**Section 12 24 13**

**PART I GENERAL**

**1.01 General Provisions**

 A. Drawings and General Provisions of the Contract, including General and

 Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

 B. Carefully review and examine all other Contract Documents for requirements therein

 affecting the work of this Section. Furthermore, coordinate and sequence the work of

 this Section with all other trades affected.

**1.02 Summary**

 A. Furnish and install:

 1. Fabric roller shades.

 2. Operating and installation hardware.

 3. New manually-operated fabric roller shades at all designated locations.

**1.03 Related Work**

 A. Examine Contract Documents for requirements that affect the work of this Section.

 Other Specifications Sections that directly relate to work in this Section include, but

 are not limited to:

 1. Division 6 Section Rough Carpentry.

 2. Division 6 Section Finish Carpentry.

 3. Division 8 Sections Doors & Windows.

 4. Division 9 Sections Gypsum Board & Acoustical Ceilings

**1.04 References**

* + 1. ASTM A 228 - Standard Specification for Steel Wire, Music Spring Quality.
		2. ASTM A 666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
		3. ASTM A 1008 - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardened.
		4. ASTM A 1010 - Standard Specification for Higher-Strength Martensitic Stainless Steel Plate, Sheet and Strip.
		5. ASTM G 21- Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
		6. ASTM G 22 - Standard Practice for Determining Resistance of Plastics to Bacteria.
		7. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.
		8. California Administrative Code Title 19
		9. New York State Uniform Fire Prevention and Building Code
		10. Greengard Certified Low Emitting Interior Products.
		11. Cradle to Cradle Eligible Shade Fabrics 3.1

**1.05 Submittals**

 A. Fabricator / Dealer to submit under provisions of Division 1 Section “Submittal

 Procedures”:

 1. Product Data

 2. Mounting details and installation methods

 3. Approval drawings

 4. Window Treatment Schedule

 5. Shade cloth selection samples

 6. Maintenance data

**1.06 Quality Assurance**

 A. Manufacturer Qualifications: Obtain roller shades through one source from a single

 manufacturer with a minimum of ten (10) years’ experience in manufacturing products

 comparable to those specified in this Section.

 B. Installer Qualifications: Installer certified by the manufacturer with a minimum

 of five (5) years’ experience in installing products comparable to those specified

 in this Section.

**1.07 Delivery, Storage and Handling**

 A. Product shall be delivered to site in manufacturer’s original packaging.

 B. Product shall be handled and stored to prevent damage to materials, finishes and

 operating mechanisms.

1**.08 Project Conditions**

 A. Environmental Limitations: Install roller shades after finish work, including painting, is

 complete and ambient temperature and humidity conditions are maintained at the

 levels indicated for Project when occupied for its intended use.

**1.09 Warranty**

 A. Lifetime Limited Warranty on shade hardware. Fabrics warranted for 10 years minimum.

 AC and DC wired motors and electronic accessories to be free from defects in materials and

 workmanship for 7 years, and warrants battery powered DC motors to be free from defects

 in materials and workmanship for 5 years when installed properly and operated under

 normal use from the date stamped or affixed label on each device.

 Specific product warranties available from manufacturer or its authorized fabricator /

 dealer.

**PART II PRODUCTS**

**2.01 Manufacturer**

 A. Subject to compliance with the requirements specified herein, the following

 manufacturer offering component products is to be incorporated into the work:

1. Blueshade® by Drapery Industries, Rochester, NY 14604

 Toll free (844-737-2533),

 [www.blueshade.us.com](http://www.blueshade.us.com)

1. David Geen, Vice-President & Commercial Program Manager, Email: david@draperyindustries.com

 B. Substitutions – No substitutions allowed.

**2.02 Roller Shade Components**

A. Control System: AUTOMATE™ MOTOR SYSTEM
Shade Motor and Control System – All line and low voltage wiring rough in and termination by others.

\*\* NOTE TO SPECIFIER \*\* Select one of the following motor options **(paragraphs a through h below)**, and delete the ones not required. General descriptions of each Motor and Control system are included with each option below. Contact Blueshade® by Drapery Industries for more information concerning motor applications.

1. **Radio Technology, 12V DC QUIET motor with built-in re-chargeable lithium ion battery and radio transceiver. \*\* Note to Specifier\*\* Suitable for shades up to 14’x14’**

Tubular motor concealed inside each shade roller tube.

No line voltage, Low Voltage or communication wiring to motor location required.

Motor Operating sound level <44dB

Plug in charger fully charges motor in 6 hours.

Motor operates >300 cycles on fully charged battery

Charger may be permanently installed, allowing battery to serve as an emergency backup feature in a power outage.

Motor provides position reporting and “move to” position control via 2-way radio commands when operating from Mobile Device APP or connected to Automation systems.

Charging Options –

1. Plug in 12v Charger

1 per motor-OR-

1 for every 10 motors-OR-

1 per tenant space-OR-

1. per room
	* + 1. Solar Panel Trickle charger. (see Rollease Acmeda Solar Panel Configurator to calculate panel requirements)

1 per motor-OR-

1. per motor (Y-Harness required)

Control Options –

 \*\* Note to Specifier\*\* Choose any combination of control options required, from the list below.

* + - Single channel wireless wall switch for radio motor control -White.
		- Two channel wireless wall switch for radio motor control -White.
		- 15 channel wireless LCD wall switch for radio motor control -White.
		- Single channel wireless handheld transmitter with concealed magnetic wall mounting clip -White.
		- 15-Channel wireless handheld LCD transmitter with concealed magnetic wall mounting clip and “Levelling Control” feature, allowing shade(s) to be operated to 10 aligned positions -White.
		- Single Channel Dry Contact Interface – Allows for full control of radio motor shade via dry contact interface. (external 12v or 24v power source required).
		- Wire-less Sun Sensor – Allows operation of one group of radio motors per sensor. 4 sensitivity level settings.
		- Wi-Fi / Serial Automation Interface.
			* Allows for full control, with feedback, of radio motor shade via RS485 serial data connection.
			* Supports Mobile Device Control through iOS or Android APPs via Wi-Fi

connection.

1. **Radio Technology, 12V DC QUIET motor with built-in radio transceiver.**

**\*\* Note to Specifier\*\* Suitable for shades up to 14’x14’**

Tubular motor concealed inside each shade roller tube.

No line voltage or communication wiring to motor location required.

Motor Operating sound level <43dB

Motor provides position reporting and “move to” position control via 2-way radio commands when operating from Mobile Device APP or connected to Automation systems.

Power Options –

1. Plug in 12v DC power supply

1 per motor- or 18 channel-Output 29 Amp 12V DC CCTV Distributed Power Supply Box used for Security Camera (controls up to 18 DC-motor shades)

12V DC, 18 ports regulated power supply

• Maximum Output 29 Amp

• Individual Fuse Output Protection, each channel 2 Amp

• Individual LED power Indication

• Dimension: 10(W) x8.5(L) x3.7(H)

 Control Options –

 \*\* Note to Specifier\*\* Choose any combination of control options required, from the list below.

* + - Single channel wireless wall switch for radio motor control -White.
		- Two channel wireless wall switch for radio motor control -White.
		- 15 channel wireless LCD wall switch for radio motor control -White.
		- Single channel wireless handheld transmitter with concealed magnetic wall mounting clip -White.
		- 15-Channel wireless handheld LCD transmitter with concealed magnetic wall mounting clip and “Levelling Control” feature, allowing shade(s) to be operated to 10 aligned positions -White.
		- Single Channel Dry Contact Interface – Allows for full control of radio motor shade via dry contact interface. (external 12v or 24v power source required).
		- Wire-less Sun Sensor – Allows operation of one group of radio motors per sensor. 4 sensitivity level settings.
		- Wi-Fi / Serial Automation Interface.
			* Allows for full control, with feedback, of radio motor shade via RS485 serial data connection.
			* Supports Mobile Device Control through iOS or Android APPs via Wi-Fi

connection.

1. **Radio Technology, 110-120V AC QUIET motor with built-in radio transceiver.**

**\*\* Note to Specifier\*\* Suitable for shades up to 14’x14’**

Tubular motor concealed inside each shade roller tube.

No communication wiring to motor location required.

Motor Operating sound level <42dB

Motor provides position reporting and “move to” position control via 2-way radio commands when operating from Mobile Device APP or connected to Automation systems.

Power Options –

1. 110-120 VAC line voltage, .85 amps or 1.0 amps (dependent on motor size)

 Control Options –

 \*\* Note to Specifier\*\* Choose any combination of control options required, from the list below.

* + - Single channel wireless wall switch for radio motor control -White.
		- Two channel wireless wall switch for radio motor control -White.
		- 15 channel wireless LCD wall switch for radio motor control -White.
		- Single channel wireless handheld transmitter with concealed magnetic wall mounting clip -White.
		- 15-Channel wireless handheld LCD transmitter with concealed magnetic wall mounting clip and “Levelling Control” feature, allowing shade(s) to be operated to 10 aligned positions -White.
		- Single Channel Dry Contact Interface – Allows for full control of radio motor shade via dry contact interface. (external 12v or 24v power source required).
		- Wire-less Sun Sensor – Allows operation of one group of radio motors per sensor. 4 sensitivity level settings.
		- Wi-Fi / Serial Automation Interface.
			* Allows for full control, with feedback, of radio motor shade via RS485 serial data connection.
			* Supports Mobile Device Control through iOS or Android APPs via Wi-Fi

connection.

1. **Mechanical Limit, 110-120V AC QUIET motor.**

**\*\* Note to Specifier\*\* Suitable for shades up to 14’x14’**

Tubular motor concealed inside each shade roller tube.

Line voltage to motor location required.

Motor Operating sound level <44dB

Power Options –

1. 110-120 VAC line voltage, < 1.0 amps (dependent on motor size)

 Control Options –

 External switches and/or controls required. Supplied by others.

 Wiring guide

 White - Neutral

 Black – Direction 1

 Red – Direction 2

 Green – Ground

 B. Spring-loaded pin end: Uv stabilized, self-lubricating nylon outside sleeve and center

 spring-loaded shaft providing bearing surfaces on which the roller tube rides ensuring smooth,

 wear-resistant operation and ease of installation. 100-pound capacity.

 C. Mounting Hardware: Manufacturer’s standard zinc plated or powder-coated, cold-rolled

 steel universal brackets. UniversalDual shade brackets available for two-shade applications.

 D. Roller Tube: Extruded aluminum shade roller tube of uniform diameter and varying

 wall thickness required (for uniform aesthetic) to support shade fabric without excessive

 deflection, with engineered wall & ribs to lock the clutch and idle end plug into place, providing

 strength & durability. Extruded tube parameters to be determined by fabricator for

 each shade’s size, weight, and fabric requirement.

 E. Fabric Attachment to Tube: Provide for positive mechanical attachment of fabric to

 roller tube via:

 LSE (Low Stress Energy) double-sided adhesive tape to secure the fabric without having

 to remove shade roller from shade brackets. Adhesive attachment affords minor lateral

 adjustments to edge clearance dimensions. Fabric wrap of 2 ½ to 3 times the circumference

 of the roller tube required for proper tension of fabric-to-tube.

 F. Hem Pockets and Hem Weights:

 1. Fabric hem pocket with RF-welded seams and extruded

 aluminum concealed hem weight. Hem weights shall be of appropriate size and

 weight for shade band and shall be continuous inside the sealed hem pocket.

 Hem pocket construction and hem weight per foot shall be consistent for all shades

 within one room.

 G. Enclosures:

 1. Fascia – “L”-shaped snap-on aluminum extrusion, if required, to conceal

 brackets, roller tube, fabric, and operating system. Bracket end covers available

 for exposed mounting brackets.

 Finish color as selected by architect from manufacturer’s full range.

1. Aluminum Pocket – three-sided aluminum extrusion to conceal brackets, roller

 tube, fabric, and operating system, if required, above ceiling line or for recessed

 installation. Removable extruded aluminum bottom closure panel available.

 Finish color as selected by architect from manufacturer’s full range.

1. Construction Pocket – “I” Clip or “L” clip to be used for attaching bottom closure to

pockets that are an integral part of the building. “L” clip provides overlapping border

for drop ceilings.

 H. Blackout Channels: For maximum light blockage and energy savings, Extruded aluminum

 channels for use with blackout fabrics, if required, to eliminate light infiltration at fabric

 side or bottom clearances to jambs and/or sills.

I. Wire Guided Mount. Top and bottom anchors for 1.2mm steel wire guide cables. Must have tension adjustment and integral wire guides in hem bar end caps. Must be zinc plated or stainless brackets to resist corrosion.

J. Shade Cloth Fabric: Inherently anti-static, flame retardant, fade and stain resistant, light filtering, room darkening, or blackout fabrics as selected by the architect from [www.blueshade.us.com](http://www.blueshade.us.com)

 1. Fabric

 Color and pattern \_\_\_\_\_\_\_\_\_\_\_\_\_\_.no\_\_\_\_\_\_\_\_\_\_\_\_\_.

**PART III EXECUTION**

**3.01 Examination**

 A. Do not begin installation until substrates have been properly prepared.

 B. If substrate preparation is the responsibility of another trade, notify Contractor /

 Architect of unsatisfactory preparation before proceeding.

**3.02 Preparation**

 A. Clean surfaces thoroughly prior to installation.

 B. Prepare surfaces using the methods recommended by the fabricator / dealer for

 achieving the best result for the substrate under the project conditions.

**3.03 Installation**

 A. Install roller shades square, plumb, level and true according to manufacturer’s written

 instructions. Allow proper clearances for window operation hardware.

 B. Secure in place with flush countersunk fasteners.

 C. Installation Tolerances:

 1. Maximum Variation of Gap at Window Opening Perimeter: 1/4 inch.

 2. Maximum Offset from Level: 1/16 inch.

**3.04 Adjustment**

 A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from

 binding or malfunction throughout entire operational range.

**3.05 Cleaning**

 A. Clean roller shade surfaces after installation, according to manufacturer’s written

 instructions.

**3.06 Protection**

 A. Protect installed products until completion of project.

 B. Touch-up or repair damaged products, or replace products damaged by other trades,

 before Substantial Completion.

**END OF SECTION**