

SECTION 12 24 00

DUAL ROLLER MOTORIZED FLEXSHADE WINDOW SHADES

Display hidden notes to specifier. (Don't know how? [Click Here](http://www.arcat.com/sd/display_hidden_notes.shtml))

\*\* NOTE TO SPECIFIER \*\* This section is based on the products of Draper, Inc., which is located at:

 411 S. Pearl Street

 P. O. Box 425

 Spiceland, IN 47385-0425

 Toll Free Tel: 800-238-7999

 Tel: 765-987-7999

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 Email: drapercontract@draperinc.com

 Web: [www.draperinc.com](http://www.draperinc.com)

 [ [Click Here](http://www.arcat.com/arcatcos/cos43/arc43272.html) ] for additional information.

Draper is a leader in the manufacture of window shades, projection screens, and gymnasium equipment. Founded in 1902, Draper maintains a tradition of quality and service. Draper products include FlexShade roller-operated and fixed window shades.

This section can be used for specifying Dual Roller Motorized FlexShade.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Motorized, roll-up fabric interior window shades including motor operator, controls, and mounting hardware.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 06100 [06 10 00] – Rough Carpentry: Blocking for support of window shade hardware.
		2. Section 07900 [07 90 00] - Joint Sealers: Sealants for perimeter of shade system.
		3. Section 09260 [09 21 23] - Gypsum Board Assemblies: Suspended gypsum board ceilings to contain recessed window shade pockets.
		4. Section 09510 [09 51 23] - Acoustical Tile Ceilings: Suspended acoustical panel ceilings to contain recessed window shade pockets.
		5. Section 11132 [11 52 13] - Motorized Projection Screens: Motorized projection screens to be interfaced with shade controls.
		6. Section 11132 [11 52 13] - Motorized Projector Lifts: Motorized projector lifts and mounts to be interfaced with shade controls.
		7. Division 16 [26] - Electrical: Electrical supply, conduit, and wiring for motorized window shades.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. NFPA 70 - National Electrical Code.
		2. NFPA 701-99 - Fire Tests for Flame-Resistant Textiles and Films.
		3. UL GREENGUARD Gold.
		4. US Green Building Council.
		5. ANSI/WCMA A100.1-2018
	1. SUBMITTALS
		1. Submit under provisions of Section 01330 [01 33 26] - Submittal Procedures:
		2. Product Data: Manufacturer's data sheets on each product specified, including:
			1. Preparation instructions and recommendations.
			2. Installation and maintenance instructions.
			3. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
			4. Storage and handling requirements and recommendations.
			5. Mounting details and installation methods.
			6. Typical wiring diagrams including integration of motor controllers with building management system, audiovisual, and lighting control systems as applicable.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for projects with complex requirements for window treatment. Delete if not required.

* + 1. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances, wiring diagrams and relationship to adjacent work.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if LEED is not applicable.

* + 1. LEED Submittals: Provide documentation of how the requirements of Credit will be met.
		2. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings, field verified window dimensions, quantities, type of shade, controls, fabric, and color, and include opening sizes and key to typical mounting details.

\*\* NOTE TO SPECIFIER \*\* Delete Selection Samples paragraph if colors and shade fabrics have already been selected.

* + 1. Selection Samples: For each finish product specified, one complete set of shade cloth options and aluminum finish color samples representing manufacturer's full range of available colors and patterns.
		2. Verification Samples: For each finish product specified, one complete set of shade components, unassembled, demonstrating compliance with specified requirements. Shade fabric sample and aluminum finish sample as selected, representing actual product, color, and patterns. Mark face of material to indicate interior faces.
		3. Maintenance Data: Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.
		4. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
		5. Standard manufacturer’s defect warranty: Standard manufacturer’s warranty documents indicating compliance with requirements of Section 1.9 below.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Obtain roller shades through one source from a single manufacturer with a minimum of twenty years’ experience in manufacturing products comparable to those specified in this section. If manufacturer does not meet minimum experience requirement, please submit life cycle test data showing minimum 2000 complete operational cycles for each year of warranty showing no failure and that shade remains fit for use as an operable shade).
		2. NFPA Flame-Test: Passes NFPA 701. Materials tested shall be identical to products proposed for use. Show complete manufacturer data (name, location, contact) and certification from manufacturer that the fabrics sourced for this project comply with the test data provided.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up of one of each type of roller shade assembly specified for evaluation of mounting, appearance and accessories.
			1. Locate mock-up in window(s) designated by Design Professional.
			2. Do not proceed with remaining work until mock-up is accepted by Design Professional.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Do not deliver window shades until building is enclosed and construction within spaces where shades will be installed is substantially complete.
		2. Deliver products in manufacturer's original, unopened, undamaged containers with labels intact.
		3. Label containers and shades according to Window Shade Schedule.
		4. Store products in manufacturer's unopened packaging until ready for installation.
	2. SEQUENCING
		1. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
		2. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
	3. PROJECT CONDITIONS
		1. Install roller shades after finish work and ambient temperature, humidity, and ventilation conditions are maintained at levels recommended for project upon completion.
	4. WARRANTY
		1. Hardware and Shade Fabric: Draper standard twenty-five-year limited warranty.
		2. Motors and Controls: Draper standard five-year limited warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Draper, Inc., which is located at: 411 S. Pearl P. O. Box 425; Spiceland, IN 47385-0425. ASD. Toll Free Tel: 800-238-7999; Tel: 765-987-7999; Fax: 866-637-5611; Web: [www.draperinc.com](http://www.draperinc.com).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01600. Contractor to be responsible for ALL COSTS related to a substitution requested less than 10 days prior to bid date, including cost of review by Design Professional.

\*\* NOTE TO SPECIFIER \*\* Select the shades required from the following paragraphs. For each Draper window shade there are options for size, fabric, operator, operator location, controls, method of installation, hardware, and hardware finish. Refer to Draper product literature for availability of options and selection guidelines. The specifier will need to select the appropriate options, verify their availability, and delete non-applicable models and options.

* 1. MOTORIZED WINDOW SHADES
		1. Type: Motorized, vertical roll-up, fabric window shade with motors, controls, mounting brackets, and other components necessary for complete installation; Dual Roller Motorized FlexShade as manufactured by Draper, Inc.

\*\* NOTE TO SPECIFIER \*\* Select the mounting type required from the following options, delete those not applicable. Brackets are not used with Headbox. If multiple types are required indicate the location of each in the schedule at the end of this section.

* + - 1. Mounting brackets.
			2. Endcaps and fascia.
			3. Endcaps and ceiling/wall headbox.
			4. Endcaps and pocket headbox.
		1. Shade Motor and Control System

\*\* NOTE TO SPECIFIER \*\* Select one of the following motor option paragraphs and delete those not required. General descriptions of each Motor and Control system are included with each option below. Contact Draper for more information concerning motor limitations.

* + - 1. UL listed Motorized FlexShade I/O AC 
				1. IntelliFlex I/O AC Motor: 120V AC, single phase, 60 HZ, 3-wire, 6nm or 15nm, at the manufacturer’s discretion, instantly reversible, lifetime lubricated smart motor. Tubular motor concealed inside each shade roller tube. Equipped with internal thermal overload protector, and electric brake. Thermal protection: 4 minutes.

Rated current: 1.0 Amps. Motors drawing greater than 1.0 amps shall not be acceptable without prior approval by Architect responsible for electrical design of project.

Speed: 28RPM. All motors within a discrete control zone must operate at same speed.

Sound level: 42dBA.

UL Listing: UL325 & CSA C22.2 No. 247. Motors not listed as part of an entire shade assembly and control system shall not be acceptable.

Encoded motors with two-way communication to network control devices. Motor/control networks that do not support two-way communication shall not be acceptable.

Limits: Intermediate stopping points and presets..

\*\* NOTE TO SPECIFIER \*\* Most IntelliFlex I/O motors, interface, and input devices automatically include a Network Device Connector. NDC is required to connect a device to the network and distribute power and communications between devices.

* + - * 1. IntelliFlex I/O Network Devices.

1) Network Device Connector. Connects lntelliFlex I/O devices into a network. Distributes power and communications between devices. One provided with each IntelliFlex I/O motor and network device. Approved for use in plenum spaces. LED Indicators indicate network status. Includes built-in terminating resistor, and network bypass switch for troubleshooting. Material: ABS plastic. Operating temperature: Ambient. Dimensions: 3 3/8" x 2" x 1 1/16" (90 x 31 x 27mm). Mounting hardware provided. Indoor use only.

\*\* NOTE TO SPECIFIER \*\* IntelliFlex I/O Wireless Network Gateway is required to connect wireless devices to the wired network. Delete if not required.

\*\* NOTE TO SPECIFIER \*\* Network interfaces allow input from external sources such as sensors and third party devices. Delete those not required.

Wireless Network Gateway. Allows wireless devices to control shades on the wired network. Required when using Radio Frequency handheld remote. LEDs indicate the status of both the wired and wireless networks. Allows wireless control of the entire network from a single receiving point. Material: ABS plastic. Operating temperature: Ambient. Dimensions: 3 3/8" x 2" x 1 1/16" (85 x 52 x 27mm). Mounting hardware provided. Indoor use only.

A\V Gateway. Used to integrate with third party control systems. Single entry point must support RS-232 and RS-485 and contain at least 6 contact closure inputs, low voltage trigger, and IR receiver input. Approved for use in plenum spaces. LCD display allows for commissioning of serial groups. Material: ABS plastic. Operating temperature: Ambient. Dimensions: 4 7/8" x 3" x 1" (124 x 83 x 32m). Mounting hardware provided. Indoor use only.

Contact Closure Interface. Allows up to 6 contact closure inputs to be connected to the network. These are grouped into 3 sets of Up/Down signals, each of which can control any number of shades on an lntelliFlex I/O network. Configuration must be done using onboard programming buttons, without rewiring or the use of external configuration devices. Power is provided through the lntelliFlex I/O network using a single Ethernet cable for power and communication. Material: ABS plastic. Operating temperature: Ambient. Dimensions: 3" x 3" x 1" (76 x 76 x 25mm). Mounting hardware provided. Indoor use only.

Sensor/Schedule Interface. Allows up to 4 sensors to be added to an IntelliFlex I/O network. Must include built-in support for brightness, wind, and precipitation sensors, and pyranometers. Must support up to 8 scheduled override events. Configuration must be done using on-board buttons and LCD display. Supports 0-10V, 4-20mA, photodiode and pulse sensors. External power input for sensors provides support for any sensor power requirements. Material: ABS plastic. Operating temperature: Ambient. Dimensions: 4 7/8” x 3¼” x 1¼” (124 x 83 x 32m). Mounting hardware provided. Indoor use only.

SSI Transformer. To be used when adding third party sensors to the network.

Sensor Interface with Automated Glare Control. The IntelliFlex® I/O Sensor / Scheduler Interface with automated glare control allows up to 4 sensors to be added to an IntelliFlex I/O network. Includes built-in support for brightness, wind and precipitation sensors as well as pyranometers. Also provided support for up to 8 scheduled override events. Configuration is done using on-board buttons and LCD display. Supports 0-10V, 4-20mA, photodiode and pulse sensors. Configuration using built-in buttons and LCD display. Scheduled events can be configured to run on any combination of days of the week. External power input for sensors provides support for any sensor power requirements. Material: ABS plastic. Operating temperature: Ambient. Dimensions: 4 7/8" x 3" x 1" (124 x 83 x 32m). Mounting hardware provided.

Central Network Controller. Touchscreen device to add advanced functionality to a network. It also acts as a router between the control network and a building IP network. Graphical user interfaces on local touchscreen as and remote access web interfaces. Automated glare control and scheduling. BACnet/IP integration. Interface to monitor and override network devices. Allows logging of shade movements, sensor readings, and user overrides. Input power: Micro USB. Operating temperature: ambient. Dimensions: 9 7/8" x 5¾" x 2" (251 x 146 x 51mm). Rough cutout: 8" x 5" x 1¾" (203 x 127 x 44mm). Mounting hardware provided.

IP Gateway. For connecting a network of IntelliFlex I/O devices to an IP network. Built-in two port network switch for connecting directly to a building network. Can be daisy chained to other IPGs to form a stand-alone network for access to all connected IntelliFlex I/O devices. Each IPG is a BACnet/IP device. Configuration is done using the built-in buttons and display. Material: ABS plastic. Operating temperature: ambient. Dimensions: 4 7/8" x 3" x 1" (124 x 83 x 32mm). Mounting hardware provided.

\*\* NOTE TO SPECIFIER \*\* Select required input device option paragraphs and delete the ones not required. 1 Network Device Connector is supplied with each input device.

* + - * 1. IntelliFlex I/O Input Devices:

Single Zone Wall Switch. Allows user to move roller shades to any position with a single touch. Swipe gestures must be recognized to move shades to fully open or closed positions. Power provided through lntelliFlex I/O network using a single Ethernet cable for power and communication. Switch shall be capable of controlling any number of shades on an lntelliFlex I/O network using onboard programming buttons without rewiring or the use of external configuration devices. Must allow unlimited number of preset alignment positions. Push button switches not permitted.

Dual Zone Wall Switch. Allows user to control two independent zones of roller shades, moving them to any position with a single touch. Swipe gestures must also be recognized to move shades to fully open or closed positions. Power for switch must be provided through the lntelliFlex I/O network using a single Ethernet cable for power and communication. Each zone must be configured to control any number of shades on an lntelliFlex I/O network using the onboard programming buttons, without rewiring or the use of external configuration devices. Unlimited number of preset alignment positions. Push button switches not permitted.

\*\* NOTE TO SPECIFIER \*\* IntelliFlex I/O Wireless Gateway is required with this device.

Radio Frequency Handheld Remote Control. Display must allow for any number of channels, up to 32 channels. Touch control to position the shades anywhere with one touch. Must be capable of serving as a simple commissioning tool. lntelliFlex I/O Wireless Network Gateway is required with remote. Range is 40 feet from closest IntelliFlex I/O device. Push button remotes not permitted. .

\*\* NOTE TO SPECIFIER \*\* IntelliFlex I/O A\V Gateway is required with this device.

Infrared (IR) Remote Control Kit. Includes handheld remote transmitter and IR receiver. For use with A\V Gateway.

\*\* NOTE TO SPECIFIER \*\* Select required optional sensors and delete the ones not required. IntelliFlex I/O Sensor/Schedule Interface required for sensors.

* + - * 1. IntelliFlex I/O Sensors.

External Brightness Sensor. For mounting on the exterior side of the window. For use with Sensor/Schedule Interface.

Wind Speed Sensor. For use with Sensor/Schedule Interface.

Internal Brightness Sensor. To be mounted on the interior side of the window with adhesive or with provided mounting bracket. For use with Sensor/Schedule Interface.

\*\* NOTE TO SPECIFIER \*\* Standard Motor: 120V AC tubular motor with 4-wire pigtail. All controls and receivers will be external to the motor. Can be tied into building systems using optional external control interfaces. Only those controls listed in this section will operate this motor

* + - 1. Motorized FlexShade AC
				1. Standard Motor: 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. Tubular motor concealed inside each shade roller tube.

\*\* NOTE TO SPECIFIER \*\* Quiet Standard Motor: Motor operates at 44 Db. Motor noise is approximately 30 percent less than standard tubular motors. All controls and receivers will be external to the motor. Can be tied into building systems using optional external control interfaces. Only those controls listed will operate this motor.

* + - * 1. Quiet 120V AC motor operates at 38 Db measured 3 feet from the motor. Makes no audible clicks when motor stops or starts. Tubular motor concealed inside each shade roller tube.
				2. Ultra Quiet 120V AC motor operates at 38 Db measured 3 feet from the motor. Tubular motor concealed inside each shade roller tube.

\*\* NOTE TO SPECIFIER \*\* Select one of the following control option paragraphs and delete the ones not required. For each control selected select the control device(s) required and delete those not required.

* + - * 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.

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 x 8 x 4 inch (203 x 203 x 102 mm) box.

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 ° F (0 - 60° C). Dimensions: 2¾” x 3½” x 2 1/8” (70 x 90 x 54mm). Enclosure: 4" x 4" X 4" (102 x 102 x 102mm).

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 ° F (0 - 60° C). Dimensions: 3½” x 7” x 1 7/8” (89 x 178 x 48mm). Enclosure: 6" x 4" x 4" (152 x 102 x 102mm).

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

\*\* NOTE TO SPECIFIER \*\* Standard Motor: 120V AC tubular motor with 4-wire pigtail. All controls and receivers will be external to the motor. Can be tied into building systems using optional external control interfaces. Only those controls listed in this section will operate this motor

* + - 1. Motorized FlexShade Zigbee.
				1. Standard Motor: 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. Tubular motor concealed inside each shade roller tube.

\*\* NOTE TO SPECIFIER \*\* Quiet Standard Motor: Motor operates at 44 Db. Motor noise is approximately 30 percent less than standard tubular motors. All controls and receivers will be external to the motor. Can be tied into building systems using optional external control interfaces. Only those controls listed will operate this motor.

* + - * 1. Quiet 120V AC motor operates at 38 Db measured 3 feet from the motor. Makes no audible clicks when motor stops or starts. Tubular motor concealed inside each shade roller tube.
				2. Ultra Quiet 120V AC motor operates at 38 Db measured 3 feet from the motor. Tubular motor concealed inside each shade roller tube.

\*\* NOTE TO SPECIFIER \*\* Select following control option paragraph or delete if not required.

* + - * 1. Somfy TaHoma – RTS and Zigbee hub. Enables control via app and voice. Allows for integration into third party smart controls.

Optional Ethernet adaptor.

\*\* NOTE TO SPECIFIER \*\* FlexShade Recharge Battery Motor: Rechargeable battery powered motor with Ion Lithium batteries in roller and built-in radio receiver. No wiring required. Only those controls listed will operate this motor

* + - 1. FlexShade Recharge. Lithium-Ion battery powered 5 volt motor with built-in radio receiver. Includes Ion Lithium batteries. No external wiring required. Tubular motor and batteries concealed inside each shade roller tube.

\*\* NOTE TO SPECIFIER \*\* Select the Battery Charging options and delete those not required.

* + - * 1. 4M Recharge Cable (Requires USB Wall Charger: C088.005)
				2. USB Wall Charger- 5V, 2A, White US Plug Universal
				3. 8" USB Extender Cable
				4. Solar Panel Version 2 for Recharge Battery Motors.

\*\* NOTE TO SPECIFIER \*\* Select the control device(s) required and delete those not required.

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

Recharge RF 1 Channel Remote

C156.260 Recharge RF 15 Channel Remote

C112.156 Recharge RF 5 Channel Surface Mount Switch

Recharge RF 1 Channel Switch (cut-in)

Recharge RF 2 Channel Switch (cut-in)

Recharge RF 15 Channel Switch (cut-in)

Screwless Switch Cover Plate

Recharge Sun Sensor

Recharge 1 Channel Dry Contact Interface

Recharge Arc Wi-Fi to 433 2 way RF Bridge Kit (\*Limited Quantity - While Supplies last)

Pulse 2 Hub

ARC Repeater

USB Wall Charger for ARC Repeater

ARC Serial Kit

Recharge RF Push 5 Channel Remote (White)

Recharge RF Push 5 Channel Remote (Black)

Recharge RF Push 15 Channel Remote (White)

Recharge RF Push 15 Channel Remote (Black)

\*\* NOTE TO SPECIFIER \*\* Radio Technology Motor: Motor with built-in radio receiver. 3-wire pigtail allows for attachment of optional three prong plug for plug-an-play operation. Can be tied into building systems using optional external control interfaces. Only those controls listed will operate this motor. Quiet Radio Technology Motor: Quiet motor with built-in radio receiver. Operates at 44 Db. Motor noise is approximately 30 percent less than standard tubular motor. Can be tied into building systems using optional external control interfaces. Only those controls listed will operate this motor.

* + - 1. Motorized FlexShade RTS AC.

\*\* NOTE TO SPECIFIER \*\* Select the motor required and delete the one not required.

* + - * 1. Standard Motor: 120V AC motor with built-in radio receiver. Tubular motor concealed inside each shade roller tube.
				2. Quiet 120V AC RTS Motorized FlexShade. 120V AC quiet motor with built-in radio receiver. Operates at 44 dBA. Tubular motor concealed inside each shade roller tube.
				3. Ultra Quiet 120V AC RTS Motorized FlexShade. 120V AC quiet motor with built-in radio receiver. Operates at 38 dBA. Tubular motor concealed inside each shade roller tube.

\*\* NOTE TO SPECIFIER \*\* Select the control device(s) required and delete those not required.

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

Single channel wireless handheld radio frequency transmitter.

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.

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.

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

Optional Ethernet adaptor.

\*\* NOTE TO SPECIFIER \*\* 24V DC Quiet motors with built-in radio receiver. Operate at 44 DB. Requires 24V transformer. Low voltage wiring does not require an electrician. Can be tied into building systems using optional external control interfaces. Only those controls listed will operate these motors.

* + - 1. FlexShade ST30 DC. 24V DC quiet motor with built-in radio receiver. Tubular motor concealed inside each shade roller tube.

\*\* NOTE TO SPECIFIER \*\* Select the control device(s) required and delete those not required.

* + - * 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

Dry Contact – Allows for full control of radio motor shade via 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.

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

Optional Ethernet adaptor.

\*\* NOTE TO SPECIFIER \*\* Note that the IP interface requires a connection the building server to pull time data and an IP address for access to the interface.

* + - * 1. Transformer (24V DC ONLY):

\*\* NOTE TO SPECIFIER \*\* Select the transformer type and motor quantity required and delete those not required.

Plug-In:

1 Motor - Wall Type.

1 Motor - Floor Type.

Power Panel:

5 Motors.

10 Motors.

15 Motors.

20 Motors.

* + - 1. FlexShade 50 DC. 24V DC quiet motor Quiet motor with built-in radio receiver. Tubular motor concealed inside each shade roller tube. 4 Nm of torque. Operates at 38 dBA.

\*\* NOTE TO SPECIFIER \*\* Select the control device(s) required and delete those not required.

* + - * 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

Dry Contact – Allows for full control of radio motor shade via 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.

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

Optional Ethernet adaptor.

\*\* NOTE TO SPECIFIER \*\* Note that the IP interface requires a connection the building server to pull time data and an IP address for access to the interface.

* + - * 1. IP Interface: Interface for virtual switch, timed events, and priority events to be input on DDN.
				2. Transformer (24V DC ONLY):

\*\* NOTE TO SPECIFIER \*\* Select the transformer type and motor quantity required and delete those not required.

Plug-In:

1 Motor - Wall Type.

1 Motor - Floor Type.

Power Panel:

10 Motors.

\*\* NOTE TO SPECIFIER \*\* 24V DC Dry Contact Motor: 24V DC Operates at 44 DB. Requires 24V transformer. Low voltage wiring does not require an electrician. Can be tied into building systems using optional external control interfaces. Only those controls listed will operate this motor.

* + - 1. 24V DC ST30 Dry Contact Motor - 24V DC quiet motor with dry contact for connection to third party control systems. Tubular motor concealed inside each shade roller tube. 2 Nm of torque.

\*\* NOTE TO SPECIFIER \*\* Select the control device(s) required and delete those not required.

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

3-button dry contact switch (white) for up/stop/down control, limit setting, and motor speed control of a shade. Third party controllers can be connected to a secondary 4 wire terminal block located on the switch.

3-button dry contact switch (ivory) for up/stop/down control, limit setting, and motor speed control of a shade. Third party controllers can be connected to a secondary 4 wire terminal block located on the switch.

Dry contact motor limit setting tool.

* + - * 1. Transformer:

\*\* NOTE TO SPECIFIER \*\* Select the transformer type and motor quantity required and delete those not required.

Plug-In:

1 Motor - Wall Type.

1 Motor - Floor Type.

Power Panel:

5 Motors.

10 Motors.

15 Motors.

20 Motors.

\*\* NOTE TO SPECIFIER \*\* Intelligent Technology Motor: Motor with built-in low voltage controller with 3-wire pigtail and data cable. No external motor control interface required. Best for integration into building automation systems. Available with optional three prong plug for plug-and-play operation. Only those controls listed will operate this motor. Quiet Intelligent Technology Motor: Motor with built-in low voltage controller with 3-wire pigtail and data cable. Operates at 44 Db. No external motor control interface required. Best for integration into building automation systems. Available with optional three prong plug for plug-and-play operation. Only those controls listed will operate this motor.

* + - 1. Motorized FlexShade 485 AC.
				1. 120V AC Intelligent Technology motor with built-in low voltage controller with 3-wire pig tail and data cable. No external motor controls are required. Available with optional three prong plug. Tubular motor concealed inside each shade roller tube.
				2. Quiet 120V AC Intelligent Technology Motor - 120V AC quiet motor with built-in low voltage controller with 3-wire pig tail and data cable. Motor operates at 44 dBA measured 3 feet from the motor. Makes no audible clicks when motor stops or starts. Available with optional three prong plug. Tubular motor concealed inside each shade roller tube.
				3. Ultra Quiet 120V AC Intelligent Technology Motor - 120V AC quiet motor with built-in low voltage controller with 3-wire pig tail and data cable. Motor operates at 38 dBA measured 3 feet from the motor. Makes no audible clicks when motor stops or starts. Available with optional three prong plug. Tubular motor concealed inside each shade roller tube.

\*\* NOTE TO SPECIFIER \*\* Select the control device(s) required and delete those not required.

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

6 Button RS 485 switch- for up/stop/down control. 3 presets

8 button RS 485 switch- for up/stop/down. 5 presets.

32 point BACnet interface- Control of up to 32 groups with feedback via BACnet over IP.

Somfy Digital Network. SDN system of window shades with intelligent motors linked to an IP interface box and other input devices for automated glare control.

Bus Distribution

Data Hub for 485 Motor

5-Way RJ45 Splitter

Building Controllers

SDN Data Panel

User Interfaces

Somfy Connect BMS Interface

Somfy Connect LTI

Z Wave Digital Motor Interface (ZDMI)

Zigbee to RS485 (ZBDMI)

RTS Receiver for 485

SDN 6 button wall switch (Preprogrammed for master control)

SDN 8 button wall switch

Somfy Connect UAI Plus. Allows for RS232 & IP integration protocols for SDN systems.

Accessories

Bus Power Supply, 24V, 1A.

32 point BACnet interface- Control of up to 32 groups with feedback via BACnet over IP.

\*\* NOTE TO SPECIFIER \*\* 24V DC RS 485 Motor: 24V DC Quiet motor with built-in intelligence for RS 485 control. Operates at 44 DB. Requires 24V transformer. Low voltage wiring does not require an electrician. Can be tied into building systems using optional external control interfaces. Only those controls listed will operate this motor.

* + - 1. Model: 24V ST30 RS 485 Motor - 24V DC quiet motor with built-in intelligence for RS 485 control. Tubular motor concealed inside each shade roller tube. 4 Nm of torque.

\*\* NOTE TO SPECIFIER \*\* Select the control device(s) required and delete those not required.

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

6 Button RS 485 switch- for up/stop/down control. 3 presets

8 button RS 485 switch- for up/stop/down. 5 presets.

0-10V control by lighting control system.

32-point BACnet interface-Control of up to 32 groups with feedback via BACnet over IP.

Somfy Digital Network. SDN system of window shades with intelligent motors linked to an IP interface box and other input devices for automated glare control.

Bus Distribution

Data Hub for 485 Motor

5-Way RJ45 Splitter

Building Controllers

SDN Data Panel

User Interfaces

Somfy Connect BMS Interface

Somfy Connect LTI

Z Wave Digital Motor Interface (ZDMI)

Zigbee to RS485 (ZBDMI)

RTS Receiver for 485

SDN 6 button wall switch (Preprogrammed for master control)

SDN 8 button wall switch

Somfy Connect UAI Plus. Allows for RS232 & IP integration protocols for SDN systems.

Accessories

Bus Power Supply, 24V, 1A

32-point BACnet interface-Control of up to 32 groups with feedback via BACnet over IP

* + - * 1. Transformer (24V DC ONLY):

\*\* NOTE TO SPECIFIER \*\* Select the transformer type and motor quantity required and delete those not required.

Plug-In:

1 Motor - Wall Type.

1 Motor - Floor Type.

Power Panel:

10 Motors.

* + - 1. 24V DC50 RS 485 Motor - 24V DC quiet motor with built-in intelligence for RS 485 control. Tubular motor concealed inside each shade roller tube. 4 Nm of torque.

\*\* NOTE TO SPECIFIER \*\* Select the control device(s) required and delete those not required.

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

6 button RS 485 switch- for 2 groups up/stop/down or 1 group up/stop/down and 3 presets.

8 button RS 485 switch- for 5 groups up/stop/down or 1 group up/stop/down and 5 presets

Somfy Digital Network. SDN system of window shades with intelligent motors linked to an IP interface box and other input devices for automated glare control.

Bus Distribution

Data Hub for 485 Motor

5-Way RJ45 Splitter

Building Controllers

SDN Data Panel

User Interfaces

Somfy Connect BMS Interface

Somfy Connect LTI

Z Wave Digital Motor Interface (ZDMI)

Zigbee to RS485 (ZBDMI)

RTS Receiver for 485

SDN 6 button wall switch (Preprogrammed for master control)

SDN 8 button wall switch

Somfy Connect UAI Plus. Allows for RS232 & IP integration protocols for SDN systems.

Accessories

Bus Power Supply, 24V, 1A

32-point BACnet interface-Control of up to 32 groups with feedback via BACnet over IP.

* + - * 1. Transformer:

\*\* NOTE TO SPECIFIER \*\* Select the transformer type and motor quantity required and delete those not required.

Plug-In:

1 Motor - Wall Type.

1 Motor - Floor Type.

Power Panel:

10 Motors.

NOTE TO SPECIFIER \*\* Select the mounting type required for window shade from the following options, delete those not applicable. If multiple types are required indicate the location of each in the schedule at the end of this section.

* + 1. Configuration:
			1. Dual Roller.
				1. Mounting.

Dual roller endcaps. Endcaps for surface or recessed mounting of dual roller window shades. 1028 steel stamping.

Dual roller fascia. Endcaps with fascia designed for surface mounting of dual roller window shades.

Endcaps: 1028 steel stamping.

Fascia: L-shaped cover of extruded aluminum, .060 wall. Assembly snaps onto endcaps without exposed fasteners.

Finish: Powder coat.

\*\* NOTE TO SPECIFIER \*\* Select the finish required from the following paragraphs and delete those not required.

Selected from Manufacturers standard range.

Custom powder coat as selected by Design Professional.

Dual roller with ceiling/wall headbox. Fascia, L-shaped top/back, and endcaps designed for wall or ceiling installation of dual roller window shades.

Endcaps: 1028 steel stamping.

Fascia: L-shaped cover of bent steel. Assembly snaps onto endcaps without exposed fasteners.

Finish: Powder coat.

\*\* NOTE TO SPECIFIER \*\* Select the finish required from the following paragraphs and delete those not required.

Selected from Manufacturers standard range.

Custom powder coat as selected by Design Professional.

\*\* NOTE TO SPECIFIER \*\* "L", "U", or "H" channels are available on the rear roller for light gap reduction. Select the desired paragraph and deleted the others.

Aluminum "L" Channel

Vinyl “L” Angle

Aluminum "U" Channel

Aluminum "H" Channel

 Liners

Dual roller with pocket headbox. Pocket and endcaps designed for recessed ceiling installation of dual roller window shades.

Material: 18 gauge steel.

Finish:

\*\* NOTE TO SPECIFIER \*\* Select the finish required from the following paragraphs and delete those not required.

White Inside/Grey Outside with white ceiling flange.

Grey Inside/White Outside with white ceiling tile flange.

Closure Panel Aluminum, without exposed fasteners:

\*\* NOTE TO SPECIFIER \*\* Dual Roller Pocket Headbox can be ordered with tile flanges, pre-drilled mounting holes, and pre-driller ventilation holes. Select required paragraphs below and delete the others.

Front Tile Flange.

Left Tile Flange.

Right Tile Flange.

Pre-drilled Mounting Holes.

Pre-drilled Ventilation holes.

\*\* NOTE TO SPECIFIER \*\* "L", "U", or "H" channels are available on the rear roller for light gap reduction. Select the desired paragraph and deleted the others.

Aluminum "L" Channel

Vinyl “L” Angle

Aluminum "U" Channel

Aluminum "H" Channel

Channel Liners

Shade slat:

\*\* NOTE TO SPECIFIER \*\* Select the shade slat required from the following paragraphs and delete those not required

Closed pocket elliptical slat: 1 inch (25 mm) aluminum elliptical slat inside of a 1-5/8 inch (41 mm) pocket with heat sealed ends.

Open pocket elliptical slat: 1 inch (25mm) aluminum elliptical slat with plastic ends inside of a 1-5/8 inch (41 mm) pocket.

Flat exposed hem bar: Small: 7/8 inch x 5/16 inch (22 mm x 8 mm) and Large 1-1/2 inch x 5/16 inch (38 mm x 8 mm) aluminum rectangular hem bar with plastic end caps.

Round exposed hem bar: Small 5/8 inch (16 mm) and Large 13/16 inch (21 mm) aluminum with plastic end caps.

* + 1. Roller: Fabricated from extruded aluminum or steel. Wall thickness and material selected by manufacturer to accommodate shade size. Provide with roller idler assembly of molded nylon and zinc-plated steel pin. Sliding pin to allow easy installation and removal of roller. Fabric connected to the roller tube with LSE (low surface energy) double sided adhesive specifically developed to attach coated textiles to metal. Adhesive attachment to eliminate horizontal impressions in fabric.

\*\* NOTE TO SPECIFIER \*\* Up to five Draper Motorized FlexShades can be operated by a single motor by coupling the rollers with Draper FlexShade Coupling System. Shades can be different widths (up to 120 inches (305 cm) per panel) but all rollers must be the same diameter. Maximum group width is 30 feet (9.1 m). System consists of male and female couplings and wall or ceiling brackets. Motor can be installed in either the far left or far right shades, with no more than five panels on one motor. PLEASE NOTE: ST30 DV MOTORS AND BOTTOM-UP SHADES CANNOT BE COUPLED. Delete if not required.

* + 1. Coupling system: Couplings to join motorized shade rollers to allow operation by single motor. FlexShade Coupling System as manufactured by Draper, Inc. Provide endcaps to receive couplers and support multiple shades. Coupling system must be capable of up to 30-degree angles.
	1. FABRIC

\*\* NOTE TO SPECIFIER \*\* Refer to Draper product literature for available shade fabrics and selection guidelines. Select fabric(s), percent open and color as applicable from the following and delete those not applicable. Use the schedule at the end of this section if required to define location(s) of multiple fabrics. Note that for dual roller shades, choose two, and indicate which is for front roller and which is for back roller.

* + 1. Light-Filtering Fabrics
			1. PVC Coated Fiberglass
				1. 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 E2180, 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 E2180, 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 E2180, 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 E2180, ASTM G21. Average 10 percent open, .020 inches thick, 10.3 oz/square yd.

E Screen™ 1% with KOOLBLACK® 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 E2180, ASTM G21. Average 1 percent open, .021 inches thick. Weight: 12.95 oz/square yard.

E Screen™ with KOOLBLACK®. 3 percent openness factor 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 E2180, ASTM G21. Average 3 percent open, .020 inches thick, 11.3 oz. per square yard.

E Screen™ with KOOLBLACK®. 5 percent openness factor 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 E2180, ASTM G21. Average 5 percent open, .019 inches thick, 10.6 oz/square yard.

E Screen Deco™ 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 E2180, ASTM G21. 1 percent open, .022 inches thick. 12.30 oz/square yard.

E Screen Deco™ 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 E2180, ASTM G21. 3 percent open, .019 inches thick. 11.50 oz/square yard.

Natte™ 5% by Mermet: PVC coated fiberglass yarn woven in 2 by 2 basketweave. NFPA 701-10 TM#1, California U.S. Title 19, CAN/ULC-S109-03 Small & Large Flame Test. 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 E2180, ASTM G21. Openness factor: 5%. Thickness: 0.022 inches. Weight: 14.13 oz/square yard.

Natte™ 10% by Mermet: PVC coated fiberglass yarn woven in 2 by 2 basketweave. NFPA 701-10 TM#1, California U.S. Title 19, CAN/ULC-S109-03 Small & Large Flame Test. 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 E2180, ASTM G21. Openness factor: 5%. Thickness: 0.021 inches. Weight: 13.48 oz/square yard.

S Screen™ 1% by Mermet®: PVC coated fiberglass wrapped in polyester thread in a plain weave. 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 E2180, ASTM G21. 3 percent open, .041 inches thick, 19.10 oz/square yard.

S Screen™ 4% by Mermet®: PVC coated fiberglass wrapped in polyester thread in a plain weave. 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 E2180, ASTM G21. ASTM E2180 and ASTM G21. Environmental benefits: RoHS – lead free. 4 percent open, .037 inches thick, 18.9 oz/square yard.

S Screen Naturals™ 5% by Mermet®: PVC coated fiberglass wrapped in polyester thread in a fancy weave. 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 E2180, ASTM G21. 5 percent open, .042 inches thick 15 oz/square yard.

SheerWeave® Series SW2000 by Phifer®: 500 denier fiberglass, vinyl coated and woven into a 2 by 2 basket weave. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 14.26 oz/sq yd, .019 inches thick. Series SW2000 average 5 percent open.

SheerWeave® Series SW2100 by Phifer®: 500 denier fiberglass, vinyl coated and woven into a 2 by 2 basket weave. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 14.26 oz/sq yd, .019 inches thick. Series SW2100 average 10 percent open.

SheerWeave® Series SW2400 (2410) by Phifer®: 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 3 percent open .019 inches thick. 14.1 oz/square yard.

SheerWeave® Series SW2500 by Phifer®: 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 1 percent open, .024 inches thick. 16.39 oz/square yard.

SheerWeave® Series SW2600 (2360) by Phifer®: 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban ®antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 10 percent open, .017 inches thick. 10.4 oz/square yard.

SheerWeave® Series SW2900 (2390) by Phifer®: 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: California U.S. Title 19 (small scale), NFPA 101 (Class A Rating), BS 5867 Part 2 Type B Performance, CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80, NFPA 701 TM#1 (small scale), IBC Section 803.1.1 (Class A Rating), NFPA 701 TM#2 (large scale). Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 5 percent open. .017 inches thick. 11.8 oz/square yard.

SheerWeave® Basic 3% by Phifer®. An economical alternative to traditional solar screen fabrics. Fire Rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, CAN/ULC-S 109 (large and small scale), NFPA 701 TM#2 (large scale), CAN/CGSB2-4.162-M80. Bacteria and Fungal Resistance ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental Certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Average 3 percent Openness. Average Fabric Thickness: .025 inch. Average Fabric Weight: 16.4 ounces per square yard.

SheerWeave® Basic 5% by Phifer®. An economical alternative to traditional solar screen fabrics. Fire Rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, CAN/ULC-S 109 (large and small scale), NFPA 701 TM#2 (large scale), CAN/CGSB2-4.162-M80. Bacteria and Fungal Resistance ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental Certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Average 5 percent Openness. Average Fabric Thickness: 0.022 inch. Average Fabric Weight: 14.1 ounces per square yard.

* + - * 1. Ribbed Weave

M Screen™ 1% by Mermet®: PVC coated fiberglass in 1 by 2 ribbed weave. 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 E2180, ASTM G21. 1 percent open, .022 inches thick, 13.12 oz/square yard.

M Screen™ 3% by Mermet®: PVC coated fiberglass in 1 by 2 ribbed weave. 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 E2180, ASTM G21. 3 percent open, .022 inches thick, 12.27 oz/square yard.

M Screen™ 5% by Mermet®: PVC coated fiberglass in 1 by 2 ribbed weave. 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 E2180, ASTM G21. 5 percent open, .022 inches thick, 11.3 oz/square yard.

M Screen Deco™ 5% by Mermet®: PVC coated fiberglass in 1 by 2 ribbed weave. 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 E2180, ASTM G21. 5 percent open, .020 inches thick, 11.3 oz/square yd.

SheerWeave® Series SW1000 SunScreen® by Phifer. PVC coated fiberglass in a ribbed weave. Fire Classification: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large scale). Bacteria and Fungal Resistance: ASTM E 2180, ASTM G21, AATCC30 Part 3, ASTM D 3273, GREENGUARD Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental: Certified to UL GREENGUARD® and GREENGUARD Gold® standards. Lead Free: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Approximate openness factor: 25%.

SheerWeave® Series SW3000 by Phifer®: Vinyl coated fiberglass and vinyl coated polyester woven into 62 by 20 mesh. Fire rating: NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), NFPA 701 TM#2 (large scale). Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 13.46 oz/sq yd, .028 inches thick. Average 14 percent open.

* + - * 1. Satin Weave

T Screen™ with KOOLBLACK® 1% by Mermet®: PVC coated fiberglass woven mesh. Dark on one side, light on the other. 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 E2180, ASTM G21. Average 1 percent open, .024 inches thick, 13.54 oz/square yard.

T Screen™ with KOOLBLACK® 3% by Mermet®: PVC coated fiberglass woven mesh. Dark on one side, light on the other. 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 E2180, ASTM G21. Average 3 percent open, .029 inches thick, 13.27 oz/square yard.

T Screen™ with KOOLBLACK®. 5 percent openness factor by Mermet®: PVC coated fiberglass woven mesh. Dark on one side, light on the other. 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 E2180, ASTM G21. Average 5 percent open, .027 inches thick, 12.48 oz/ square yard.

T Screen Deco™ 1% by Mermet®: PVC coated fiberglass satin style. 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 E2180, ASTM G21. Average 1 percent open, .028 inches thick, 13.76 oz/square yd.

T Screen Deco™ 3% by Mermet®: PVC coated fiberglass satin style. 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 E2180, ASTM G21. Average 3 percent open, .028 inches thick, 12.98 oz/square yard.

T Screen Deco™ 5% by Mermet®: PVC coated fiberglass satin style. 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 E2180, ASTM G21. Average 5 percent open, .028 inches thick, 11.89 oz/square yard.

* + - * 1. Twill Weave

9803 3% by Mermet®: PVC coated fiberglass woven mesh. Dark on one side, light on the other. 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 E2180, ASTM G21. Average 3 percent open, .025 inches thick, 11.6 oz/square yard.

SheerWeave® Series SW2701 by Phifer®: Duplex basketweave fabric—light exterior color combined with dark interior color for thermal comfort and view-through. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4. 162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental Certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 1 percent open. .027 inches thick. 14.6 oz/square yard.

SheerWeave® Series SW2703 by Phifer®: Duplex basketweave fabric—light exterior color combined with dark interior color for thermal comfort and view-through. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4. 162-M80, CAN/ULC S-102. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. 3 percent open. .028 inches thick. 14.0 oz/square yard.

SheerWeave® Series SW2705 by Phifer®: Duplex basketweave fabric—light exterior color combined with dark interior color for thermal comfort and view-through. GREENGUARD Gold®. Manufacturer to supply GREENGUARD Gold certificate. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4. 162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental Certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 5 percent open. .025 inches thick. 11.8 oz/square yard.

SheerWeave® Series SW2710 by Phifer®: Duplex basketweave fabric—light exterior color combined with dark interior color for thermal comfort and view-through. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4. 162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental Certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 10 percent open. .023 inches thick. 10.4 oz/square yard.

T Screen™ 1% by Mermet®: PVC coated fiberglass woven mesh. White, charcoal, or pearl backing color. Fire rating: NFPA 701-15 TM#1, California U.S. Title 19 CAN/ULC-S109-14 Small 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 E2180, ASTM G21. Average 1 percent open, .028 inches thick, 13.83 oz/square yard.

* + - 1. Fiberglass
				1. Mock Leno Weave

GreenScreen® Nature™ 5%: GreenScreen Nature is an inherently fire-retardant fabric constructed of 100 percent fiberglass yarn in a mock leno weave. Additional fire retardancy chemicals are not required. Recyclable, halogen- and PVC-free. Red List compliant. Fire rating: NFPA 701-10 TM#1, California U.S. Title 19, CAN/ULC-S109 Small & Large Scale. Microbial Resistance, ASTM E2180 and ASTM G21: Pass. UL GREENGUARD®, GREENGUARD Gold®. Approximate Openness Factor: 5 percent. Average Fabric Thickness: 0.010 inch (.024 mm). Average Fabric Weight: 5.10 ounces per square yard (174 grams per square meter).

* + - * 1. Ribbed Weave

Vizela™ < 1% by Mermet®: 100 percent fiberglass with an EVA coating and PVC free. 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 E2180, ASTM G21. < 1% open, .013 inches thick, 8.7 oz/square yard.

SilverScreen 4% by Verosol: 36 percent fiberglass and 64 percent vinyl with an ultra-fine layer of aluminum on the backside. Fire rating: NFP 92503 specification M1, NFPA 701, B5 5867 Part 2 Type B, AS 1530. Environmental Benefits: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. RoHS compliant - Lead Free, Formaldehyde free. 5 percent Open, 0.020 inches thick, 11.7974 oz/square yard.

* + - 1. Vinyl Coated Polyester
				1. Basketweave

SunTex® 90 by Phifer. Vinyl-coated polyester woven into a basketweave. For outdoor use. Fire Classification: NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), CFR 49V 571.302 (FMVSS 302), California Technical Bulletin 117, CAN/ULC S-109 (large scale) and ASTM E-662. Bacteria and Fungal Resistance: ASTM E 2180 and ASTM G21; includes Microban® antimicrobial additives. Environmental: Certified to UL GREENGUARD® and GREENGUARD Gold® standards. Lead Free: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Openness factor: approximately 10%. Thickness: 0.039 inches. Weight: 17.2 oz/square yard.

SunTex® 95 by Phifer. Vinyl-coated polyester woven into a basketweave. For outdoor use. Fire Classification: NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), CFR 49V 571.302 (FMVSS 302), California Technical Bulletin 117, CAN/ULC S-109 (large scale) and ASTM E-662. Bacteria and Fungal Resistance: ASTM E 2180 and ASTM G21; includes Microban® antimicrobial additives. Environmental: Certified to UL GREENGUARD® and GREENGUARD Gold® standards. Lead Free: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Openness factor: approximately 5%. Thickness: 0.029 inches. Weight: 15.4 oz/square yard.

SunTex® 97 by Phifer. Vinyl-coated polyester woven into a basketweave. For outdoor use. Fire Classification: NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), CFR 49V 571.302 (FMVSS 302), California Technical Bulletin 117, CAN/ULC S-109 (large scale) and ASTM E-662. Bacteria and Fungal Resistance: ASTM E 2180 and ASTM G21; includes Microban® antimicrobial additives. Environmental: Certified to UL GREENGUARD® and GREENGUARD Gold® standards. Lead Free: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Openness factor: approximately 3%. Thickness: 0.033 inches. Weight: 16.0 oz/square yard.

SheerWeave® Series PW3500 (4000) by Phifer®: Vinyl coated polyester yarn woven into basketweave pattern. Uses DOW ECOLIBRIUM™ bio-based, phthalate-free plasticizer. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental Certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content, REACH (EC 1907/2006) compliant. Average 5 percent open, 19.2 oz/sq yd, .036 inches thick.

SheerWeave® Series PW4100 by Phifer®: Vinyl coated polyester yarn woven into basketweave pattern. Uses DOW ECOLIBRIUM™ bio-based, phthalate-free plasticizer. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental Certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content, REACH (EC 1907/2006) compliant. Average 10 percent open, 17.5 oz/sq yd, .035 inches thick.

SheerWeave® Series PW4400 by Phifer®: Vinyl coated polyester yarn woven into basketweave pattern. Uses DOW ECOLIBRIUM™ bio-based, phthalate-free plasticizer. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental Certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content, REACH (EC 1907/2006) compliant. Average 3 percent open, 20.7 oz/sq yd, .037 inches thick.

SheerWeave® Series PW4500 by Phifer®: Vinyl coated polyester yarn woven into basketweave pattern. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale). Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to GREENGUARD and GREENGUARD UL Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Average 5 percent open, 14.4 oz/sq yd, .024 inches thick.

SheerWeave® Series PW4600 by Phifer®: Vinyl coated polyester yarn woven into basketweave pattern. Fire rating: Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale). Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Average 3 percent open, 17.4 oz/sq yd, .030 inches thick.

Soltis Harmony 88 by Ferrari. PVC-coated polyester with pre-tensioning process for dimensional stability. Flame Retardancy: B-s2,d0 / EN 13501-1, M1/NFP92-507, B1/DIN 4102-1, BS 7837, BS 5867, Schwerbrennbar Q1-Tr1/ONORM, A3800-1, CAN/ULC-S 109, M1/UNE 23727-90, Classe 1/EN 13773, CSFM T19, Method 1 & 2/ NFPA 701, Class A/ASTM E84, 1530.3/AS NZS, Group 1/AS NZS 3837, G1/GOST.30244.94. Environment: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Recyclable through TexyLoop®. 8 percent open, .018 inches thick, 10.61 oz/square yard.

Soltis Horizon 86 by Ferrari. PVC-coated polyester with pre-tensioning process for dimensional stability. Flame Retardancy: B-s2,d0 / EN 13501-1, M1/NFP92-507, B1/DIN 4102-1, BS 7837, BS 5867, Schwerbrennbar Q1-Tr1/ONORM, A3800-1, CAN/ULC-S 109, M1/UNE 23727-90, Classe 1/EN 13773, CSFM T19, Method 1 & 2/ NFPA 701, Class A/ASTM E84, 1530.3/AS NZS, Group 1/AS NZS 3837, G1/GOST.30244.94. Environment: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Recyclable through TexyLoop®. 14 percent open, .018 inches thick, 11.2 oz/square yard.

Soltis® Master 99 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 UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Recyclable through TexyLoop®. 3 percent open, .0156 inches thick, 8.6 oz/ square yard.

Soltis® Perform 92 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 UL 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.

* + - * 1. Decorative Weave

SheerWeave® Series SW5000 by Phifer®: Polyester and vinyl coated polyester woven into a 42 by 20 mesh. Fire rating: California Technical Bulletin 117 Sect. E. Part 1/ /UBC (Class 1)/British Standard 5867. Varies depending on color. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, ASTM D3273, AATCC 30 Part 3, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 12.3 to14.5 oz/sq yd, .035 inches - .044 inches thick, depending on color. 5 to 10 percent open, depending on color.

* + - * 1. Plain Weave

SheerWeave® PW4800 by Phifer®: Vinyl coated polyester with maximum UV blockage. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ ULC-S 109 (large and small scale), CAN/CGSB2-4.162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. 1 percent openness factor. 18.5 oz/sq yd, .036 inches thick.

* + - * 1. Twill Weave

SheerWeave® Series PW4550 by Phifer®: Vinyl coated polyester yarn woven into basketweave pattern. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale). Bacteria and fungal Resistance. ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Average 5 percent open, 12.5 oz/sq yd, .025 inches thick.

SheerWeave® Series PW4650 by Phifer®: Vinyl coated polyester yarn woven into basketweave pattern. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale). Bacteria and fungal Resistance. ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Average. 3 percent open, 13.3 oz/sq yd, .026 inches thick.

SheerWeave® PW4901 by Phifer®: Vinyl coated polyester with maximum UV blockage. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ ULC-S 109 (large and small scale), CAN/CGSB2-4. 162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. UV protection: Seal of Approval by the Melanoma International Foundation (MIF) for effectiveness in preventing sun damage to the skin or eyes. 1 percent openness factor. 15.85 oz/sq yd, .028 inches thick.

SheerWeave® PW4903 by Phifer®: Vinyl coated polyester with maximum UV blockage. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), NFPA 101 (Class A Rating), IBC Section 803.1.1 (Class A Rating), BS 5867 Part 2 Type B Performance, NFPA 701 TM#2 (large scale), CAN/ ULC-S 109 (large and small scale), CAN/CGSB2-4. 162-M80. Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, UL GREENGUARD® Mold and Bacteria Standard ASTM 6329; includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. UV protection: Seal of Approval by the Melanoma International Foundation (MIF) for effectiveness in preventing sun damage to the skin or eyes. 3 percent openness factor. 14.9 oz/sq yd, .027 inches thick.

* + - 1. Polyester
				1. Basketweave

SheerWeave® Series SW8000 by Phifer®: PVC-free polyester. Fire rating: California U.S. Title 19 (small scale), BS 5867 2008 Part 2 Type B Performance, IBC Section 803.1.1 (Class A Rating), NFPA 701 TM#1 (small scale), NFPA 701 TM#2 (large scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4. 162-M80, B1 (DIN 4102-1), NFPA 101 (Class A Rating). Bacteria and fungal resistance: ASTM E 2180, ASTM G21. Environmental certification: Cradle to Cradle Certified™ Bronze and certified to ul GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, ANSI/WCMA A 100.1-2007 for lead content, US Consumer Product Safety Commission Section 101and REACH (EC 1907/2006) compliant. UV Protection: Seal of Approval by the Melanoma International Foundation (MIF) for effectiveness in preventing sun damage to the skin or eyes. Average 3% open. .019 inches thick. 7.35 oz/square yard.

* + - * 1. Decorative Weave

SheerWeave® Series SW7450 by Phifer®: PVC-free polyester with acrylic coating. Fire rating: California Technical Bulletin 117, IBC Section 803.1.1 (Class A Rating), NFPA 101 (Class A Rating). Bacteria and Fungal Resistance: ASTM G21-96, AATCC 174-1998 Part II and III. Environmental Certification: Certified to GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe Use: RoHS/Directive 2002/95/EC, ANSI/WCMA A 100.1-2007 for lead content, US Consumer Product Safety Commission Section 101. UV Protection: Seal of Approval by the Melanoma International Foundation (MIF) for effectiveness in preventing sun damage to the skin or eyes. .026 inches thick, 6.54 oz/square yard.

* + - * 1. Fancy Weave

Verona Daylight™ by Mermet. 100% polyester. Fire Classifications: NFPA 701-10 TM#1, California U.S. Title 19, CAN/ULC-S109-03 Small & Large Flame Test. Bacterial Resistance: ASTM E2180, ASTM G21. Environment: RoHS - Lead Free, certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Openness factor: less than 1%. .021 inches thick, 5.90 oz/square yard.

* + - * 1. Diamond Knit

GreenScreen Evolve® 3%: GreenScreen Evolve is a fire retardant PVC-free fabric is constructed of 100 percent polyester yarn, with up to 78% Repreve polyester. Repreve is recycled and recyclable, contains low VOC's, and made in the USA. Fire rating: NFPA 701-99 TM#1, California U.S. Title 19, Cradle to Cradle Certified Silver, UL GREENGUARD®, GREENGUARD Gold®, PVC Free. Approximate Openness Factor: 3 percent. Average Fabric Thickness: 0.027 inch (.068 mm). Average Fabric Weight: 8.41 ounces per square yard. Microbial Resistance, ASTM E2180 and ASTM G21: Pass.

GreenScreen Revive® 1%. GreenScreen Revive is a fire retardant PVC-free fabric constructed of 100 percent polyester yarn, with a minimum of 89 percent Repreve polyester. Repreve is recycled and recyclable, contains low VOC's, and made in the USA. Fire rating: NFPA 701-99 TM#1, California U.S. Title 19, Cradle to Cradle Certified Silver, UL GREENGUARD®, GREENGUARD Gold®. Approximate Openness Factor: 1 percent. Average Fabric Thickness: 0.019 inch (0.48 mm). Average Fabric Weight: 5.87 ounces per square yard.

GreenScreen Revive® 5%. GreenScreen Revive is a fire retardant PVC-free fabric is constructed of 100 percent polyester yarn, with a minimum of 89 percent Repreve polyester. Repreve is recycled and recyclable, contains low VOC's, and made in the USA. Fire rating: NFPA 701-99 TM#1, California U.S. Title 19, Cradle to Cradle Certified Silver, UL GREENGUARD, GREENGUARD Gold, Green PVC Free. Approximate Openness Factor: 5 percent. Average Fabric Thickness: 0.017 inch (.043 mm). Average Fabric Weight: 5.01 ounces per square yard.

* + - * 1. Linen Pattern

SheerWeave® Series SW7650 by Phifer®: PVC-free polyester. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), BS 5867 Part 2 Type B Performance, CAN/ULC-S 109 (large and small scale). Bacteria and fungal resistance: ASTM G21-96, AATCC 174-1998 Part II and III. Environmental certification: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, ANSI/WCMA A 100.1-2007 for lead content, US Consumer Product Safety Commission Section 101. UV protection: Seal of Approval by the Melanoma International Foundation (MIF) for effectiveness in preventing sun damage to the skin or eyes. .014 inches thick, 6.2 oz/square yard.

* + - 1. Thermoplastic Olefin
				1. Basketweave

SheerWeave® Infinity2 1%: sustainable window treatment fabric eco-friendly basketweave. Core yarn and coating are PVC-free, lead-free and 100 percent recycable. Fire classification: ASTM E-84 (Class I), NFPA 701-2004 TM#1 (small scale), NFPA 101 (Class A Rating) and CAN/ULC-S 109-03 Large, UL GREENGUARD®, GREENGUARD Gold®. Average 1 percent open. Average Fabric Thickness: .033 inch (.838 mm) Average Fabric Weight: 14.63 ounces per square yard.

SheerWeave® Infinity2 3%: sustainable window treatment fabric eco-friendly basketweave. Core yarn and coating are PVC-free, lead-free and 100 percent recycable. Fire classification: ASTM E-84 (Class I), NFPA 701-2004 TM#1 (small scale), NFPA 101 (Class A Rating) and CAN/ULC-S 109-03 Large, UL GREENGUARD®, GREENGUARD Gold®. Average 3 percent open. Average Fabric Thickness: .031 inch (.79 mm) Average Fabric Weight: 13.69 ounces per square yard.

SheerWeave® Infinity2 5%: sustainable window treatment fabric eco-friendly basketweave. Core yarn and coating are PVC-free, lead-free and 100 percent recycable. Fire classification: ASTM E-84 (Class I), NFPA 701-2004 TM#1 (small scale), NFPA 101 (Class A Rating) and CAN/ULC-S 109-03 Large, UL GREENGUARD®, GREENGUARD Gold®. Average 5 percent open. Average Fabric Thickness: .03 inch (.76 mm). Average Fabric Weight: 12.82 ounces per square yard.

* + 1. Room Darkening Fabrics
			1. Opaque
				1. PVC Coated Fiberglass

SheerWeave® Series SW7100 Blackout by Phifer®: PVC-coated Fiberglass laminated with a 2-ply PVC film. Fire rating: NFPA 701 TM#1 (small scale), NFPA 701 TM#2 (large scale), BS 5867 Part 2 Type B Performance, CAN/ULC-S 109 (large and small scale), NFPA 101 (Class B Rating), IBC Section 803.1.1 (Class B Rating). Bacterial and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, GREENGUARD® Mold and Bacterial Standard ASTM 6329; Style 2000 face includes Microban® antimicrobial additives. Environmental certification: Certified to UL GREENGUARD and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe Use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101, ANSI/WCMA A 100.1-2007 for lead content and REACH (EC 1907/2006) compliant. Opaque, .025 inches thick, 21.6 oz/square yard, opaque.

* + - * 1. Fiberglass

Apagón Style III is a 3-ply opaque shade fabric consisting of vinyl, fiberglass, and a proprietary coating for maximum blackout. Thread Count: 59 threads per square inch. Fire rating: NFPA 701-2019 Test Method 1. Environmental Benefits: ASTM D3335 85a - Lead Testing. Bacterial and fungal resistance: ASTM Method G-21-15 – Resistance to Fungi. Opaque, .0131 inches thick, 12.8 oz/square yard.

Flocké® by Mermet®: Opaque, PVC-free fiberglass textile with acrylic flocked backing. Antistatic treated. 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 E2180, ASTM G21. Draper shades made with this fabric are GreenSpec® listed. Opaque, .020 inches thick, 15.93 oz/square yard.

SunBloc Series SB9000: Close woven fiberglass base textile with sun-resistant vinyl film bonded to each side, opaque with minimum tensile strength of 190 pounds for warp and 180 pounds for fill. Fire rating: NFPA 701 1006-Test 1, California U.S. Title 19. Environmental Benefits: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. REACH and RoHS compliant - Lead Free. Bacterial and fungal resistance: ASTM E2180, ASTM G21. Washable and stain resistant. Same color both sides. Opaque, .015 inches thick, 12 oz/square yard.

SunBloc Series SB9100: Close woven fiberglass base textile with sun-resistant vinyl film bonded to each side, opaque with minimum tensile strength of 190 pounds for warp and 180 pounds for fill. Fire rating: NFPA 701 1006-Test 1, California U.S. Title 19. Environmental Benefits: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. REACH and RoHS compliant - Lead Free. Bacterial and fungal resistance: ASTM E2180, ASTM G21. Washable and stain resistant. White exterior in all colors. Opaque, .013 inches thick, 12 oz/square yard.

* + - * 1. PVC Coated Polyester.

Soltis® Opaque B92 by Serge Ferrari®. PVC-coated polyester with silver backing on outside and pre-tensioning process for dimensional stability. Fire rating: Method 1 and 2/NFPA 701, Class A / ASTM E84. Environmental Benefits: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. RoHS compliant – lead free. Recyclable through TexyLoop®. 0 percent open, .0312 inches thick, 19.1 oz/square yard.

* + - * 1. Polyester

SheerWeave® Series SW7000 Blackout by Phifer®: PVC-free polyester with acrylic foamed backing. Fire rating: California U.S. Title 19 (small scale), BS 5867 Part 2 Type B Performance, IBC Section 803.1.1 (Class A Rating), NFPA 101 (Class A Rating), NFPA 701 TM#1 (small scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB2-4. 162-M80. Bacteria and fungal resistance: ASTM G21, AATCC 174-1998 Part II and III. E/nvironmental certification: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content. Draper shades made with this fabric are GreenSpec® listed. Opaque, .030 inches thick, 13.92 oz/square yard.

SheerWeave® Series SW7400 by Phifer®: PVC-free polyester with acrylic foamed backing. Fire rating: California U.S. Title 19 (small scale), CAN/ULC-S 109 (large and small scale), CAN/CGSB 2-4. 162-M80, NFPA 701 TM#1 (small scale), NFPA 701 TM#2 (large scale). Bacteria and Fungal Resistance: ASTM G21-96, AATCC 174-1998 Part II and III. Environmental Certification: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe Use: RoHS/Directive 2002/95/EC, ANSI/WCMA A 100.1-2007 for lead content, US Consumer Product Safety Commission Section 101. UV Protection: Seal of Approval by the Melanoma International Foundation (MIF) for effectiveness in preventing sun damage to the skin or eyes. Opaque, .029 inches thick, 12.53 oz/square yard.

SheerWeave® Series SW7500 by Phifer®: PVC-free polyester with an acrylic coating. Fire rating: California U.S. Title 19 (small scale), NFPA 101 (Class A Rating), NFPA 701 TM#1 (small scale), BS 5867 Part 2 Type B Performance, CAN/ULC-S 109 (large and small scale), IBC Section 803.1.1 (Class A Rating), CAN/CGSB 2-4.162-M80. Bacterial and fungal resistance: ASTM E 2180 and ASTM G21. Environmental certification: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, US Consumer Product Safety Commission Section 101 and ANSI/WCMA A 100.1-2007 for lead content. Opaque, .016 inches thick, 12.14 oz/square yard.

SheerWeave® Series SW7600 by Phifer®: PVC-free polyester with an acrylic foamed backing. Fire rating: California U.S. Title 19 (small scale), NFPA 701 TM#1 (small scale), BS 5867 Part 2 Type B Performance, CAN/ULC-S 109 (large and small scale). Bacterial and fungal resistance: ASTM G21-96, AATCC 174-1998 Part II and III. Environmental certification: Certified to UL GREENGUARD® and GREENGUARD Gold® standards for low chemical emissions into indoor air during product usage. Safe use: RoHS/Directive 2002/95/EC, ANSI/WCMA A 100.1-2007 for lead content, US Consumer Product Safety Commission Section 101. UV protection: Seal of approval by the Melanoma International Foundation (MIF) for effectiveness in preventing sun damage to the skin or eyes. Opaque, .020 inches thick, 11.8 oz/square yard.

Verona Twilight™ by Mermet®. 50 percent Polyester and 50 percent acrylic with foam backing. Duraguard fabric protector and Sanitized Antimicrobial Protection. Plain weave that is 100% PVC free. 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 E2180. 0% open, .024 inches thick, 11.65 oz/square yard.

\*\* NOTE TO SPECIFIER \*\* Refer to Draper product literature for available shade fabric colors and patterns. Select fabric colors and patterns from the following, delete those not applicable.

* + 1. Color and pattern: \_\_\_\_\_\_\_\_\_\_, No. \_\_\_\_\_.
		2. Color and pattern: As indicated in Color Schedule on Drawings.
		3. Color and pattern: As selected by Design Professional from manufacturer's standard range.
		4. Custom colors, patterns, and graphics: As submitted to manufacturer in accordance with manufacturer’s guidelines.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly prepared.
		2. If substrate preparation is the responsibility of another installer, notify Design Professional of unsatisfactory preparation before proceeding.
	2. PREPARATION

\*\* NOTE TO SPECIFIER \*\* Include one of the following paragraphs. Delete if not applicable.

* + 1. Coordinate requirements for blocking and structural supports to ensure adequate means for installation of window shades.
		2. Coordinate requirements for blocking, construction of shade pockets, and structural supports to ensure adequate means for installation of window shades.

\*\* NOTE TO SPECIFIER \*\* Include one or more of the following paragraphs for window shades with headboxes recessed in ceilings. Delete those not applicable.

* + 1. Coordinate installation of recessed shade pockets with construction of suspended acoustical panel ceilings specified in Section 09510.
		2. Coordinate installation of recessed shade pockets with construction of suspended gypsum board ceilings specified in Section 09260.
		3. Coordinate requirements for power supply conduit, and wiring required for window shade motors and controls.
	1. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Install roller shades level, plumb, square, and true. Allow proper clearances for window operation hardware.
	2. TESTING AND DEMONSTRATION
		1. Test motorized 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 shades to Owner's designated representatives.
	3. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair, or replace damaged products before Substantial Completion.
	4. SCHEDULES

\*\* NOTE TO SPECIFIER \*\* Retain Paragraph below to suit project requirements. Identify products by name on the Drawings or alternately use this paragraph to define the location of each type of material to be used. Delete if not required.

* + 1. Refer to Drawings for shade types and locations.

END OF SECTION