



SECTION 10 71 13
EXTERIOR SUN CONTROL DEVICES

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Motorized Exterior Retractable Screen System.

1.2 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry.
- B. Section 09 90 00 - Painting and Coating.
- C. Section 26 05 00 - Common Work Results for Electrical.
- D. Division 26 - Electrical: Electrical supply, conduit, and wiring for motorized window shades.

1.3 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM B221/B221M-21 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 2. ASTM B241/B241M-22 - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
- B. Fenestration and Glazing Industry Alliance (FGIA):
 - 1. AAMA 2604-22 - Voluntary Specification, Performance Requirements and Test Procedures for High-Performance Organic Coatings on Aluminum Extrusions and Panels.
- C. Underwriters Laboratories (UL):
 - 1. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

1.4 DEFINITIONS

- A. Dual-Flex Side Tracks. Proprietary dual-material side retention system combining rigid

aluminum extrusion with semi-rigid PVC zipper retainer to allow controlled lateral tolerance during deployment.

- B. Hem Bar: Extruded aluminum profile along lower edge of screen fabric panel, providing weight, tension, and a finished appearance.
- C. Housing Assembly: Extruded aluminum enclosure containing roller tube, motor, and idler pin, and from which fabric deploys downward.
- D. Openness Factor: Ratio of open area to total fabric area, expressed as a percentage, indicating degree of light and air transmission through screen fabric.
- E. Roller Tube: Hollow aluminum tube onto which screen fabric is wound during retraction and where tubular motor is housed.
- F. Side Retention Track: Extruded aluminum profile incorporating polyvinyl chloride (PVC) and aluminum zipper channel that receives and retains screen fabric edges during deployment.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate screen installation with framing, substrates, and electrical rough-in to ensure proper blocking placement and wiring access before screen mounting.
- B. Sequencing: Install screens after enclosing wall surfaces and exterior cladding are complete and before finish work on adjacent surfaces. Inset recessed sidetrack channels before finish work completion where applicable.

1.6 SUBMITTALS

- A. Comply with provisions of Section 01 33 00 - Submittal Procedures.
- B. Action Submittals:
 - 1. Product Data:
 - a. Manufacturer's published technical data sheets for each housing size, track type, motor, and fabric.
 - b. Preparation instructions and recommendations.
 - c. Storage and handling requirements and recommendations.
 - d. Typical installation methods.
 - 2. Shop Drawings: Dimensioned layout drawings for each screen unit indicating housing size, width and drop dimensions, motor location, track mounting configuration, and attachment method. Include relationship with adjacent construction.
 - 3. Samples:
 - a. Powder Coat Finish: Two (2) sample chips per frame color specified.
 - b. Fabric: Two (2) samples per fabric type and color specified.
- C. Informational Submittals:
 - 1. Powder Coat Test Card: Manufacturer's individual unit powder coat test results submitted with each unit at time of delivery.
 - 2. Manufacturer's installation instructions.
 - 3. Manufacturer's warranty documentation.
 - 4. Motor certification: Documentation of UL 325 listing for motorized drive unit.
 - 5. Operations and Maintenance Manual: One (1) copy of manufacturer's operation and maintenance documentation.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of five (5) years documented experience.

- B. Installer Qualifications: Company specializing in performing Work of this section with minimum two (2) years documented experience with projects of similar scope and complexity.
- C. Fabrication: Units fabricated using industrial-grade CNC routers for aluminum extrusion cuts and dual-axis CNC cutting for fabric panels, achieving dimensional tolerance of plus or minus 0.01 inch (0.25 mm) on panel dimensions.
- D. Powder Coat Testing: Manufacturer tests each unit's powder coat finish to AAMA 2604 performance requirements before shipment; test card accompanies each unit. Crosshatch Adhesion Test (ASTM D3359-17 M-B). The tested sample chip is included in the customer packet for each order.
- E. Source Limitations: Furnish each type of product from a single manufacturing source to ensure uniformity.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver screen units in manufacturer's original protective packaging designed to prevent damage to powder coat finish and fabric during shipping and handling.
- B. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
- C. Protect from damage due to weather, excessive temperature, and construction operations.
- D. Handle units to prevent scratching of powder coat finish, bending of extrusions, or deformation of fabric roll.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions including temperature, humidity, and ventilation within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside of manufacturer's recommended limits.

1.10 WARRANTY

- A. Manufacturer's Power Screen Warranty: Manufacturer's written limited power screen assembly warranty against defects in materials and workmanship for a period of ten (10) years from original purchase date. Fabric screen material and powder coat finishes are excluded.
- B. Manufacturer's Powder Coat Finish Warranty: Manufacturer's written limited powder coat finish warranty against defects for a period of five (5) years from original purchase date.
- C. Motor Warranty: Provided separately by motor manufacturer.
 - 1. Alpha Pro Motors: Manufacturer's limited seven (7) year warranty against defects.
 - 2. Somfy Systems Motors: Manufacturer's limited five (5) year manufacturer's warranty against defects.
- D. Fabric Warranty: Provided separately by fabric manufacturer.
 - 1. Style: Mermet USA: Manufacturer's limited five (5) or ten (10) year warranty against material defects, workmanship, functionality as solar control fabrics, and the failure to meet technical specifications. Warranty period dependent on fabric selection and begins on date of original purchase.
 - 2. Style: Twitchell Technical Products: Manufacturer's limited fifteen (15) year warranty against defects of workmanship and materials, and excessive loss of color or strength from normal exposure conditions. Warranty period dependent on fabric selection and

- begins on date of original purchase.
3. Style: Serge Style: Serge Ferrari: Manufacturer's limited five (5), ten (10), or fifteen (15) year warranty against material defects. Warranty period dependent on fabric selection and begins on date of original purchase.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Templar Screens, LLC, which is located at:
530 3rd St. S.W.
Auburn, WA 98001
Tel: 253-236-7400
Email: [request info \(sales@TemplarScreens.com\)](mailto:request info (sales@TemplarScreens.com)); Web: <https://www.templarscreens.com>
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered per provisions of Section 01 25 00 - Substitution Procedures.

2.2 MOTORIZED EXTERIOR RETRACTABLE SCREEN SYSTEM

- A. Basis of Design: Knight Shade, as manufactured and supplied by Templar Screens. Factory-assembled, motorized exterior retractable screen systems, custom manufactured to dimensions indicated on Drawings and as scheduled.
- B. Housing Assembly:
1. Standard Housing Sizes:
 - a. Micro Housing:
 - 1) Housing Cross-Section: 3.50 inches (88.9 mm) square.
 - 2) Width Limit: 10 feet (3.05 m).
 - 3) Height Limit: 7 feet (2.13 m).
 - b. Standard Housing:
 - 1) Housing Cross-Section: 4.50 inches (114.3 mm) square.
 - 2) Width Limit: 18 feet (5.49 m).
 - 3) Height Limit: 12 feet (3.66 m).
 - c. Jumbo Housing:
 - 1) Housing Cross-Section: 5.75 inches (146.05 mm) square.
 - 2) Width Limit: 25 feet (7.62 m).
 - 3) Height Limit: 20 feet (6.10 m).
 2. Mounting: Surface mounted.
 3. Material:
 - a. Aluminum Extrusions: Heavy duty, 6061-T6 aluminum alloy for structural extrusions; alloy-temper combinations selected by manufacturer to minimize deflection under load. CNC cut to size.
 - b. End Plates: 6061-T6 aluminum alloy.
 4. Finishes:
 - a. Powder Coat Finish: Thermosetting polyester powder coating applied to each aluminum extrusions after cutting to final length, including cut ends, to prevent corrosion at exposed edges.
 - b. Performance Standard: Powder coat finish meets or exceeds AAMA 2604.
 - c. Factory Testing: Manufacturer tests each unit's powder coat finish before shipment and includes individual unit test card with each order.
 - d. Standard Color: Ash Gray TKS-8004.
 - e. Standard Color: Ash Gray Fine Textured TKS-8011.
 - f. Standard Color: Champagne TKS-8021.
 - g. Standard Color: Classic Linen Fine Textured TKS-8012.

- h. Standard Color: Desert Sand TKS-8006.
 - i. Standard Color: Glacier Blue TKS-8032.
 - j. Standard Color: Grey Bronze Textured TKS-8033.
 - k. Standard Color: Mid-Knight Black TKS-8003.
 - l. Standard Color: Mid-Knight Black Fine Textured TKS-8010.
 - m. Standard Color: Oil Rubbed Bronze TKS-8002.
 - n. Standard Color: Oil Rubbed Bronze Fine Textured TKS-8009.
 - o. Standard Color: Olive Green TKS-8025.
 - p. Standard Color: Stark White TKS-8001.
 - q. Standard Color: Stark White Fine Textured TKS-8008.
 - r. Custom Colors: Any RAL color or custom powder-match color available upon request at extended lead time; confirm availability with manufacturer.
5. Fasteners: Stainless steel for each exposed and concealed hardware within assembly.
- C. Roller Tube:
- 1. Materials:
 - a. Roller Tube: Aluminum tube of diameter and wall thickness selected by manufacturer for the housing size and fabric load specified.
 - b. Roller Tube End Fittings: Manufactured using Fused Deposition Modeling (FDM) 3D printed carbon fiber filament.
 - 2. Size: Custom size to match housing assembly design.
- D. Retention Assembly:
- 1. Retention Track:
 - a. Mounting: Recessed.
 - b. Mounting: Surface mounted.
 - c. Material: Heavy duty, 6061-T6 aluminum alloy for structural extrusions; alloy-temper combinations selected by manufacturer to minimize deflection under load. CNC cut to size.
 - d. Size: 2 inches (50.8 mm) wide.
 - e. Finishes:
 - 1) Powder Coat Finish: Thermosetting polyester powder coating applied to each aluminum extrusions after cutting to final length, including cut ends, to prevent corrosion at exposed edges.
 - 2) Performance Standard: Powder coat finish meets or exceeds AAMA 2604.
 - 3) Factory Testing: Manufacturer tests each unit's powder coat finish before shipment and includes individual unit test card with each order.
 - f. Standard Color: Ash Gray TKS-8004.
 - g. Standard Color: Ash Gray Fine Textured TKS-8011.
 - h. Standard Color: Champagne TKS-8021.
 - i. Standard Color: Classic Linen Fine Textured TKS-8012.
 - j. Standard Color: Desert Sand TKS-8006.
 - k. Standard Color: Glacier Blue TKS-8032.
 - l. Standard Color: Grey Bronze Textured TKS-8033.
 - m. Standard Color: Mid-Knight Black TKS-8003.
 - n. Standard Color: Mid-Knight Black Fine Textured TKS-8010.
 - o. Standard Color: Oil Rubbed Bronze TKS-8002.
 - p. Standard Color: Oil Rubbed Bronze Fine Textured TKS-8009.
 - q. Standard Color: Olive Green TKS-8025.
 - r. Standard Color: Stark White TKS-8001.
 - s. Standard Color: Stark White Fine Textured TKS-8008.
 - t. Custom Colors: Any RAL color or custom powder-match color available upon request at extended lead time; confirm availability with manufacturer.
 - u. Seam Profile: Seamless surface-mount configuration without exposed cord

- channels or additional cover strips.
 - v. Fasteners: Stainless steel for each exposed and concealed hardware within assembly.
 - 2. Dual-Flex Track Zipper Retainer:
 - a. Material: Combination of rigid PVC, semi-rigid PVC, and PETG plastic.
 - b. Flex: 1/8 inch (3.175 mm) lateral flex each side to accommodate field alignment during deployment.
- E. Fabric and Hem Bar Assembly:
- 1. Fabric Style: Mermet Natte 3 Percent: Fiberglass core, PVC-coated; 3 percent openness.
 - a. Color: Charcoal.
 - b. Color: Charcoal-Navy.
 - c. Color: Charcoal-Cocoa.
 - d. Color: Charcoal-Cocoa-Fawn.
 - e. Color: Charcoal-Forest.
 - f. Color: Charcoal-Garnet.
 - g. Color: Grey-Charcoal.
 - h. Color: Grey-Grey.
 - i. Color: Grey-Sable.
 - j. Color: Sable-Fog.
 - k. Color: Sable-White.
 - l. Color: Sable-Wood.
 - 2. Fabric Style: Mermet Natte 5 Percent: Fiberglass core, PVC-coated; 5 percent openness.
 - a. Color: Charcoal.
 - b. Color: Charcoal-Navy.
 - c. Color: Charcoal-Cocoa.
 - d. Color: Charcoal-Cocoa-Fawn.
 - e. Color: Charcoal-Forest.
 - f. Color: Charcoal-Garnet.
 - g. Color: Grey-Charcoal.
 - h. Color: Grey-Grey.
 - i. Color: Grey-Sable.
 - j. Color: Sable-Fog.
 - k. Color: Sable-White.
 - l. Color: Sable-Wood.
 - 3. Fabric Style: Mermet Natte 10 Percent: Fiberglass core, PVC-coated; 10 percent openness.
 - a. Color: Charcoal.
 - b. Color: Charcoal-Navy.
 - c. Color: Charcoal-Cocoa.
 - d. Color: Charcoal-Cocoa-Fawn.
 - e. Color: Charcoal-Forest.
 - f. Color: Charcoal-Garnet.
 - g. Color: Grey-Charcoal.
 - h. Color: Grey-Grey.
 - i. Color: Grey-Sable.
 - j. Color: Sable-Fog.
 - k. Color: Sable-White.
 - l. Color: Sable-Wood.
 - 4. Fabric Style: Mermet Satine 1 Percent: Fiberglass core, PVC-coated; 1 percent openness.
 - a. Color: Charcoal.
 - b. Color: Charcoal-Auburn.
 - c. Color: Charcoal-Cocoa.

- d. Color: Charcoal-Cocoa-Fawn.
- e. Color: Charcoal-Garnet.
- f. Color: Charcoal-Grey.
- g. Color: Charcoal-Navy.
- h. Color: Grey-Fog-Charcoal.
- i. Color: Grey-Navy.
- j. Color: Sable-Forest.
- k. Color: Sable-Garnet-Auburn.
- l. Color: Sable-Wood.
- 5. Fabric Style: Mermet Satine 5 Percent: Fiberglass core, PVC-coated; 5 percent openness.
 - a. Color: Charcoal.
 - b. Color: Charcoal-Auburn.
 - c. Color: Charcoal-Cocoa.
 - d. Color: Charcoal-Cocoa-Fawn.
 - e. Color: Charcoal-Garnet.
 - f. Color: Charcoal-Grey.
 - g. Color: Charcoal-Navy.
 - h. Color: Grey-Fog-Charcoal.
 - i. Color: Grey-Navy.
 - j. Color: Sable-Forest.
 - k. Color: Sable-Garnet-Auburn.
 - l. Color: Sable-Wood.
- 6. Fabric Style: Serge Ferrari Soltis Harmony 88: PVC-coated polyester; 12 percent openness.
 - a. Color: Aluminum.
 - b. Color: Anthracite.
 - c. Color: Ash Brown.
 - d. Color: Black.
 - e. Color: Boulder.
 - f. Color: Brick.
 - g. Color: Bronze.
 - h. Color: Celestial Grey.
 - i. Color: Champagne.
 - j. Color: Concrete.
 - k. Color: Dark Grey.
 - l. Color: Deep Black.
 - m. Color: Green Grey.
 - n. Color: Hemp.
 - o. Color: Pepper.
 - p. Color: Sandy Beige.
 - q. Color: Snow White.
 - r. Color: White.
- 7. Fabric Style: Serge Ferrari Soltis Horizon 86: PVC-coated polyester; 14 percent openness.
 - a. Color: Alu/Anthracite.
 - b. Color: Alu/Alu.
 - c. Color: Alu/Oat.
 - d. Color: Alu/White.
 - e. Color: Aniseed.
 - f. Color: Anthracite.
 - g. Color: Beaten Metal.
 - h. Color: Boulder.
 - i. Color: Brick.
 - j. Color: Bronze.
 - k. Color: Buttercup.

- l. Color: Champagne.
- m. Color: Concrete.
- n. Color: Deep Black.
- o. Color: Deep Blue.
- p. Color: Deep Red.
- q. Color: Moss Green.
- r. Color: Orange.
- s. Color: Pepper.
- t. Color: Red.
- u. Color: Sandy Beige.
- v. Color: Snow White.
- w. Color: White.
- 8. Fabric Style: Serge Ferrari Soltis Opaque B702: PVC-coated polyester; opaque.
 - a. Color: Black/White.
 - b. Color: Alu.
 - c. Color: Beaten Metal.
 - d. Color: Boulder.
 - e. Color: Bronze.
 - f. Color: Deep Black.
 - g. Color: Sandy Beige.
 - h. Color: White.
- 9. Fabric Style: Serge Ferrari Soltis Perform 92: PVC-coated polyester; 8 percent openness.
 - a. Color: Alu/Alu.
 - b. Color: Alu/Anthracite.
 - c. Color: Alu/Medium Grey.
 - d. Color: Alu/Oat.
 - e. Color: Alu/White.
 - f. Color: Aniseed.
 - g. Color: Anthracite.
 - h. Color: Beaten Metal.
 - i. Color: Beetle.
 - j. Color: Boulder.
 - k. Color: Brick.
 - l. Color: Bronze.
 - m. Color: Buttercup.
 - n. Color: Celestial Grey.
 - o. Color: Champagne.
 - p. Color: Cloud.
 - q. Color: Concrete.
 - r. Color: Copper.
 - s. Color: Dark Grey.
 - t. Color: Deep Black.
 - u. Color: Deep Blue.
 - v. Color: Deep Red.
 - w. Color: Gold.
 - x. Color: Green-Grey.
 - y. Color: Havana-Brown.
 - z. Color: Hemp.
 - aa. Color: Lagoon.
 - bb. Color: Moss Green.
 - cc. Color: Orange.
 - dd. Color: Pepper.
 - ee. Color: Quartz.
 - ff. Color: Red.
 - gg. Color: Sandy Beige.

- hh. Color: Shea.
- ii. Color: Snow White.
- jj. Color: Taupe.
- kk. Color: Tennis Green.
- ll. Color: White.
- 10. Fabric Style: Serge Ferrari Soltis Proof 502: PVC-coated fiberglass; opaque.
 - a. Color: Aluminum.
 - b. Color: Aniseed.
 - c. Color: Autumn.
 - d. Color: Black.
 - e. Color: Boulder.
 - f. Color: Burgundy.
 - g. Color: Buttercup.
 - h. Color: Camel.
 - i. Color: Carrot.
 - j. Color: Celadon.
 - k. Color: Celestial Blue.
 - l. Color: Champagne.
 - m. Color: Cocoa.
 - n. Color: Concrete.
 - o. Color: Dark Blue.
 - p. Color: Dijon.
 - q. Color: Hemp.
 - r. Color: Lagoon.
 - s. Color: Lemon.
 - t. Color: Marine.
 - u. Color: Midnight Blue.
 - v. Color: Moss Green.
 - w. Color: Olive.
 - x. Color: Orange.
 - y. Color: Pepper.
 - z. Color: Poppy.
 - aa. Color: Porcelain Green.
 - bb. Color: Raspberry.
 - cc. Color: Sandy Beige.
 - dd. Color: Spruce.
 - ee. Color: Steel Blue.
 - ff. Color: Teak.
 - gg. Color: Color: Tennis Green.
 - hh. Color: Terracotta.
 - ii. Color: Thistle Blue.
 - jj. Color: Vanilla.
 - kk. Color: Velvet Red.
 - ll. Color: Victoria Blue.
 - mm. Color: Walnut Stain.
 - nn. Color: White.
- 11. Fabric Style: Serge Ferrari Soltis Veozip: PVC-coated polyester; 5 percent openness.
 - a. Color: Cumulus.
 - b. Color: Edelweiss.
 - c. Color: Frost White.
 - d. Color: Graphite Black.
 - e. Color: Grey Pepper.
 - f. Color: Lunar Surface.
 - g. Color: Macadamia.
 - h. Color: Mistral.
 - i. Color: Natural.

- j. Color: Sandalwood.
- k. Color: Sea Lion.
- l. Color: Sea Urchin.
- m. Color: Shadow.
- n. Color: Tundra.
- o. Color: Volcano.
- 12. Fabric Style: Tempotest StarScreen: Fiberglass; opaque.
 - a. Color: Apricot Ice.
 - b. Color: Black.
 - c. Color: Creme.
 - d. Color: Denim Blue.
 - e. Color: Denim Grey.
 - f. Color: Lunar Rock.
 - g. Color: Mellow Yellow.
 - h. Color: Silver.
 - i. Color: Smoked Pearl.
 - j. Color: Vanilla.
 - k. Color: White.
 - l. Color: Wood Ash.
- 13. Fabric Style: Twitchell Nano 50: Vinyl-coated polyester mesh; 50 percent openness.
 - a. Color: Black.
 - b. Color: White.
- 14. Fabric Style: Twitchell Nano 55: Vinyl-coated polyester mesh; 45 percent openness.
 - a. Color: Black.
 - b. Color: White.
- 15. Fabric Style: Twitchell Nano 60: Vinyl-coated polyester mesh; 40 percent openness.
 - a. Color: Black.
- 16. Fabric Style: Twitchell Nano 70: Vinyl-coated polyester mesh; 30 percent openness.
 - a. Color: Black.
- 17. Fabric Style: Twitchell Nano 95: Vinyl-coated polyester mesh; 5 percent openness.
 - a. Color: Bone.
 - b. Color: Charcoal.
 - c. Color: Espresso Texture.
 - d. Color: Flat Black.
 - e. Color: Granite.
 - f. Color: Sable.
 - g. Color: Shadow Texture.
 - h. Color: Stone Texture.
 - i. Color: Tobacco.
 - j. Color: White.
- 18. Fabric Style: Twitchell Nano 97: Vinyl-coated polyester mesh; 3 percent openness.
 - a. Color: Charcoal.
 - b. Color: Espresso Texture.
 - c. Color: Flat Black.
 - d. Color: Granite.
 - e. Color: Tobacco.
- 19. Fabric Style: Twitchell Nano 99: Vinyl-coated polyester mesh; 1 percent openness.
 - a. Color: Charcoal.
 - b. Color: Espresso Texture.
 - c. Color: Flat Black.
 - d. Color: Granite.
 - e. Color: Tobacco.
- 20. Fabric Style: Twitchell OmegaTex: Vinyl-coated polyester mesh; opaque.
 - a. Color: Black.
 - b. Color: Black/Tan.
 - c. Color: White.

- d. Color: White/Tan.
- 21. Fabric Style: Twitchell Textilene 80: Vinyl-coated polyester mesh; 20 percent openness.
 - a. Color: Black.
 - b. Color: Black/Brown.
 - c. Color: Brown.
 - d. Color: Desert Sand.
 - e. Color: Dusk Grey.
 - f. Color: Sandstone.
 - g. Color: White.
- 22. Fabric Style: Twitchell Textilene 90: Vinyl-coated polyester mesh; 10 percent openness.
 - a. Color: Black.
 - b. Color: Black/Brown.
 - c. Color: Brown.
 - d. Color: Desert Sand.
 - e. Color: Dusk Grey.
 - f. Color: Sandstone.
 - g. Color: White.
- 23. Fabric Style: Twitchell Textilene 95: Vinyl-coated polyester mesh; 5 percent openness.
 - a. Color: Almond Brown.
 - b. Color: Carbon Texture.
 - c. Color: Galaxy Black.
 - d. Color: Graphite.
 - e. Color: Mushroom.
 - f. Color: Pewter.
 - g. Color: Pure White.
 - h. Color: Putty.
 - i. Color: Quartz.
 - j. Color: Tobacco Leaf.
 - k. Color: Tumbleweed.
- 24. Fabric Style: Twitchell Textilene Dimout: Vinyl-coated polyester mesh; opaque.
 - a. Color: Charcoal.
 - b. Color: Flat Black.
 - c. Color: Grey.
 - d. Color: Light Grey.
 - e. Color: Putty.
 - f. Color: Tan.
 - g. Color: Tobacco.
 - h. Color: White.
 - i. Zipper: Weld No. 7 zipper tape to retention edges using impulse-welding process; no sewn stitching on retention seams.
 - j. Fabric-to-Roller Tube Attachment: Include hook-and-loop attachment system for infinite adjustability and to accommodate substrate irregularities or non-square openings.
 - k. Fabrication:
 - 1) Cut fabric panels using dual-axis CNC equipment to plus or minus 0.01 inch (0.254 mm) dimensional accuracy.
 - 2) Test weld strength daily; welds to be stronger than the fabric coating.
- 25. Hem Bar:
 - a. Material:
 - 1) Outer Body: Heavy duty, 6061-T6 aluminum alloy for structural extrusions; alloy-temper combinations selected by manufacturer to minimize deflection under load. CNC cut to size.
 - 2) Internal Core: Solid galvanized steel weights.

- 3) Bottom Seal: Pile brush, 1/4 inch (6.35mm).
 - a) Color: Black.
 - b) Color: Grey.
 - c) Color: White.
- 4) Bottom Seal: Commercial brush gasket, pile brush, 1 inch (25.4 mm), black.
- 5) End Guides: Low-friction PETG plastic, carbon fiber, or milled aluminum.
- b. Size: Standard Hem Bar: 0.69 inches (17.526 mm) wide by 1.875 inches (47.625 mm) tall.
- c. Size: Tall Hem Bar: 0.69 inches (17.526 mm) wide by 3 inches (76.2 mm) tall.
- 26. Cable Gripper Assembly: Include cable gripper, cable gripper lock components, and accessories as recommended by manufacturer.

F. Motor Tube Assembly and Controls:

- 1. Motor:
 - a. Motor Type: Tubular DC or AC motor sized by manufacturer for unit width, drop, and fabric weight; UL 325.
 - b. Available Motor Series:
 - 1) Alpha Pro 5030+OD.
 - 2) Alpha WSER40 6/34.
 - 3) Alpha WSER50 10/33.
 - 4) Alpha WSER50 30/16.
 - 5) Alpha WSER50 50/16.
 - 6) Alpha WSER60 100/15.
 - 7) Alpha WSERD30B 2/31 Rechargeable.
 - 8) Alpha WSERD40B 5/28 Rechargeable.
 - 9) Alpha WSERD50 15/12 Solar.
 - 10) Somfy Altus RTS 409R2 RH with Fast Connector.
 - 11) Somfy Altus RTS 510S2.
 - 12) Somfy Altus RTS 525A2.
 - 13) Somfy Altus RTS 550R2.
 - 14) Somfy Maestria RTS 510A2.
 - 15) Somfy Maestria RTS 525A2.
 - 16) Somfy Maestria RTS 535A2.
 - 17) Somfy Maestria RTS 550R2.
 - c. Control Interface: Radio-frequency remote control system compatible with specified motor.
- 2. Controllers and Accessories:
 - a. Alpha Decora 1 Channel Wall Remote.
 - b. Alpha Decora 4 Channel Wall Remote.
 - c. Alpha Interior Sun Sensor.
 - d. Alpha Key Chain Remote.
 - e. Alpha Keypad Wall Mount Control.
 - f. Alpha Motion Sensor - White.
 - g. Alpha Navigator 1 Channel Remote.
 - h. Alpha Navigator 5 Channel Remote.
 - i. Alpha Navigator+ 16 Channel Remote.
 - j. Alpha Navigator+ 1T Channel Remote.
 - k. Alpha Navigator+ 4 Channel Remote.
 - l. Alpha Navigator+ 4T Channel Remote.
 - m. Alpha Navigator+ 8 Channel Remote.
 - n. Alpha Neo Smart Hub.
 - o. Alpha Pioneer 1 Channel Remote.
 - p. Alpha Pioneer 4 Channel Remote.
 - q. Alpha Pioneer+ 16 Channel Remote.
 - r. Alpha Pioneer+ 4 Channel Remote.

- s. Alpha Pioneer+ 8 Channel Remote.
- t. Alpha Sun and Wind Sensor.
- u. Alpha Wall Mount 1 Channel Remote Control.
- v. Alpha Wall Mount 2 Channel Remote Control.
- w. Alpha Wall Mount 8 Channel Remote Control.
- x. Somfy Eolis RTS 60 MPH Wind Sensor 24V DC Kit.
- y. Somfy 3C Cable 24 feet.
- z. Somfy DecoFlex Wirefree Controller.
- aa. Somfy DecoFlex Wirefree Surface Controller.
- bb. Somfy Ondeis Wirefree RTS Rain and Sun Sensor.
- cc. Somfy Situo RTS Control.
- dd. Somfy Smoove RTS Pure.
- ee. Somfy TaHoma RTS/Zigbee Smartphone and Tablet Interface.
- ff. Somfy Telis 1 Chronis Pure.
- gg. Somfy Telis 16 RTS Pure.
- hh. Somfy Telis RTS Patio Remote.

2.3 SOURCE QUALITY CONTROL

- A. Factory Testing: Before shipment, test each unit for smooth deployment and retraction, proper zipper engagement with side retention tracks, and powder coat finish compliance with AAMA 2604 performance requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrates and adjacent construction are complete, plumb, level, and of sufficient strength and rigidity to support screen unit loads and fastener withdrawals.
- B. Verify rough-in electrical wiring is in place, terminated at correct location, and complies with screen motor voltage and amperage requirements.
- C. Verify opening dimensions match screen units to be installed within manufacturer's published tolerances.
- D. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly before installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Install blocking where required for fastener attachment where structural framing does not align with track and housing mounting locations.
- D. Protect adjacent surfaces from damage during installation.
- E. Mark and pre-drill fastener locations per manufacturer's instructions and Drawings.

3.3 INSTALLATION

- A. Install per manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

- B. Housing Mounting:
 - 1. Mount housing level and plumb.
 - 2. Fasten housing assembly to structural substrate or blocking with stainless steel fasteners of type and spacing recommended by manufacturer.
 - 3. Verify housing is square and true in plan and elevation before securing fasteners.
- C. Side Retention Track Installation:
 - 1. Mount inner tracks plumb and at spacing matching unit width, with face of track flush with or as detailed on Drawings.
 - 2. For recessed track installations, use manufacturer's extruded-thread inner track and outer track combination; align adjustment holes before securing.
 - 3. Secure outer tracks to inner tracks with manufacturer-supplied fasteners.
- D. Fabric Attachment:
 - 1. Attach fabric panel to roller tube using hook-and-loop attachment system; adjust attachment until fabric deploys straight, plumb, and without wrinkles or hourglass deformation.
 - 2. Engage zipper retention edges in channels on both sides.
 - 3. Verify fabric deploys and retracts smoothly through full travel.
- E. Motor and Control Wiring:
 - 1. Connect motor to pre-installed wiring per motor manufacturer's instructions and applicable electrical code.
 - 2. Program motor limits for full deployment and full retraction travel per manufacturer's instructions.
 - 3. Program and pair remote controls with motor per manufacturer's instructions.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection per appropriate sections in Division 01.
- B. Manufacturer's Services: Coordinate manufacturer's services per appropriate sections in Division 01.
- C. After installation of each unit, operate screen through three complete cycles and verify:
 - 1. Smooth deployment without binding, friction, or fabric flutter.
 - 2. Full engagement of zipper retention in side tracks without gaps or pullout.
 - 3. Fabric deployment without wrinkles, hourglass shape, or lateral offset.
 - 4. Motor limit stops engage at both fully deployed and fully retracted positions.
 - 5. Remote control operates unit reliably within specified range.
- D. Report and correct deficiencies before Substantial Completion.

3.5 ADJUSTING

- A. Adjust motor limit stops to set specified deployment height and full retraction within housing.
- B. Adjust fabric-to-roller tube hook-and-loop attachment to eliminate wrinkles and hourglass deformation.
- C. Align inner and outer tracks to ensure uniform clearance along full height of fabric travel.

3.6 CLEANING

- A. Clean products per manufacturer's recommendations.
- B. Remove packaging materials, labels, and installation debris from the site upon completion.

- C. Clean exposed surfaces of housing, tracks, and bottom bar with mild soap solution and soft cloth; do not use abrasive cleaners or solvents on powder coated surfaces.
- D. Clean fabric panel per fabric manufacturer's published care instructions.
- E. Touch-up, repair or replace damaged products before Substantial Completion.

3.7 PROTECTION

- A. Retract screens into housing until construction activities affecting adjacent areas are complete to prevent damage to fabric or finish from construction debris, paint overspray, or impact.

3.8 DEMONSTRATION AND TRAINING

- A. Demonstrate operation of each installed screen unit to Owner's designated personnel, including:
 - 1. Deployment and retraction using remote control and, where provided, hardwired wall switch.
 - 2. Motor limit-stop adjustment procedure.
 - 3. Battery replacement or wiring maintenance for control devices.
 - 4. Fabric cleaning procedure.

END OF SECTION