**Motorized Skylight Roller Shades**

Section 12494 – Roller Shades

Last Revised: 4/15/2021



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1. GENERAL
	1. Section Includes
		1. Electronically operated, tensioned fabric roll-up window shades
	2. Related Section
		1. Section 06 10 00 – Rough Carpentry: Mounting support for shades
		2. Section 09 21 16 – Gypsum Board Shaft Wall Assemblies: Mounting shades in ceiling pockets.
		3. Section 09 51 23 – Acoustical Tile Ceilings: Mounting recessed ceiling shades in pockets that integrate with ceiling tile grid systems.
		4. Division 16 – Electrical: Electric service for motors and controls.
	3. References
		1. NFPA 701-99 Fire Tests for Flame-Resistant Textiles and Films.
		2. GREENGUARD Environmental Institute Children & Schools.
		3. US Green Building Council.
		4. NFPA 70 – National Electrical Code.
	4. Submittals
		1. Submit under provisions of Section 01 33 00
		2. Product Data: Manufacturer’s data sheets on each product to be used, 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.
		3. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances and relationship to adjacent work.
		4. 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.
		5. Selection Samples: For each finish product specified, two complete sets of shade cloth options and aluminum finish color samples representing manufacturer's full range of available colors and patterns.
		6. Verification Samples: For each finish product specified, two complete sets 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.
		7. Maintenance Data: Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.
	5. Quality Assurance
		1. Manufacturer Qualifications: Obtain roller shades through one source from a single manufacturer with a minimum of twenty years of experience in manufacturing products comparable to those specified in this section.
		2. NFPA Flame-Test: Passes NFPA 701. Materials tested shall be identical to products proposed for use.
		3. Mock-Up: Provide a mock-up (manual shades only) of one roller shade assembly for evaluation of mounting, appearance and accessories
			1. Locate mock-up in window designated by Architect.
			2. Do not proceed with remaining work until, mock-up is accepted by Architect.
	6. Delivery, Storage & Handling
		1. Window shades are not to be delivered to site until building is enclosed and respective rooms are substantially complete
		2. Store products in manufacturer’s unopened packaging until ready for installation
	7. Project Conditions
		1. Site environmental limitations: Install roller shades only after finishing work such as painting is complete.
	8. Warranty
		1. Shade Fabric & Components: Manufacturers non depreciating 1–5-year warranty.
		2. Shade Installation: One year from date of Substantial Completion.
		3. Motorized Components: Manufacturer’s standard non depreciating 5-year warranty.
2. PRODUCTS
	1. Manufacturers
		* 1. Acceptable Manufacturer: Crown Shade Company: PO Box 9689, Baltimore, Maryland 21237. Tel: 800-445-5557 Fax: 410-686-6015 Website: [www.crownshade.com](http://www.crownshade.com) Email: sales@crownshadeco.com
			2. Substitutions: Not Permitted
			3. Requests for substitutions will be considered in accordance with provisions of Section 01600.
	2. Electrically Operated Skylight Roller Shades
		1. General motorized skylight roller shade: Electrically operated roller shades, fabric window shades that roll up on a roller with components necessary for a complete installation.
			1. Skylight Roller Shade Design:
				1. Skylight Shade Type 1: Conston System: Single roller, single motor with constant tension stainless steel springs. Cording, which is under constant tension, is attached to the traveling bar at the edge of the fabric band
				2. Skylight Shade Type 2: CTS System: Single roller, single motor 3-sided tension shade system. Consists of a roller cassette and a left and right zip track side channel. Fabric is locked into zip track side channels. Tension cords are hidden from view.
			2. Motor Systems: Electrically operating system that lowers, raises and stops shade band. Motor is concealed inside shade tube, is instantly reversible, lifetime lubrication system and equipped with an internal thermal overload protector, electric brake and pre-set accessible limit stops:
				1. 110vac motor
				2. 24vdc motor (size restrictions will apply)
			3. Shade Mounting:
				1. Outside jamb mounting system with complete fascia and side channels.
				2. Inside jamb mounting system with complete fascia and side channels.
				3. Inside flush jamb mounting system with complete fascia and side channels
				4. Exterior installation on-top of roof/skylight.
		2. Hard Components
			1. Roller Housing:
				1. None, Open Roll. Individual end brackets support fabric roller
				2. Fascia/Pocket Housing. Fabric roller is completely concealed (standard).

Finish: White powder coat.

Finish: Silver powder coat.

Finish: Bronze powder coat.

Finish: Black powder coat.

Finish: Custom RAL powder coat.

* + - 1. Side Tracks:
				1. None (optional only on Type 1 Conston system).
				2. C-Shaped tracks (optional only on Type 1 Conston system).
				3. Zip-Track side channels are of a 2 piece extruded aluminum design and are universally installed with concealed mounting fasteners. Within the zip track is an integrated HPVC inner-rail with co-extruded wear-resistant top coating (smooth technology). The fabric panel will have a no.4.5 symmetrical zipper heat sealed along both sides which will lock into the HPVC inner rail. This will keep fabric taught and running true.
			2. Fabric Band Traveling Bar (Bottom Bar) is made of extruded aluminum and of proper wall thickness, width and depth to prevent deflection.
				1. For Type 1 Conston systems the bottom bar will be of a slim rectangular design and tension cords will easily snap into place via a positive locking mechanism.
				2. For Type 2 CTS systems the bottom bar will encapsulate a concealed yet accessible spring system. The tension cording will exit the bottom bar at each end where the zip track side channels and bottom bar interface.
			3. Finishes

Finish: White powder coat.

Finish: Silver powder coat.

Finish: Bronze powder coat.

Finish: Black powder coat.

Finish: Custom RAL powder coat.

* + 1. Shade Cloth
			1. Light Filtering Fabrics:
				1. Soltis 88 by Serge Ferrari: Vinyl coated high tenacity polyester. Fire rating NFPA 701. .018 inches thick. 11 oz/sq yd. 12 percent openness factor.
				2. Soltis 92 by Serge Ferrari: Vinyl coated high tenacity polyester. Fire rating NFPA 701. .018 inches thick. 11 oz/sq yd. 4 percent openness factor.
				3. Sheerweave Series SW2360/2390/2410/2500 by Phifer: VOC Emissions: GREENGUARD Children & Schools certified as a low emitting fabric. Fiberglass, vinyl coated and woven into a 2 by 2 basket weave. Fire rating: NFPA 701-1999TM#1 (small scale), NFPA 101 (Class A Rating), UBC (Class 1). Bacteria and Fungal Resistance: ASTM G 21 and ASTM G 22.

SW2500 – 1 percent openness factor, Mesh weight-16.1 oz/sq yrd, Thickness-.024

SW2410 – 3 percent openness factor, Mesh weight-13.9 oz/sq yrd, Thickness-.019

SW2390 – 5 percent openness factor, Mesh weight-11.9 oz/sq yrd. Thickness-.017

SW2360 – 10 percent openness factor, Mesh weight-10.5 oz/sq yrd. Thickness-.017

* + - * 1. Sheerweave Series SW2700 by Phifer: VOC Emissions: GREENGUARD Children & Schools certified as a low emitting fabric. Fiberglass, vinyl coated duplex basket weave. Fire rating: NFPA 701-1999TM#1 (small scale), NFPA 101 (Class A Rating), UBC (Class 1).. Bacteria and Fungal Resistance: ASTM E 2180.

SW2701 – 1 percent openness factor, Mesh weight-14.6 oz/sq yrd, Thickness-.027”

SW2703 – 3 percent openness factor, Mesh weight-14.0 oz/sq yrd, Thickness-.028”

SW2705 – 5 percent openness factor, Mesh weight-11.8 oz/sq yrd. Thickness-.025”

SW2710 – 10 percent openness factor, Mesh weight-10.4 oz/sq yrd. Thickness-.025”

* + - * 1. E Screen 7500 by Mermet:PVC coated fiberglass yarn woven 2x2 box weave. 36% Fiberglass, 64% Vinyl. Greenguard Children & Schools certified. Fire rating: NFPA 701-04 TM #1 California US Title 19.

E-Screen 1% openness factor, Mesh weight-13.3 oz/sq yrd, Thickness-.020”

E-Screen 3% openness factor, Mesh weight-11.6 oz/sq yrd, Thickness-.017”

E-Screen 5% openness factor, Mesh weight-10.7 oz/sq yrd, Thickness-.016”

E-Screen 10% openness factor, Mesh weight-10.3 oz/sq yrd, Thickness-.020”

* + - * 1. M Screen 8500 by Mermet: PVC coated fiberglass yarn woven 1x2 rib weave. 36% Fiberglass, 64% Vinyl. Greenguard Children & Schools.

M-Screen 1% openness factor, Mesh weight-13.12 oz/sq yrd, Thickness-.022”

M-Screen 3% openness factor, Mesh weight-12.7 oz/sq yrd, Thickness-.022”

M-Screen 5% openness factor, Mesh weight-11.3 oz/sq yrd, Thickness-.022”

* + - 1. Opaque Blackout Fabrics:
				1. Soltis B92 by Serge Ferrari: Woven polyester base cloth with pvc coating. Fire rating: NFPA 701. .024 inches thick, 19.17 oz/sq yd. Opaque.
				2. SheerWeave Series SW7000 by Phifer: PVC-FREE polyester with acrylic foamed backing. Fire rating: NFPA 701-1999 TM#1(small scale)/California U.S. title 19 (small scale)/NFPA 101 (Class A Rating)/UBC (Class 1)/British Standard 5867. .018 inches thick, 10 oz/sq yd. Opaque.
				3. SheerWeave Series SW7100 by Phifer: PVC-coated Fiberglass laminated with a 2-ply PVC film. Fire rating: NFPA 701-1999 TM#1(small scale)/California U.S. title 19 (small scale)/NFPA 101 (Class A Rating)/UBC (Class 1)/British Standard 5867. 023 inches thick, 19.8 oz/sq yd. Opaque.
				4. Avila Twilight by Mermet: PVC-Free, 100% Polyester with an acrylic coating. Fire rating: NFPA 701-1999 TM#/California U.S. title 19. 020 inches thick, 12.4 oz/sq yd. Opaque.
				5. Flocke by Mermet: PVC-FREE polyester with acrylic backing. 42% Fiberglass/51% Acrylic/7% Cotton. Fire rating: NFPA 701 small and large scale tested, ASTM-E84 class A, California U.S. title 19. 020 - .022 inches thick, 12.3 oz/sq yd. Opaque.
				6. Fiberglass by Indiana Coated: 13-14oz. 4 ply laminated fiberglass, washable. Meets federal spec, CCC-C-521-E and NAFPA 701/1999 small scale flame testing
		1. Motor Control Systems
			1. Standard Mechanical Limit 110vac Motor:
				1. Individual Control

Wall Switch, rocker or toggle style, 3 position.

Multiple shade controller – Wall Switch, 6 button low voltage can operate up to 4 intermediate window presets.

* + - * 1. Group Control

Relay UL component – Operate up to 12 motors on one low voltage or line voltage switch.

RS-232/Dry Contact Interface: Allows shade motors to be controlled by integrated controllers.

* + - 1. Electronic Limit Radio Freq. Controlled Motor:
				1. Individual Control

Single channel radio transmit hand held remote control.

Single channel radio transmit wall mounted decora remote controller.

RS-232/Dry Contact Interface: Allows shade motors to be controlled by integrated controllers.

* + - * 1. Individual and Group Control

Up to 16 channel radio transmit hand held remote control.

Up to 16 channel radio transmit wall mounted decora remote controller.

RS-232/Dry Contact Interface: Allows shade motors to be controlled by integrated controllers.

* + - 1. Electronic Limit Digitally Controlled Motor:
				1. Individual Control

Bus cable wall switch with up to 5 preset limit settings.

Wireless transmitter: Handheld Radio Freq. remote control to operate motors.

RS-232/Dry Contact Interface: Allows shade motors to be controlled by integrated controllers.

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 Architect of unsatisfactory preparation prior to proceeding.
	2. Preparation
		1. Coordinate requirements for blocking and structural supports to ensure adequate means for installation of window shades.
		2. Surfaces shall be cleaned thoroughly prior to installation.
	3. Installation
		1. It is crucial that roller shades are installed level, plumb & square to ensure fabric is tracking properly among other aspects. Allow proper clearances for any window hardware.
		2. It will be the roller shade installers responsibility to adjust and balance roller shades to operate properly and safely.
		3. Clean roller shades if needed to manufacturer’s instructions after installation.
	4. Protection
		1. Installer is to protect installed products until completion of project.
	5. Schedules
		1. Refer to drawings for shade types and locations.

END OF SECTION