the execution of the Contract shall apply to this Section. The general requirements for this work are located in Division 1 of the Specifications.

1.03 SUBMITTALS AND SUBSTITUTIONS

- A. In accordance with Section 01 3000.
- B. Substitutions will not be considered prior to the award of the General Contract.

1.04 QUALITY ASSURANCE

- A. Comply with governing codes/regulations. Provide products of acceptable manufacturers with satisfactory use in similar service for three years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

1.05 WARRANTY

- A. Ten-year warranty on manually operated components, except bead chain which is a maintenance / service item.
- B. Ten-year warranty on shade cloth with provision that it will not deteriorate, sag or warp and will remain fit for use for the full warranty period when used as an interior rollershade.
- C. Manufacturer to warrant its hardware components to be free from defects in material and workmanship under the normal and proper use for a period of ten (10) years from date of invoice.
 - 1. Motors and electrical accessories are warranted for five (5) years from date of invoice.

PART 2 - PRODUCTS

2.01 MATERIALS AND FABRICATION

- A. Manufacturer: MechoShade Systems, Inc., Long Island City, New York 11101, USA.
 - 1. ElectroShade electrically operated units.

- B. RS-D: Dual Motorized Roller Shade with Fascia Pocket
Manufacturer: Lutron
Type: Contract Roller Shade, dual fascia with back cover & endcaps
Shadecloth: Basketweave 90/Charcoal #SV21-90-1, 1%
Blackout Shadecloth: Avila Solid/Black
Fascia Finish: Black
- C. RS-S: Single Motorized Roller Shade with Fascia Pocket
Manufacturer: Lutron
Type: Contract Roller Shade, single fascia with back cover & endcaps
Shadecloth: Basketweave 90/Charcoal #SV21-90-1, 1%
Fascia Finish: Black
- D. RS-DV: Dual Motorized Roller Shade with Fascia Pocket and vertical operation
Manufacturer: Lutron
Type: Contract Roller Shade, dual fascia with back cover & endcaps, vertical channel
Shadecloth: Basketweave 90/Charcoal #SV21-90-1, 1%
Blackout Shadecloth: Avila Solid/Black
Fascia Finish: Black
- E. RS-SV: Single Motorized Roller Shade with Fascia Pocket and vertical operation
Manufacturer: Lutron
Type: Contract Roller Shade, single fascia with back cover & endcaps, vertical channel
Shadecloth: Basketweave 90/Charcoal #SV21-90-1, 1%
Fascia Finish: Black
- F. ElectroShade Motorized System: The motor shall be tubular asynchronous and concealed inside an extruded aluminum tube with asymmetrical channels to which the shade and the mounting spline are affixed. Internal limit switches shall be readily removable without having to remove the motor or the shade-tube assembly.
- G. Control System: Manufacturer's standard system customized to project requirements. Multi-zone shade controls and operations as specified.
- H. SnapLoc Fascia
 - 1. Extruded aluminum SnapLoc fascia which continuously fits on the end and center brackets as a one-piece section over two or more shade bands.

PART 3- EXECUTION

3.01 INSTALLATION

- A. Take field measurements prior to the fabrication to ensure fit.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide window shades and accessories.

1.02 RELATED DOCUMENTS

- A. Applicable portions of the Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to the execution of the Contract, other documents listed in the Agreement and Modifications issued after the execution of the Contract shall apply to this Section. The general requirements for this work are located in Division 1 of the Specifications.

1.03 SUBMITTALS AND SUBSTITUTIONS

- A. In accordance with Section 01 3000.
- B. Substitutions will not be considered prior to the award of the General Contract.

1.04 QUALITY ASSURANCE

- A. Comply with governing codes/regulations. Provide products of acceptable manufacturers with satisfactory use in similar service for three years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

1.05 WARRANTY

- A. Ten-year warranty on manually operated components, except bead chain which is a maintenance / service item.
- B. Ten-year warranty on shade cloth with provision that it will not deteriorate, sag or warp and will remain fit for use for the full warranty period when used as an interior rollershade.
- C. Manufacturer to warrant its hardware components to be free from defects in material and workmanship under the normal and proper use for a period of ten (10) years from date of invoice.
 - 1. Motors and electrical accessories are warranted for five (5) years from date of invoice.

PART 2 - PRODUCTS

2.01 MATERIALS AND FABRICATION

- A. Basis of Design Manufacturer: Lutron Electronics Company, Inc; www.lutron.com.

B. Roller Shade Schedule:

RS-A1: Single Motorized Roller Shade

Manufacturer: Lutron

Type: Contract Roller Shade

Shadecloth: Basketweave 90/Charcoal #SV21-90-1, 1%

Notes: Surface-mounted to exposed structure

RS-A1P: Single Motorized Roller Shade with Pocket

Manufacturer: Lutron

Type: Contract Roller Shade

Shadecloth: Basketweave 90/Charcoal #SV21-90-1, 1%

Notes: Recessed in Lutron pocket

RS-A3: Single Motorized Roller Shade

Manufacturer: Lutron

Type: Contract Roller Shade

Shadecloth: Basketweave 90/Charcoal #SV21-90-3, 3%

Notes: Surface-mounted to exposed structure

RS-A3P: Single Motorized Roller Shade in Lutron pocket

Manufacturer: Lutron

Type: Contract Roller Shade

Shadecloth: Basketweave 90/Charcoal #SV21-90-3, 3%

Notes: Recessed in Lutron pocket

RS-B: Single Manual Roller Shade

Manufacturer: Lutron

Type: Contract Roller Shade

Shadecloth: Basketweave 90/Charcoal #SV21-90-1, 1%

Notes: Surface-mounted to exposed structure

RS-BP: Single Manual Roller Shade in Lutron Pocket

Manufacturer: Lutron

Type: Contract Roller Shade

Shadecloth: Basketweave 90/Charcoal #SV21-90-1, 1%

Notes: Recessed in Lutron pocket

C. Manual Shades:

1. Product: Lutron Contract Roller Manual Shades.
2. Operating Mechanism: Clutch operated continuous loop with beaded ball pull chain.
3. Clutch Construction:
 - a. Consists of three brake springs on a cylindrical metallic mandrel lubricated with silicone-based lubricant to ensure smooth and reliable operation.
 - b. Includes field-configurable chain routing clip designed to ensure chain is in constant contact with clip for smooth and quiet operation when raising shades.
4. Provide pull chain tensioning device complying with WCMA A100.1.

5. Clutch/Pull Chain Configuration: Right- or left-mounted as indicated on drawings
 - a. Dual Shades with Side Channels: Utilize one left-mounted and one right-mounted clutch/pull chain as recommended by manufacturer.
 - b. Dual Shades for Curtain Wall Applications: Utilize all left-mounted or all right-mounted clutches/pull chains in order to avoid four pull chains at the same location.
- D. Motorized Shades:
1. Product(s):
 - a. Low-voltage wired shades with wired (low voltage) communications; Lutron Contract Roller: QS Motorized Shades.
 - b. Low-voltage wired shades with integrated wireless (RF) communications; Lutron Contract Roller: QS Wireless Motorized Shades.
 2. Listed as complying with UL 325.
 3. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of 47 CFR 15, for Class B application and with ICES-003, Class B.
 4. Audible Noise: Capable of operating at or below 44 dBA measured 3 feet (1 m) from center of the shade depending on the electronic drive unit selected; no audible clicks when motor starts and stops.
 5. Electronic Drive Units:
 - a. Low-voltage, for connection to NFPA 70, Class 2 power source.
 - b. Size and configuration as recommended by manufacturer for the type, size, and arrangement of shades to be operated.
 - c. Concealed from interior view.
 6. Integrated Wireless Communications: Communicates directly to compatible RF receiving devices through use of a radio frequency communications link; does not require communication wiring; RF range of 30 feet (9 m).
 7. Coupling of Multiple Shades:
 - a. Where possible, minimize number of electronic drive units by coupling adjacent shades.
 - b. Utilize adjustable coupler that allows for precision adjustment of hembar levels without removing the installed roller or removing the fabric from the roller tube.
 8. Adjustment Provisions:
 - a. Sub-brackets support shade during installation and allow for lateral position adjustment for consistent light gaps.
 - b. Level adjustment screws at each idler position allow for level adjustment without requiring shimming of shade brackets.

2.04 SHADE ACCESSORIES

- A. Brackets and Mounting Hardware: Size as recommended by manufacturer for mounting configuration and span indicated.
1. Universal wall/ceiling/pocket mounting brackets.
 2. Brackets for mounting a shade and optional fascia.
 3. Dual wall/ceiling mounting brackets for mounting two shades in the same opening.
 4. Bracket with wire management for compatible Armstrong AXIOM Building Perimeter System

- B. Fasteners: Non-corrosive, and as recommended by shade manufacturer.
- C. Top Treatments:
 - 1. Provide top treatments consistent across manual and motorized shade products.
 - 2. Fascia: Size as required to conceal shade mounting; provide matching endcaps.
 - a. Color/Finish: As selected from manufacturer's standard colors.
 - 3. Pocket: Manufacturer's standard single (5 inch by 5.125 inch); standard dual (7 inch by 11 inch aluminum pocket for recessed mounting).
 - a. Provide cover flap; ceiling tile support as required.
- D. Light-Sealing Accessories for Blackout Shades: Provide sill angles; side channels; and to complete light seal.
 - 1. Color/Finish: As selected from manufacturer's standard colors.

2.05 MOTORIZED SHADE CONTROLS

- A. Motorized shades to be controlled by automated solar adaptive window shade control system and associated control devices.
 - 1. System to be programmable with override for individual customization.
- B. General Requirements:
 - 1. Provide products listed, classified, and labeled by Underwriter's Laboratories Inc. (UL) as suitable for the purpose indicated.
 - 2. Unless specifically indicated to be excluded, provide all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the control intent indicated.
 - 3. System Capacity:
 - a. Supports up to 100 wired devices including shades, control stations, and power supplies.
 - b. Supports wireless devices within range of the wireless control.
 - c. Supports up to 100 wired zones.
 - 4. Shade Control Requirements:
 - a. Capable of operating shades and recalling shade presets via keypad, contact closure input, infrared receiver, lighting management system software, or other lighting control system interface.
 - b. Capable of operating any individual, group, or subgroup of shade electronic drive units within system without requiring separate group controllers.
 - c. Capable of assigning and reassigning individual, groups, and subgroups of shades to any control within system without requiring additional wiring or hardware changes.
 - d. Capable of controlling shade speed for tracking within plus or minus 0.125 inch (3.17 mm) throughout entire travel.
 - e. Provide 10 year power failure memory for preset stops, open and close limits, shade grouping and subgrouping and system configuration.
 - f. Capable of synchronizing multiple shade electronic drive units regardless of drive or tube size to start, stop and move in unison.
 - g. Capable of stopping shades within accuracy of 0.125 inch (3.17 mm) at any point between open and close limits.

- h. Capable of storing up to 250 programmable stop points, including open, close, and any other position.
 - 5. Design shade control equipment for 10 year operational life while operating continually at any temperature in an ambient temperature range of 32 degrees F (0 degrees C) to 104 degrees F (40 degrees C) and 90 percent non-condensing relative humidity.
 - 6. Electrostatic Discharge Tolerance: Design and test equipment to withstand electrostatic discharges without impairment when tested according to IEC 61000-4-2.
 - 7. Device Finishes:
 - a. Wall Controls: To be selected by Architect.
 - b. Standard Colors: Comply with NEMA WD1 where applicable.
 - c. Color Variation in Same Product Family: Maximum delta E of 1, CIE L*a*b color units per ASTM E308.
 - d. Visible Parts: Exhibit ultraviolet color stability when tested with multiple actinic light sources as defined in ASTM D4674. Provide proof of testing upon request.
 - 8. Provide all components and connections necessary to interface with other systems as indicated.
- C. Keypads:
- 1. General Requirements:
 - a. Allows control of any devices part of the shade control system.
 - b. Allows for easy reprogramming without replacing unit.
 - c. Buttons/Engraving:
 - 1) Engrave keypads with button, zone, and scene descriptions to be selected by Architect
 - 2) Borders, logos, and graduations to use laser engraving or silk-screened graphic process that chemically bonds graphics to faceplate, resistant to removal by scratching and cleaning.
 - d. Software Configuration:
 - 1) Customizable control station device button functionality:
 - (a) Buttons can be programmed to perform single defined action.
 - (b) Buttons can be programmed to perform defined action on press and defined action on release.
 - e. Status LEDs:
 - 1) Upon button press, LEDs to immediately illuminate.
 - 2) LEDs to reflect the true system status. LEDs to remain illuminated if the button press was properly processed or LEDs to turn off if the button press was not processed.
 - 3) Support logic that defines when LED is illuminated:
 - (a) Scene logic (logic is true when all zones are at defined levels).
 - (b) Last scene (logic is true when spaces are in defined scenes).
 - 2. Wired Keypads; Lutron seeTouch QS Keypads:
 - a. Style: As selected by Architect.
 - b. Power: Class 2 (low voltage).

- c. Communications: Utilize RS485 wiring for low-voltage communications link.
 - d. Mounting: Wallbox or low-voltage mounting bracket; provide wall plates with concealed mounting hardware.
 - e. Button/Engraving Backlighting:
 - 1) Utilize backlighting for buttons and associated engraving to provide readability under all light conditions.
 - 2) Backlight intensity adjustable via programming software.
 - f. Design keypads to allow field-customization of button color, configuration, and engraving using field-changeable replacement kits.
 - g. Contact Closure Interface: Provide two contact closure inputs on back of unit which provide independent functions from front buttons; accepts both momentary and maintained contact closures.
 - h. Terminal block inputs to be over-voltage and miswire-protected against wire reversals and shorts.
 - i. Provide integral infrared receiver for personal control where indicated.
 - j. Finish: Colors to be selected by Architect
- D. Power Supplies: Provide as indicated or as required to power system devices and accessories.
- 1. Product(s):
 - a. Junction box-mounted power supply for shades, keypads, and accessories, and for providing additional low voltage power to communication link; Lutron Model QSPS-J-1-35V; with miswire and thermal protection.
 - b. Plug-in power supply for shades, keypads, and accessories, and for providing additional low voltage power to communication link; Lutron Model QSPS-P1-1-35V; with miswire protection; powered from standard receptacle using cord 6 feet (1.8 m) in length; complies with DOE Level VI regulation.
 - c. Ten output power supply panel for shades, keypads and accessories, and for providing additional low voltage power to communication link; Lutron Model QSPS-10PNL; no replaceable fuses required for overload/miswire protection; automatically resets after overload trip; contains DOE Level VI Compliant power supplies.
 - d. Ten output power supply panel for wireless shades, keypads and accessories, and for providing additional low voltage power to communication link; Lutron Model QSPSY-10PNL; no replaceable fuses required for overload/miswire protection; automatically resets after overload trip; contains DOE Level VI Compliant power supplies.
 - e. Power supply for keypads and accessories (not for shades/window treatments), and for providing additional low voltage power to communication link; Lutron Model QSPS-DH-1-75.
 - f. Power supply for keypads and accessories (not for shades/window treatments), and for providing additional low voltage power to communication link; Lutron Model WQSPS-DH-1-75; TAA – Trade Agreement Act compliant.

PART 3- EXECUTION

3.01 EXAMINATION

- A. Motorized Shades and Controls: Verify that ratings and configurations of system components are consistent with the indicated requirements.
- B. Examine finished openings for deficiencies that may preclude satisfactory installation.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- D. Start of installation shall be considered acceptance of substrates.

3.02 PREPARATION

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

3.03 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Shade Installation:
 - 1. Install in accordance with approved shop drawings, using mounting devices as indicated.
 - 2. Installation Tolerance: 1/16 inch (1.5 mm); maximum offset from level.
 - 3. Replace shades that exceed specified dimensional tolerances at no extra cost to Owner.
 - 4. Adjust level, projection and shade centering from mounting bracket where applicable.
 - 5. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.
- C. Motorized Shade Control Installation:
 - 1. Perform work in a neat and workmanlike manner in accordance with NECA 1 and, where applicable, NECA 130<<, except for mounting heights specified in those standards;, including mounting heights specified in those standards unless otherwise indicated
 - 2. Adjust open and closed limits set by the manufacturer as required.
 - 3. Assign each shade to a shade group and set control functions.

3.04 FIELD QUALITY CONTROL

- A. Manufacturer's startup services will not be required.
- B. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

3.05 CLEANING

- A. Clean soiled shades and exposed components as recommended by manufacturer.

- B. Replace shades that cannot be cleaned to "like new" condition.

3.06 CLOSEOUT ACTIVITIES

- A. Training: Shade control system installer to perform on-site training of Owner's personnel on operation, adjustment, and maintenance of shade control system.

END OF SECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the work of this Section and are hereby made a part of this Section.
- B. Examine all Drawings and other Sections of the Specifications for requirements therein affecting the work of this trade.

1.2 SCOPE OF WORK

- A. Work of this Section includes all labor, materials, selective fabrication, equipment, and services necessary to supply, deliver to the site and install site furnishing elements as shown on the Contract Drawings and/or specified herein, including, but not limited to, the following:
 - 1. Receptacle Bin
 - 2. Planter on Structure
 - 3. Bike Rack
 - 4. Timber Bench
 - 5. Log Bench
 - 6. Stump Seating – Small Trunk

1.3 RELATED SECTIONS

- A. Carefully examine all of the Contract Documents for requirements that affect the work of this Section. Other specifications sections which directly relate to the work of this Section include, but are not limited to, the following:
 - 1. Section 01 33 00 Submittal Procedures.
 - 2. Section 04 44 10 Landscape Stonework
 - 3. Section 32 13 13.13 Exposed Aggregate Concrete Paving
 - 4. Section 32 14 40 Stone Paving
 - 5. Section 32 16 13.43 Stone Curbs

1.4 SUBMITTALS

- A. Product Data: Provide manufacturer's data showing installation and limitations in use. Include product specifications, construction details, material descriptions, dimensions of individual components and profiles, installation instructions, and finishes. The Landscape Architect reserves the right to adjust the size of the sample material and product as needed to show full condition. Materials and products include but are not limited to:
 - 1. Receptacle Bin

2. Bike Rack
 3. Timber Bench
 4. Log Bench
 5. Stump Seating – Small Trunk
 6. Wood Sealants and Preservatives.
 7. Fasteners, hardware, anchorages, attachments and accessories necessary for installation of site furnishings.
- B. Material Certificates: Provide copies of materials certificates signed by the material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
1. Material certificates for dimensional lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the National Hardwood Lumber Association.
 - (a) A certificate, issued by an accredited laboratory, attesting to minimum design stresses, as obtained from testing of samples taken from the batch to be supplied for this work, shall accompany this statement.
 - (b) Include example of identifying mark that will be exhibited on each timber piece as specified in Part 2 – Products herein.
- C. Certificates of Inspection: Issued by lumber grading agency for timber grade.
- D. Samples for Initial Selection and Verification: Prior to ordering the below listed materials, submit representative samples to Landscape Architect for selection and approval as follows. Do not order materials until Landscape Architect's approval has been obtained. Delivered materials shall closely match the approved samples. For each type of manufactured material and product indicated, the Landscape Architect must approve the visual characteristics, quality of workmanship, and installation methods before final work is started. If the material and product are not approved, the Contractor shall provide additional samples, as required, at no cost to the Owner until an approved material and product are obtained. Submit duplicate samples of each type listed below showing full range of color variation, finish and texture that can be expected in the permanent work:
1. Manufacturer's color charts and/or paint chips showing the full range of colors and textures available for components with factory-applied color finishes.
 2. Submit 12-inch lengths (min) samples of actual units, including selected finish and color(s) as appropriate.
- E. Shop Drawings: Shop Drawings shall show all details including sizes, materials, quantities and manner of assembling and fastening of the various members, properly coordinated with the related work. Shop Drawings shall show true profiles, methods of anchoring hardware, if any, and all other necessary information. Take accurate field measurement before preparation of Shop Drawings and fabrication. Do not delay job progress. Work includes but is not limited to:
1. Timber Bench
 2. Log Bench

3. Stump Seating – Small Trunk

- F. Product Schedule: Submit a furnishings schedule for all site furnishings including, but not limited to, quantities, source/manufacturer, options, colors, accessories, attic stock, etc. Use same designations indicated on the Drawings and/or specified herein.

1.5 QUALITY ASSURANCE

- A. Source: For each type of product required for the work of this Section, provide products of a single manufacturer and source for consistency.
- B. Installer Qualifications: An experienced installer who has specialized in installing work similar in material, design, and extent to that indicated for this Project.
- C. Codes and standards: Perform site improvements work in compliance with applicable requirements of governing authorities having jurisdiction. Workmanship and finish shall be equal to the best practice of modern shops for each item of work.
- D. Layout and Grading: After staking out the work, and before beginning final construction, obtain the Landscape Architect's approval for layout and grades.
1. The Landscape Architect reserves the right to adjust the layout and grade without the Contractor submitting claims for extra compensation.
 2. The Contractor shall not proceed with the work of this Section without obtaining the Landscape Architect's written acceptance of layout and grading.
- E. Also refer to Section 01 40 00 – Quality Requirements.

1.6 REFERENCES

- A. Standards: The following referenced standards and standard specifications, referred to thereafter by designation only, form a part of this Section:
1. ASTM: American Society for Testing and Materials.
 - (a) ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
 - (b) ASTM D 522 – Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
 - (c) ASTM D 523 – Standard Test Method for Specular Gloss.
 - (d) ASTM D 2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
 - (e) ASTM D 3359 – Standard Test Methods for Measuring Adhesion by Tape Test.
 - (f) ASTM D 3363 – Standard Test Method for Film Hardness by Pencil Test.
 - (g) ASTM G 155 – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.
 2. ISO Testing Standards:
 - (a) ISO 1520 – Paints and Varnishes – Cupping Test.
 - (b) ISO 2815 – Paints and Varnishes – Buchholz Indentation Test.
 3. ANSI: American National Standards Institute.

4. AITC: American Institute of Timber Construction.
5. NHLA: National Hardwood Lumber Association.

1.7 COORDINATION

- A. The work under this Section shall be completely coordinated with adjacent work and the work of other Sections. Verify dimensions and work of other trades, which adjoin materials of this Section before installing items specified.

1.8 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original unopened protective packaging
- B. Store products in original packaging, under cover, in a manner preventing physical damage, soiling or wetting.
- C. Protect product finishes against damage and stains during installation.

1.9 WARRANTIES

- A. Provide manufacturer's standard warranty for a minimum of one (1) year from date of Final Acceptance of installation, to repair or replace parts that become defective during warranty period, excluding parts subject to accident, abuse, misuse or neglect.

1.10 EXTRA MATERIALS

- A. Furnish extra materials as Owner's "Attic Stock" described in Article 3.5 that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

PART 2 PRODUCTS

2.1 MATERIALS, GENERAL

- A. Wood: Provide hardwood of species indicated; surfaced smooth on four sides for sawn components and debarked and sanded for log and stump components. Wood shall be kiln dried, free of knots, solid stock of continuous pieces; no joints will be allowed.
 1. Provide timber and hardwood materials which have been selected for their surface flatness, smoothness and freedom from surface blemishes where exposed to view in the finished unit.
 2. All lumber shall be identified by the grade mark of a recognized association or independent inspection agency using the specific grading requirements of an association recognized as covering the species used. The association or independent inspection agency shall be certified by the Board of Review, American Lumber Standards Committee, to grade the species used.
 3. Timbers to be used in construction of all wood items shall be seasoned in order to minimize the amount of checking after installation. Contractor shall guarantee the wood against checking and splits for the duration of work.

- B. Anchors, Fasteners, Fittings, and Hardware: Corrosion-resistant-coated or non-corrodible Type 304 or 316 stainless steel materials; commercial quality; tamperproof, vandal and theft resistant; concealed, and recessed. Provide as required for site and street furnishings' assembly, mounting, and secure attachment. Refer to Contract Drawings for details of anchorage devices.
 - 1. Unless otherwise indicated and/or approved, use drilled-in type anchors to concrete and stone.
- C. Non-Shrink, Non-Metallic Grout: Premixed, factory-packaged, non-staining, non-corrosive, nongaseous grout complying with ASTM C1107. Provide grout, recommended in writing by manufacturer, for exterior applications.
- D. Erosion-Resistant Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by anchoring cement manufacturer for exterior applications.

2.2 RECEPTACLE BIN

- A. Receptacle Bin shall be “Rinowood RW32R” as manufactured by Landmark Golf Course Products, W184S8425 Challenger Drive, Muskego, WI 53150 (Tel: 1-888-337-7677)
 - 1. Materials:
 - (a) Body frame and lid: solid corrosion-resistant aluminum.
 - (b) Container Walls: heavy corrosion-resistant aluminum
 - (c) Wood Slats: FSC Certified Ipe, 3-1/2” x 3/4”
 - (d) Liner: 32 gallon rigid, BPA free plastic liner
 - (e) Hardware: 304 Stainless steel with mounting kit to concrete slab
 - 2. Quantity and locations as indicated on the Drawings.

2.3 PLANTER ON STRUCTURE

- A. Planter shall be Wilshire Collection as manufactured by Tournesol Siteworks, 2930 Faber Street, Union City, CA 945587 (Tel: 1-800-542-2282).
 - 1. Model: WCS-6000
 - 2. Dimensions: 60” Dia. X 36” High
 - 3. Materials: Glass Fiber Reinforced Concrete (GFRC)
 - 4. Color: TBD

2.4 TIMBER BENCH, LOG BENCH, STUMP SEATING

- A. Custom wood furnishings of the quantity and dimensions shown in the Drawings.
 - 1. Materials:
 - (a) Wood for Timber Bench: *Quercus alba* (White Oak), moisture content not to exceed 15%

- (b) Wood for Log Bench and Stump Seating: *Robinia pseudoacacia* (Black Loust), moisture content not to exceed 15%.
 - (c) Hardware: 316 stainless steel
- 2. Finish Products:
 - (a) Wood Finish Protective Sealer:
 - i) SuperDeck Exterior Waterborne Clear Sealer as Manufactured by Sherwin Williams, or Approved Equal.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Pre-Installation Examination Required: The Contractor shall examine previous work, related work, and conditions under which this work is to be performed and notify Landscape Architect in writing of all deficiencies and conditions detrimental to the proper completion of this work. Beginning work means Contractor accepts substrates, previous work, and conditions.
- B. Prior to the installation of all site furnishings, check that surrounding and adjacent work has been sufficiently completed and coordinated to accept the work under this section.
- C. Correct all unsatisfactory conditions as necessary prior to proceeding with the site furnishings installation.

3.2 INSTALLATION, GENERAL

- A. General: Comply with manufacturer's written installation instructions, unless more stringent requirements are indicated.
- B. Unless otherwise indicated or needed due to construction sequencing, install site furnishings after landscaping and paving have completed.
- C. Vacuum clean concrete substrates to remove dirt, dust, debris and loose particles. Remove substances from concrete substrates that could impair mortar bond, including curing and sealing compounds, from oil and laitance.
- D. Adjacent Surface Protection: Protect adjacent work areas and finish surfaces from damage during installation process.
- E. Verify locations of all site furnishings with Landscape Architect prior to installation of footings, foundations, or slabs.
- F. Install work to be truly straight, plumb and level with joints and seams accurately aligned and coordinated with other work. Provide work as indicated on the drawings and in strict accordance with approved Shop Drawings.
- G. Concrete footings, bases and foundations shall comply with Section 03 30 05 – Cast-in-Place Concrete – Site.

3.3 BIKE RACKS AND TRASH RECEPTACLES

- A. Install compacted gravel and subgrade in accordance with Section 31 20 00 – Earthwork.
- B. Set concrete base slabs and pavements in accordance with applicable requirements including, but not limited to, the following:
 - 1. Section 32 13 13.13 Exposed Aggregate Concrete Paving
 - 2. Section 32 14 40 – Stone Paving
- C. Benches shall be pre-assembled before being installed in their final location in the Work. After assembly, benches shall be installed in their final position and properly secured in place.
- D. Install site furnishings in strict accordance with approved Shop Drawings and manufacturer's instructions.
- E. Set site furnishings to the lines and grades shown in the Drawings.
- F. Set site furnishings level and plumb. Wood benches shall be set parallel to finish grade.

3.4 ATTIC STOCK

- A. Provide attic stock for the below listed items in the quantity provided.
 - 1. Bicycle Rack – (2) additional bicycle racks.
 - 2. Trash Receptacles – (2) additional trash receptacles.

3.5 PROTECTION

- A. Protect installed site furnishings to ensure that they will be without damage or deterioration at time of Substantial Completion.

3.6 CLEAN UP

- A. The Contractor shall remove all debris, construction equipment and scrap material from all areas within the limit of work prior to the final inspection and acceptance.
- B. After completing all site furnishings installation, inspect components. Remove protective wrappings, spots, and dirt. Repair damaged finishes to match original finish or replace component.
- C. Contractor shall clean all stains from the surface of all site improvements surfaces. Site improvements that cannot be cleaned shall be replaced. Landscape Architect shall be sole judge of whether staining is apparent and necessitates remediation or replacement.

END OF SECTION