(**Specifier Note**: The purpose of this guide specification is to assist the Specifier in correctly specifying FlexShade® XL motorized roller shading systems and their installation. FlexShade XL shading systems are intermediate-sized shades available from 13 to 25 feet wide and up to 15 feet tall. Maximum shade height is limited by cloth weight and shade width, due to their impact on roller deflection, and by cloth thickness because of bundle diameter. Contact Draper® to verify requirements.

The Specifier needs to edit these guide specifications to fit the needs of each specific project. References have been made within the text of the specification to MasterFormat section numbers and titles. The Specifier needs to coordinate these numbers and titles with sections included for the specific project.

Throughout the guide specification, there are Specifier Notes to assist in the editing of the file. Desired options for size, fabric, controls, method of installation and hardware need to be noted. Brackets have been used to indicate when a selection is required. Unless noted otherwise, the first option is the standard feature. Contact a Draper, Inc. representative for further assistance with appropriate product selections.)



**SECTION 12 24 14**

**MOTORIZED ROLLER WINDOW SHADING SYSTEM**

Draper®, Inc. Motorized FlexShade® XL



1. GENERAL
	* + 1. SECTION INCLUDES
				1. Motorized roller shading systems.
			2. REFERENCES

(**Specifier Note**: COORDINATE references below with test standards specified in Quality Assurance and fabrics specified in Part Two “Fabric” article below. DELETE references that are not project specific.)

* + - * 1. American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE)

ASHRAE 74: Method of Measuring Solar-Optical Properties of Materials.

* + - * 1. ASTM International

ASTM D3273: Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

ASTM D6329: Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers.

ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials.

ASTM E2180: Standard Test Method for Determining the Activity of Incorporated Antimicrobial Agent(s) In Polymeric or Hydrophobic Materials.

ASTM G21: Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

* + - * 1. British Standards Institution (BS)

BS 5867-2: Fabrics for Curtains, Drapes and Window Blinds - Flammability Requirements, Specification.

* + - * 1. California Code of Regulations (CCR)

California U.S. Title 19 (Division 1, Chapter 8): Fabric and Material Certification.

* + - * 1. European Commission (EC)

REACH (EC 1907/2006): European regulation on chemicals and their safe use.

* + - * 1. European Union (EU)

Directive 2002/95/EC (RoHS): Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

* + - * 1. German Institute for Standardization (DIN)

DIN 4102-1: Fire Behaviour of Building Materials and Elements, Classification of Building Materials, Requirements and Testing.

* + - * 1. Ferrari® Group

Texyloop®: Polyester-PVC composite textile recycling initiative.

* + - * 1. France Standards, Association Francaise de Normalisation (AFNOR/NF)

NF P92-503: Fire-Resistance of Building Materials and Elements, Electrical Burner Test for Flexible Materials.

NF P92-512: Safety Against Fire. Reaction to Fire Tests. Determination of the durability of the fire reaction classification of materials.

* + - * 1. International Oeko-Tex® Association

Oeko-Tex® Standard 100: Globally uniform testing system of textiles for harmful substances which are prohibited or regulated by law, chemicals which are known to be harmful to health, and parameters which are included as a precautionary measure to safeguard health.

* + - * 1. International Organization for Standardization (ISO)

ISO 6941: Burning Behaviour of Textile Fabrics, Measurement of Flame Spread Properties of Vertically Oriented Specimens.

* + - * 1. Microban® International, Ltd.

Microban® Protection: Antimicrobial protection to inhibit the growth of stain-causing bacteria, mold and mildew.

* + - * 1. National Fire Protection Association (NFPA)

NFPA 101: Life Safety Code.

NFPA 701: Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.

* + - * 1. Underwriters Laboratories of Canada (ULC)

CAN/ULC-S109: Standard for Flame Tests of Flame-Resistant Fabrics and Films. Method of Fire Tests for Flame-Resistant .

* + - 1. ACTION SUBMITTALS
				1. Refer to Section [**01 33 00 Submittal Procedures**] [**Insert section number and title**].
				2. Product Data: For each type of motorized roller shading systems, including manufacturer recommended installation procedures.
				3. Shop Drawings: Include opening dimensions if applicable, electrical and control wiring, method of attachment and structural support.
				4. Samples: Provide fabric and metal finish samples.
				5. Window Shade Schedule: List rooms, field verified window dimensions, quantities, type of shading systems, controls, fabric, and color.

(**Specifier Note**: Remaining paragraphs are optional fabric requirements. DELETE paragraphs below that are not project specific.)

(**Specifier Note**: Shade fabrics listed as GREENGUARD certified qualify as low emitting materials and meet all the requirements of the GREENGUARD Indoor Air Quality or Gold certification program. GREENGUARD certification is optional. COORDINATE the selection of shade fabric paragraph below if GREENGUARD certification is required. DELETE paragraph and sub-paragraph below if not project specific.)

* + - * 1. Certificate of Environmental Compliance: Documentation indicating fabrics meet or exceed the following field-validated standards set by UL for products and materials with low chemical and particle emissions for indoor usage.

(**Specifier Note**: Choose one of two paragraphs below. Second option specifies stricter emission guidelines for the heightened sensitivities of school or other populations.)

UL GREENGUARD® Certified.

UL GREENGUARD Gold.

* + - * 1. Environmental Certification: Oeko-Tex® Standard 100 Certificate.
				2. Chemical Certification: REACH registration or proof of acceptance.
				3. Lead Free Certification: RoHS labeled or proof of certification.
				4. Recycling Certification: Texyloop® Certificate.
				5. Antimicrobial Protection Certification: Microban® Certificate.
			1. CLOSEOUT SUBMITTALS
				1. Refer to Section [**01 78 00 Closeout Submittals**] [**Insert section number and title**].
				2. Maintenance data.
			2. QUALITY ASSURANCE
				1. Source Limitation: Obtain motorized roller window shades from single manufacturer as a complete unit including necessary mounting hardware and accessories.

(**Specifier Note**: COORDINATE fabric fire-test-response characteristics paragraph below with fabric specified in Part Two. DELETE paragraph if not project specific.)

* + - * 1. Fire-Test-Response Characteristics: Provide shade fabric with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
			1. DELIVERY, STORAGE AND HANDLING
				1. Refer to Section [**01 60 00 Product Requirements**] [**Insert section number and title**].
				2. Deliver motorized roller shading systems after building is enclosed and construction within spaces where shades will be installed is substantially complete.
				3. Deliver motorized roller shading systems in manufacturer’s original, unopened, undamaged containers with identification labels intact.

Label containers according to Shade Schedule.

(**Specifier Note**: Draper, Inc. does not warrant against freight damage, concealed or otherwise. RETAIN inspection and storage paragraphs below for all projects.)

* + - * 1. Inspect motorized roller shading systems for freight damage, concealed or otherwise, upon delivery to project site. Report damage to freight carrier immediately for replacement of motorized roller shading systems.
				2. Store motorized roller shading systems in resealed manufacturer’s original containers.
			1. WARRANTY
				1. Manufacturer’s Hardware and Shade Fabric Warranty: Manufacturer agrees to repair or replace motorized roller shading systems that fail in materials or workmanship within specified warranty period.

Failures include but are not limited to mounting hardware, headbox, and shade fabric.

Warranty Period: 10 years from date of Substantial Completion.

* + - * 1. Manufacturer’s Motor and Controls Warranty: Manufacturer agrees to repair or replace motorized roller shading systems that fail in materials or workmanship within specified warranty period.

Failures include but are not limited to controls, electronic accessories and motors.

Warranty Period: 5 years from date of Substantial Completion.

1. PRODUCTS

(**Specifier Note**: Product information is proprietary to Draper, Inc. If additional products are required for competitive procurement, contact Draper, Inc. for assistance in listing competitive products that may be available.)

* + - 1. MANUFACTURER
				1. Draper®, Inc.; 411 South Pearl Street; Spiceland, IN 47385-0425; Phone 765.987.7999; website [www.draperinc.com](http://www.draperinc.com)

Subject to compliance with requirements, manufacturers of products of equivalent design may be acceptable if approved in accordance with [**Section 01 25 00 Substitution Procedures**] [**Insert section number and title**].

* + - 1. MOTORIZED ROLLER SHADING SYSTEMS
				1. UL listed, motorized Roller shading systems: Electrically operated, motorized, vertical roll-up, fabric window shade. Assembly to include motor operator, controls, mounting hardware and other components necessary for complete installation.

Basis-of-Design: Motorized FlexShade® XL as manufactured by Draper, Inc.

* + - * 1. Roller: 2.364 inch (60 mm) outside diameter aluminum. Roller assembly is integrated with floating bracketry.

Roller Idler Assembly: Plastic idle end insert into roller will fit over steel pin and rotate on pin with use of sealed bearing. Steel pin connects to bearing mounted to bracket mounted inside the headbox. Systems not using sealed bearings are not acceptable.

Fabric Connection to Roller Tube: Fabric panel to incorporate spline attachment at the top and hem pocket at the bottom to allow connection to the hem bar.

Slat: 13/16 inch aluminum dowel, encased in heat seamed hem.

Cradle System: Extrusion supports entire roller using cradle system to reduce roller deflection.

* + - * 1. Headbox: Cassette-style extruded aluminum sections.

Size: 5 inches high by 5 inches deep by length required for shade being provided.

Shape: **[Angled] [Curved]**.

Finish: [**Clear anodized (standard)**] [[**Black**] [**White**] [**Ivory**] [**Bronze**] **powder coat**].

* + - * 1. Electric Operator: Tubular motor concealed inside shade roller tube.

(**Specifier Note**: SELECT radio technology or standard wired motor below. COORDINATE motor selection with controls specified in article below.)

Standard Motor: Sonesse® Radio Technology Motor: 110-120V AC, single-phase, 60 HZ, instantly reversible, lifetime lubricated motor with built-in radio receiver, equipped with internal thermal overload protector, electric brake, and pre-set accessible limit switches. (Compatible with Wireless Radio Technology Controls.)

Optional Wired Motor: Sonesse® 110-120V AC, single-phase, 60 HZ, instantly reversible, lifetime lubricated, and equipped with internal thermal overload protector, electric brake, and pre-set accessible limit switches. (Compatible with Intelliflex Controls.)

(**Specifier Note**: Indicate operator selection as seen from inside the room facing the window. Right hand motor location is standard.)

Location: [**Right hand**] [**Left hand**] [**As scheduled**]

(**Specifier Note**: DELETE Standard Motor Controls article below if standard motor is not specified as electric operator in motorized roller window shades article above.)

* + - 1. RTS MOTOR CONTROLS

(**Specifier Note**: SELECT from the control paragraphs below. DELETE paragraphs that are not project specific.)

* + - * 1. Individual Control, Group Control and Individual and Group Control:

Single channel wireless handheld transmitter-White.

Single channel wireless handheld transmitter-Black.

Four channel wireless handheld transmitter-White.

Four channel wireless handheld transmitter-Black.

16-Channel wireless handheld transmitter-White.

16-Channel wireless handheld transmitter-Silver.

Single channel wireless wall switch for radio motor control-White.

Single channel wireless wall switch for radio motor control-Ivory.

Four channel wireless wall switch for radio motor control-White.

Four channel wireless wall switch for radio motor control-Ivory.

DecoFlex WireFree 3-Button keypad controls Somfy-powered RTS (Radio Technology Somfy) interior shades. The keypad is compatible with all Somfy RTS motors.

DecoFlex WireFree Surface 5-channel keypad – Controls Somfy-powered RTS (Radio Technology Somfy) shades.

RS-232/Dry Contact - Allows for full control of radio motor shade via RS-232/dry contact interface.

Wireless Sun Sensor - Allows operation of one group of radio motors per sensor.

Wireless Timer - Allows operation of one group of radio motors per timer.

Repeater (1 per project to extend range of transmitters)

(URTSI II) Universal Interface - Allows for full control of radio motor shade via RS-232/485 or IR signals.

TaHoma Switch – RTS and Zigbee hub. Enables control via app and voice. Allows for integration into third party smart controls.

Optional Ethernet adaptor.

Bond Bridge Pro – Connect RF controlled devices with a low frequency RF to Wi-Fi Ethernet bridge.

Bond Sidekick 5 Channel Switch – Communicates directly with multiple motor technologies for direct, individual, and group shade control.

* + - 1. WIRED MOTOR CONTROLS.

(**Specifier Note**: SELECT from the control paragraphs below. DELETE paragraphs that are not project specific.)

* + - * 1. Individual Control:

Wall Switch – Toggle three position wall switch.

Wall Switch – Key operated three position wall switch.

* + - * 1. Group Control:

1 Motor Isolating Relay (1ISO) – One ISO relay per motor. Allows 110-120V group switching. Allows for up to 12 motors on one double throw switch. Input Voltage: 120V AC/60Hz. Output Voltage: 120V AC/60Hz. Max Output Current: 4.0 Amps.

1 Motor Controller. Single motor controller for use with motorized roller shades, Venetian blinds, and louver systems. Can be used as a standalone device or part of a network. When networked, can still be independently operated and can be configured to respond to wall switches, RF remotes, and signals from 3rd party systems. On-board contact closure interface. RS-485 network with built-in network termination. On-board buttons for testing and configuring motors. Pluggable terminal blocks. Input power: 110-230VAC @ 50 / 60Hz. Output power: Maximum 6A at input power. Material: ABS plastic. Operating temperature: 32 - 140 degree F (0 – 60 degree C). Dimensions: 2-3/4 inched by 3-1/2 inches by 2-1/8 inches (70 by 90 by 54 mm). Enclosure: 4 inches by 4 inches by 4 inches (102 by 102 by 102 mm).

4 Motor Isolating Relay (GC4) – Panelized version with four ISO relays. Up to three 4ISOs can be linked together for control of up to 12 motors from any single 15 amp double throw wall switch. Input Voltage: 120V AC/60Hz. Output Voltage: 120V AC/60Hz. Max Output Current: 4.0 Amps. Installed in a 8 inch by 8 inch by 4 inch (203 by 203 by 102 mm) box.

4 Motor Controller. 4 motor controller for use with motorized roller shades, Venetian blinds and louver systems. Each port is independently operated and can be configured to respond to wall switches, RF remotes, and signals from 3rd party systems. RS-485 network with built-in network termination. Pluggable terminal blocks. Input power: 110-230VAC @ 50 / 60Hz. Output power: Maximum 6A at input power. Material: ABS plastic. Operating temperature: 32 - 140 degree F (0 – 60 degree C). Dimensions: 3-1.2 inches by 7 inches by 1-7/8 inches (89 by 178 by48 mm). Enclosure: 6 inches by 4 inches by 4 inches (152 by 102 by 102 mm).

* + - * 1. Individual and Group Control: IGC4N1. Individual and Group control of up to four motors with up to three intermediate positions per motor.
			1. FABRIC

(**Specifier Note**: SELECT one Basis-of-Design sub-paragraph from light-filtering or room darkening paragraphs below. For further information on available shade fabrics, refer to Draper’s website at <http://www.draperinc.com/images/Window_Shades/ShadeFabric_ReferenceSheet.pdf>. DELETE fabrics that are not project specific. DELETE descriptive sub-paragraphs if fabric is limited to Basis-of-Design.)

* + - * 1. Light Filtering

PVC Coated Fiberglass

Basketweave

E Screen 1% by Mermet: PVC coated fiberglass yarn woven in 2 by 2 basketweave. Fire rating: NFPA 701-10 TM#1, California U.S. Title 19, CAN/ULC-S109-03 Small & Large Flame Test. Environmental Benefits: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. RoHS compliant – lead free. Bacterial and fungal resistance: ASTM E 2180, ASTM G21. Average 1 percent open, .020 inches thick, 13.3 oz/square yard.

E Screen 3% by Mermet: PVC coated fiberglass yarn woven in 2 by 2 basketweave. Fire rating: NFPA 701-10 TM#1, California U.S. Title 19, CAN/ULC-S109-03 Small & Large Flame Test. Environmental Benefits: Certified to UL GREENGUARD and GREENGUARD Gold standards for low chemical emissions into indoor air during product usage. RoHS compliant – lead free. Bacterial and fungal resistance: ASTM E 2180, ASTM G21. Average 3 percent open, .017 inches thick, 11.6 oz/square yard.

E Screen 5% by Mermet: PVC coated fiberglass yarn woven in 2 by 2 basketweave. Fire rating: NFPA 701-10 TM#1, California U.S. Title 19, CAN/ULC-S109-03 Small & Large Flame Test. Environmental Benefits: Certified to UL GREENGUARD and GREENGUARD Gold standards for low chemical emissions into indoor air during product usage. RoHS compliant – lead free. Bacterial and fungal resistance: ASTM E 2180, ASTM G21. Average 5 percent open, .016 inches thick, 10.7 oz/square yard.

E Screen 10% by Mermet: PVC coated fiberglass yarn woven in 2 by 2 basketweave. .016 inches thick. Fire rating: NFPA 701-10 TM#1, California U.S. Title 19, CAN/ULC-S109-03 Small & Large Flame Test. Environmental Benefits: Certified to UL GREENGUARD and GREENGUARD Gold standards for low chemical emissions into indoor air during product usage. RoHS compliant – lead free. Bacterial and fungal resistance: ASTM E 2180, ASTM G 21. Average 10 percent open, .020 inches thick, 10.3 oz/square yd.

.Soltis® Perform 92 4% by Serge Ferrari®: PVC-coated polyester with silver backing on outside and pre-tensioning process for dimensional stability. Fire rating: Method 1/NFPA 701, CSFM T19, Class A/ ASTM E84. Environmental Benefits: Certified to GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Recyclable through TexyLoop. 4 percent open, .018 inches thick, 12.4 oz/square yard.

 (**Specifier Note**: RETAIN paragraphs below with any paragraph above.)

* + - * 1. Color: [**Match Architect’s sample**] [**As selected by Architect from manufacturer’s full range**] [**As indicated on window shade schedule**] [**Insert color**].
				2. Custom Printed Graphics: As submitted to manufacturer in accordance with manufacturer’s guidelines.
				3. F. Custom Printed Graphics: As submitted to manufacturer in accordance with manufacturer’s guidelines.
				4. Seaming: [**None**] [**Center seams on shade**] [**Provide seams as shown on Drawings**].
1. EXECUTION
	* + 1. PREPARATION
				1. Verify field dimensions of windows prior to fabrication of motorized roller window shades.
				2. Coordinate blocking and structural support requirements of motorized roller window shades to ensure proper attachment and support.

(**Specifier Note**: Motorized roller window shades can be installed in ceiling recesses. COORDINATE motorized roller window shade size and depth with wall construction. DELETE paragraph below if recessed installation is not project specific.)

* + - * 1. Coordinate motorized roller window shade size, mounted depth, and required edge tolerances with construction of wall and ceiling.
				2. Coordinate requirements and location of power supply, conduit, and wiring required for motorized roller window shade motors and controls.
				3. Entire length of shipping carton must be supported during storage.

(**Specifier Note**: Motorized roller window shades can be interfaced with HVAC system, lighting system, motorized projection screens, motorized projector lifts, or video projector switches. DELETE Coordination paragraph below if not project specific.)

* + - * 1. Coordinate interface and installation of window shades with provision of [**HVAC system**] [**lighting system**] [**motorized projection screen**] [**motorized projector lift**] [**video projector**].
				2. Test and verify all set motor limits prior to wiring.
			1. INSTALLATION
				1. Install motorized roller window shades at locations indicated on [**Drawings**] [**and**] [**approved Window Shade Schedule**].
				2. Provide fasteners appropriate for installation conditions.
				3. Comply with motorized roller window shade manufacturer's written instructions and shop drawings.

Shim shades to correct tracking.

* + - 1. TESTING AND DEMONSTRATION
				1. Test motorized roller window shades to verify that controls, limit switches, [**interface to other building systems**,] and other operating components are functional. Correct deficiencies.
				2. Demonstrate operation of motorized roller window shades to Owner's designated representatives.
			2. PROTECTION
				1. Clean and protect motorized roller window shades after installation from damage during construction operations. If damage occurs, remove and replace damaged components or entire unit as required to provide units in their original, undamaged condition.

(**Specifier Note**: For large projects with several types of shades and fabrics, a window shade schedule may be appropriate. Schedule may be located in this specification section or located on Drawings. DELETE article below if not project specific.)

* + - 1. WINDOW SHADE SCHEDULE

END OF SECTION