

SECTION 12 24 00

MOTORIZED LIGHTBLOC ZIP™ WINDOW SHADES

A black and white logo

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\*\* NOTE TO SPECIFIER \*\* Draper®, Inc.; window shade products.  
 .  
 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   
 Tel: (800) 238-7999  
 Fax: (765)987-7142  
Email: <A href ='mailto:drapercontract@draperinc.com'>drapercontract@draperinc.com</A>  
Web: [www.draperinc.com](http://www.draperinc.com/Contact_Draper.htm)  
[ [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.  
   
 Window shades reflect light and heat from the sun, reducing the amount of energy required to cool the building. Motorized window shades can automatically adjust to compensate for the changing shade requirements throughout the day. DRAPER's white paper, Shades of LEED, provides an in-depth explanation of how our solar control shading systems can contribute to LEED points and credits. In addition, shades can reduce or eliminate uncomfortable glare for workers, while still allowing ambient sunlighting and view-through to the outside. The construction of window shades has become more friendly to the environment as well by including PVC-free fabrics, recyclable fabrics and lean manufacturing processes.  
   
 Our spectrum of fabric colors and styles is unmatched anywhere. And we offer the broadest variety of operator styles in the industry.  
   
 This section can be used for specifying motorized Draper LightBloc FlexShades, an opaque fabric window shade system for complete blackout of window opening.

1. GENERAL
   1. SECTION INCLUDES
      1. Opaque window shade system: Motorized, roll-up fabric opaque window shade system for complete blackout of window opening including side and bottom channels, headbox, motorized operator, controls, and mounting hardware.
   2. RELATED SECTIONS

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

* + 1. Section 06 10 00 - Rough Carpentry.
    2. Section 07 90 00 - Joint Protection.
    3. Section 09 21 16 - Gypsum Board Shaft Wall Assemblies.
    4. Section 09 51 23 - Acoustical Tile Ceilings.
    5. Section 11 52 13 - Projection Screens.
    6. Section 11 52 16 - Projectors.
    7. Division 16 - 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. GREENGUARD and GREENGUARD Gold.
    4. US Green Building Council.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 33 26 - Source Quality Control Reporting:
     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.

\*\* 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 paragraphs 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, two complete sets 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, 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.
    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.
  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.
     2. NFPA Flame-Test: Passes NFPA 701. Materials tested shall be identical to products proposed for use.
     3. Shading system shall be UL listed. Provide documentation and proper labeling.

\*\* 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 roller shade assembly specified for evaluation of mounting, appearance and accessories.
       1. Locate mock-up in window(s) designated by Architect.
       2. Do not proceed with remaining work until mock-up is accepted by Architect.
  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's standard twenty-five year limited warranty.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph as applicable.

* + 1. Motors and Controls: Draper's 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; Toll Free Tel: 800-238-7999; Tel: 765-987-7999; Email: [request info](http://admin.arcat.com/users.pl?action=UserEmail&company=Draper,%20Inc.&coid=43272&rep=&fax=&message=RE:%20Spec%20Question%20(12494drp):%20%20&mf=); 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 01 60 00.

\*\* 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. Various options are listed in this specification section, but not all options apply to all window shades. The specifier will need to select the appropriate options, verify their availability, and delete non-applicable models and options.

* 1. OPAQUE ZIPPER WINDOW SHADE SYSTEM
     1. Operation Type: IL listed, motorized, vertical roll-up, fabric, opaque window shade system, complete with headbox, side and sill channels for total opacity; LightBloc FlexShade® ZIP™ System as manufactured by Draper, Inc.
     2. Shade Motor and Control System:

\*\* NOTE TO SPECIFIER \*\* Select one of the following motor option paragraphs and delete the ones not required. Contact Draper for more information concerning motor limitations.

* + - 1. Standard Motor: 110 VAC, 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 \*\* 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.

SC1 - UL listed component allows 1 motor to operate on up to 7 different channels. Up to 4 mid-window alignments are programmable for a total of 6 stops with full up and down. Fully programmable. No DIP switches required. Controlled via low voltage input.

* + - * 1. Group Control:

ISO relay - UL listed component. One ISO relay per motor. Allows 110-120V group switching via toggle switch. Allows for up to 12 motors on one switch.

GC4 - UL listed assembly. Panelized version with four ISO relays. Up to three GC4s can be linked together for control of up to 12 motors from any single 15 amp double throw wall switch. Fully programmable.

SGC4 - UL listed assembly. Panelized version with 4 ISO relays and low voltage control inputs. Multiple SGC4s can be linked together to form larger groups. Fully programmable. No dip switches required.

* + - * 1. Individual and Group Control:

SC1 - UL listed component allows 1 motor to operate on up to 7 different channels. Up to 4 mid-window alignments are programmable for a total of 6 stops with full up and down. Fully programmable. No DIP switches required. Controlled via low voltage input.

SPGC4 – UL listed assembly. Panelized version of four SC1s. Allows each motor to operate on up to 7 different channels. Up to 4 mid-window alignments are programmable for a total of 6 stops with full up and down. Fully programmable. No DIP switches required. Controlled via low voltage input.

IGC3N1. Individual and Group control of up to four motors with up to three intermediate positions per motor

* + - 1. Quiet Standard Motor - 110 VAC motor operates at 44 Db measured 3 feet from the motor. Makes no audible clicks when motor stops or starts. 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.

SC1 - UL listed component allows 1 motor to operate on up to 7 different channels. Up to 4 mid-window alignments are programmable for a total of 6 stops with full up and down. Fully programmable. No DIP switches required. Controlled via low voltage input.

* + - * 1. Group Control:

ISO relay - UL listed component. One ISO relay per motor. Allows 110-120V group switching via toggle switch. Allows for up to 12 motors on one switch.

GC4 – UL listed assembly. Panelized version with four ISO relays. Up to three GC4s can be linked together for control of up to 12 motors from any single 15 amp double throw wall switch. Fully programmable.

SGC4 - UL listed assembly. Panelized version with 4 ISO relays and low voltage control inputs. Multiple SGC4s can be linked together to form larger groups. Fully programmable. No dip switches required.

* + - * 1. Individual and Group Control:

SC1 - UL listed component allows 1 motor to operate on up to 7 different channels. Up to 4 mid-window alignments are programmable for a total of 6 stops with full up and down. Fully programmable. No DIP switches required. Controlled via low voltage input.

SPGC4 - UL listed assembly. Panelized version of four SC1s. Allows each motor to operate on up to 7 different channels. Up to 4 mid-window alignments are programmable for a total of 6 stops with full up and down. Fully programmable. No DIP switches required. Controlled via low voltage input.

IGC3N1. Individual and Group control of up to four motors with up to three intermediate positions per motor

* + - 1. Radio Technology Motor- 110 VAC 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:

1-channel wireless handheld transmitter-White.

1-channel wireless handheld transmitter-Ivory.

2-channel wireless handheld transmitter-White.

2-channel wireless handheld transmitter-Ivory.

3-channel wireless handheld transmitter-White.

3-channel wireless handheld transmitter-Ivory.

4-channel wireless handheld transmitter-White.

4-channel wireless handheld transmitter-Ivory.

5-channel wireless handheld transmitter-White.

5-channel wireless handheld transmitter-Ivory.

1-Channel wireless handheld transmitter-White.

1-Channel wireless handheld transmitter-Black.

5-Channel wireless handheld transmitter-White.

5-Channel wireless handheld transmitter-Black.

16-Channel wireless handheld transmitter-White.

16-Channel wireless handheld transmitter-Silver.

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

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

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

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

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

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

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

4 channel wireless wall switch for radio motor control-Ivory

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

5 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.

* + - 1. Quiet Radio Technology Motor- 110 VAC 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-Ivory.

2-channel wireless handheld transmitter-White.

2-channel wireless handheld transmitter-Ivory.

3-channel wireless handheld transmitter-White.

3-channel wireless handheld transmitter-Ivory.

4-channel wireless handheld transmitter-White.

4-channel wireless handheld transmitter-Ivory.

5-channel wireless handheld transmitter-White.

5-channel wireless handheld transmitter-Ivory.

1-Channel wireless handheld transmitter-White.

1-Channel wireless handheld transmitter-Black.

5-Channel wireless handheld transmitter-White.

5-Channel wireless handheld transmitter-Black.

16-Channel wireless handheld transmitter-White.

16-Channel wireless handheld transmitter-Silver.

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

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

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

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

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

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

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

4 channel wireless wall switch for radio motor control-Ivory

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

5 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.

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

Optional Ethernet adaptor.

* + 1. Roller Tube: 2.364" (60 mm) dia. Aluminum with 0.049" (1.245 mm) wall; or 3.07" (78 mm) dia. Steel with 0.049" (1.245 mm) wall; with galvalum coating.
    2. Headbox: Consists of extruded aluminum sections with endcaps and opacity plates.
       1. Size: [3-5/8" (92 mm) tall x 35/8" (92 mm) deep] [5" (127 mm) tall x 5" (127 mm) deep) by length required for shade being provided.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for exposed headbox. Delete if not required.

* + - 1. L-shaped removable front face and bottom cover and L-shaped back and top.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for recessed headbox. Delete if not required.

* + 1. Endcaps: Stamped steel with universal design suitable for mounting to ceiling, wall, and jamb. Provide size compatible with roller size.
    2. Side Channels/Retention System: Side channels to be extruded aluminum and incorporate plastic inner channels. Plastic inner channels to be held inside the extrusion by means of cushioning pads that also dampen the movement of the fabric panel under wind load. 'Zip' details on the edges of the fabric panel to run in the inner channels to retain the fabric in place.
    3. Hem bar: Aluminum, with steel weight to reduce fabric movement. Color to match headbox.

\*\* NOTE TO SPECIFIER \*\* LightBloc FlexShades with SB9000 and SB9100 fabric use fabric retainers, that includes a patented system which enables shade to withstand reasonable air pressure differentials. However, extreme air currents or physical interference cannot be resisted by fabric retention system and may cause physical damage. Refer to Draper product literature for selection guidelines. (Available with SB9000 and SB9100 fabrics only).

* + 1. Exposed aluminum finish:

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

* + - 1. Finish: Clear anodized aluminum.
      2. Finish: Black.
      3. Finish: White.
      4. Finish: Ivory.
      5. Finish: Bronze.
      6. Custom powder coat as selected by the Architect.
  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.

* + 1. Room Darkening Fabrics
       1. 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 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.
       2. 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 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.
       3. 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.
       4. 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 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.
       5. 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. 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, 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.
       6. 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). Bacteria and fungal resistance: ASTM E 2180, ASTM G21, ASTM G22, AATCC30 Part 3, ASTM D 3273, GREENGUARD® Mold and Bacteria Standard ASTM 6329; Style 2000 face includes Microban® antimicrobial additives. 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, 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.
       7. 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 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.
       8. 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 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.
       9. 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). 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. Opaque, .020 inches thick, 11.8 oz/square yard.
       10. Avila Twilight™ by Mermet®. 37.5 percent Polyester and 62.5 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 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. 0% open, .020 inches thick, 14.5 oz/square yard.
       11. 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 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.
       12. 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 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.

\*\* 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 Architect from manufacturer's standard range.
    4. Custom Printed 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 Architect 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 09 51 23.
    2. Coordinate installation of recessed shade pockets with construction of suspended gypsum board ceilings specified in Section 09 21 16.
    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.
     3. Install headbox, side channels, and sill channel with sealant specified in Section 07 90 00 - Joint Protection.
     4. Position shades level, plumb, and at proper height relative to adjacent construction. Secure with fasteners recommended by manufacturer.
  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. Test window shades to verify that operating mechanism, fabric retainer, and other operating components are functional. Correct deficiencies.
     3. During daylight hours, lower shades and turn off interior lights. Verify that there are no light leaks at perimeter or within shade assembly. Correct deficiencies.
     4. 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