SECTION 12 24 13

**Contract Series Motor Operated, Wireless Control, Single or Dual Fabric Roller Shade**

PART 1 GENERAL

* 1. GENERAL REQUIREMENTS
     1. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.
  2. SECTION INCLUDES
     1. Motor operated fabric roller shades controlled by an electric powered motor to include the operating, installation hardware, brackets, accessories, and fabric.

*Specifier Note\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Indicate appropriate related section below and remove none related sections, as necessary.*

* 1. Related Specification Sections:
     + 1. Section 050000 - Cold-Formed Metal Framing.
       2. Section 061000 - Rough Carpentry – for in wall blocking as needed.
       3. Section 080000 – Doors and Windows.
       4. Section 095000 – Ceilings.
       5. Section 100000 – Specialties.
       6. Section 260000 – Electrical.
  2. Reference Section:
     1. CPSC-2022-25041 / 87 FR 73144 – Safety of Window Coverings Product
     2. ANSI/WCMA A100.1-2022 – American National Standard of Safety for Window Covering Products
     3. ASTM International (ASTM):
        1. ASTM E2180: 2018 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
        2. ASTM C423-17 – Standard Practice for measuring Sound Absorption.
     4. ISO (International Standards Organization)
        1. ISO 17050-1 : 2014 Allows a manufacturer to self-certify its products when necessary.
     5. LBC Red List Compliant
     6. FCC Compliant
     7. CE Compliant
     8. Other:
        1. MA General Law - Part I, Title II, Chapter 21A, Section 28
        2. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.
        3. UL GREENGUARD Gold Certified Products; Current Edition.
        4. Health Product Declarations (HPD’s)
        5. Oeko-Tex Standard 100
        6. CDPH Standard Method V1.2-2017, Section 8
        7. AERC Certified Product Listing
  3. SYSTEM DESCRIPTION
     1. Motor operated fabric window and/or opening roller shade that includes the installation brackets and all respective components to operate a wireless-motor-controlled shade device to include any enclosure, fascia, cassette, pocket, decorative or non-decorative bracketing system as per the contract documents.
  4. PERFORMANCE CRITERIA
     1. Performance Requirements: Provide components that have been manufactured, fabricated, and installed to maintain performance criteria stated by Manufacturer, without defect, damage, or failure.
     2. Motor operated window roller shades shall be attached to the structure of the building in accordance with the Architect, Structural Engineer in accordance with contract documents as it relates to attachment only. Provide Design Calculations certified by a registered professional engineer licensed in the State of \_\_\_\_\_\_\_ shall be submitted to verify load carrying capability of shading system using performance requirements and design criteria as indicated. Shading attachment system shall be capable of resisting a minimum positive and negative wind load per ASCE-7 or building code, whichever is greater.
     3. Design and Structural Properties: Conform to provisions of the most current IBC (International Building Code and/or the building code requirements of any other AHJ where the project is being built)
     4. Deflection Limits: Shading attachment and system components shall be designed in accordance with the Manufacturer’s recommended maximum deflection no greater than the Manufacturer’s allowable spans, based on published criteria.
     5. Design and install all support structure to accommodate expected construction tolerances and misalignment, deflection of building structural components, and openings within the interior envelope as designed.
  5. SUBIMTTALS
     1. Product Data: For each system indicated. Include Manufacturer’s written installation instructions, including recommendations for evaluating, preparing, and treating substrate, technical data, material descriptions, and finishes.
     2. Shop Drawings: Show wiring diagrams, fabrication and installation layouts of shading system, details of support structure attachment and wall structure conditions, anchorages for support structure, attachment system for shading system and accessories, trims, closures, flashings, corner conditions, and accessories as required or specified by the architect, and all special job specific details.
     3. Samples: Submit selection and verification samples for finishes, colors, and textures of shading components and fabric materials. Submit color matched interior steel fasteners for each color specified. If special fastening is selected by architect provide color matched fastener for each shading system color specified.
     4. Manufacturer’s Instructions: Manufacturer’s installation and programming instructions.
     5. Closeout Submittals: Submit the following:
        1. Warranty: Warranty documents specified herein.
  6. QUALITY ASSURANCE
     1. Installer Qualifications: Installer shall be approved by the architect and have a minimum of five (5) years of experience in performing work of similar type and scope.
     2. Fabricator Qualifications: A shop that employs skilled workers who custom fabricate shading and attachment systems to those specified herein and is approved by the architect and have a minimum of ten (10) years of experience in performing work of similar type and scope. If shop drawings are required for the project the shop drawings are to be drawn and coordinated by the approved fabrication company.
     3. Source Limitations: Obtain shading and attachment system and all auxiliary materials from a single source Manufacturer who has a minimum of 25 years of experience in the manufacturing of interior and exterior grade shading components, systems and accessories. All shading systems to be supplied and or manufactured by a single manufacturer.
  7. DELIVERY, STORAGE AND HANDLING
     1. Delivery: Deliver materials to the site by fabricator in the original, unopened, undamaged containers with identification labels intact.
     2. Storage and Protection: Store materials protected from exposure to harmful weather conditions, at temperature and humidity conditions recommended by Manufacturer. Comply with Manufacturer’s written handling and storage guidelines.
     3. Packaging: The intent of the packaging by the fabricator is to be constructed to withstand the safe transport and storage of the finished contract series shade product so that at time of installation it complies with the manufacturer’s guidelines, performs and is warrantable upon installation.
  8. PROJECT CONDITIONS
     1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.
     2. 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.
  9. WARRANTY
     1. Submit Installer’s standard warranty covering defects in supplied material for one (1) year.
     2. Fabrics are warranted for 10 years minimum.
     3. Lifetime Limited Warranty on shade hardware only.
     4. Rollease Acmeda warrants for materials and workmanship when installed properly and operated under normal use from the date stamped or affixed label on each device its:
        1. AC and DC wired motors and electronic accessories to be free from defects in materials and workmanship for 7 years.
        2. Battery powered DC motors to be free from defects in materials and workmanship for 5 years.
     5. 25-year Special Commercial Warranty, transferrable to the building owner, project based, and specified. For further information and a Draft sample warranty please contact Contract@Rolleaseacmeda.com*. (this is a project-by-project warranty offering that is extended by specification only)*

1. PRODUCTS
   1. MANUFACTURERS

A. Basis of Design: Rollease Acmeda Contract Series as manufactured by Rollease Acmeda, 750 E Main Street, Stamford, CT 06902. Please contact Contract Sales at (800) 552-5100 or email: [Contract@Rolleaseacmeda.com](mailto:Contract@Rolleaseacmeda.com). A list of local contract dealers, fabricators and installers that comply with this specification section may be requested from the above contact.

B. Substitution Requests: As specified by Division 01 of the contract documents.

C. No substitutions will be accepted.

*Specifier Note\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Choose appropriate to your project the applicable Fasteners and Anchors and remove the appropriate sub-sections, as necessary. Please note the attention to each sub-section choice and remove non-used portions for clarity.*

* 1. MOTOR OPERATED SINGLE OR DUAL ROLLER WINDOW SHADES
     1. Control System: AUTOMATE™ MOTOR SYSTEM  
        Shade Motor and Control System – All line and low voltage wiring rough in and termination by others.

*Specifier Note\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Select one of the following motor options (paragraphs 1 through 6 below), and delete the ones not required. General descriptions of each Motor and Control system are included with each option below. Contact Rollease Acmeda for more information concerning motor applications.*

* + 1. Motors
       1. DC Voltage with Internal Lithium-ion battery (Li-ion)
          1. 5 Volt

[2.0 Nm][3.0 Nm][10.0 Nm] *(Choose 1)*

* + - * 1. 12 Volt

[2.0 Nm][3.0 Nm][10.0 Nm] *(Choose 1)*

* + - * 1. 5 Volt Zero

[2.0 Nm]

* + - * 1. 5 Volt Q (Quiet)

[2.0 Nm][3.0 Nm][10.0 Nm] *(Choose 1)*

* + - * 1. 12 Volt Q

[3.0 Nm]

* + - 1. DC Voltage (no Internal Battery)
         1. 12 Volt

[2.0 Nm][3.0 Nm][10.0 Nm] *(Choose 1)*

* + - * 1. 12 Volt Q

[3.0 Nm]

* + - 1. AC Line Voltage 120 Volt
         1. AC

[6.0 Nm][15.0 Nm] *(Choose 1)*

* + - * 1. AC Q

[6.0 Nm][10.0 Nm] *(Choose 1)*

* + - 1. Charging Capability
         1. All Li-ion batteries have charge ports integrated into the motor head.
         2. Mag-dice wireless re-charging.
         3. Low light harvesting solar panel trickle charger.

[Single] or [dual] solar panel charging per motor.

* + - 1. Control Options
         1. Single channel wireless wall switch for radio motor control.

[White only]

* + - * 1. Two channel wireless wall switch for radio motor control.

[White only]

* + - * 1. 15 channel wireless LCD wall switch for radio motor control.

[White only]

* + - * 1. 5 Channel Flush Mount wall switch. (No need to cut into drywall)

[White only]

Custom Engravable Buttons (optional)

Can be custom configured to have 1 to 5 channel buttons (options)

* + - * 1. Single channel wireless handheld transmitter with concealed magnetic wall mounting clip.

[White][Black] *(Choose 1)*

* + - * 1. 15-Channel wireless handheld LCD transmitter with concealed magnetic wall mounting clip and “Levelling Control” feature. (Allows shade(s) to be operated to 10 aligned positions)

[White][Black] *(Choose 1)*

* + - * 1. Single Channel Dry Contact Interface – Allows for full control of radio motor shade via dry contact interface.

[external 12v power source] [external 24v power source] *(Choose 1)*

ARC Repeater. (Nearly doubles the broadcasting range of a standard hub.)

* + - * 1. Wi-Fi Bridge – The Pulse 2 Hub enables operation and automation of all ARC (Automate Radio Communication) enabled motors so that you can experience convenient shade control by using an app on your smart device. Seamlessly integrates with other smart home platforms so that you can take full advantage of customized automation and voice-activation when operating your Automate smart shades. Bi-directional communication with ARC enabled motors.
    1. Shade Type
       1. Single Roller – Drop Position Regular [glazing side]
       2. Single Roller – Drop Position Reverse [room side]
       3. Dual Roller – Drop Position Regular [glazing side]
       4. Dual Roller – Drop Position Reverse [room side]
    2. Shade Mounting Position
       1. Ceiling.
       2. Recessed Ceiling Pocket.
       3. Wall.
       4. Window Jamb – Inside.
       5. Width x Length (or drop) \_\_\_\_\_\_\_\_\_\_\_.
       6. As per window details and schedules provided in the Contract Documents.
    3. Shade Mounting Brackets and Hardware
       1. Manufacturer’s standard zinc plated or powder-coated, cold-rolled steel universal brackets. Universal Dual shade brackets available for two-shade applications. Linking brackets available for multiple shade band configurations.
    4. Spring-loaded idler pin
       1. 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.
    5. Roller Tube
       1. 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 Manufacturer for each shade’s size, weight, and fabric requirement.
    6. Hem Pockets and Hem Weights:
       1. Fabric hem pocket:
          1. RF-welded seams (including welded ends) 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.
       2. Exposed hem bar:
          1. Aluminum extrusion with coordinating end caps.

Standard oval

D30

D30 has optional rear feature for back bumper to protect window surfaces from rubbing.

D30, and F4115 have bottom extrusion feature to add light blocking brush or bubble seal for blocking light against the sill.

F4115 Heavy Duty

a) D30 and F4115 have bottom extrusion feature to add light blocking brush or bubble seal for blocking light against the sill.

* + - 1. Hem pocket construction and hem weight per foot shall be consistent for all shades within one room.
      2. Color / finish as selected by Architect from manufacturer’s standard configurations.
    1. Fabric Attachment to Tube:
       1. Provide for positive mechanical attachment of fabric to roller tube:
          1. 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 wraps of 2 ½ to 3 times the circumference of the roller tube required for proper tension of fabric-to-tube.

* + - 1. Switch Spline attachment: *[motor diameter maximum is 28mm when used]*

Must allow for easy removal of shade band without removing roller tube, housing, or mechanical systems. System must allow top of shade band to drop below the shade tube, fascia bottom return, or pocket closure for easy removal of shade band.

Switch Spline style roller tube required.

* 1. ROLLER SHADE FABRICATION
     1. Field measure finished openings prior to ordering or fabrication.
     2. Dimensional Tolerances:
        1. Vertical Dimensions.
           1. Fill openings from head to sill with no greater than 1/2” space between bottom bar and [finished floor] [window stool]. *(Choose 1)*
        2. Horizontal Dimensions: Inside Mounting.
           1. Fill openings from jamb to jamb

Light gap on control side no greater than 0.625”

Light gap on idler side no greater than .5”

* + - 1. Horizontal Dimensions: Outside mounting.
         1. Cover window frames, trim, and casings completely.
         2. Extend shades beyond jambs on each side: 2 inches.
         3. Extend shades beyond jambs on each side: \_\_\_\_ total.
      2. Openings Requiring Continuous Multiple Shade Units with Separate Rollers:
         1. Locate roller joints at

[window mullion centers] [butt rollers end-to-end]. *(Choose 1)*

* 1. SHADE CLOTH FABRIC –
     1. Inherently anti-static, flame retardant, fade and stain resistant, light filtering, room darkening, or blackout fabrics as selected by the architect from Texstyle a division of Rollease Acmeda. Solar Control and Shade Color from available contract colors.
        1. Ambient Renew Screen: Sustainable Closed loop recyclable solar screen made from 85% recycled plastic bottles. CPDH tested for Low VOCs, PVC free, OEKO-TEX Standard 100 Certified, FR Rated, Lead, phthalate, formaldehyde, and fragrance free. LBC Red List Compliant. Light filtering options and color selections to be chosen using the manufacturers standard selections. Using test method ASTM C423, Ambient Renew 1% achieves an NRC rating of .50 and an SAA rating of .51 for acoustical performance.
        2. Mesa Façade: Charcoal backed blackout fabric. Greenguard Gold Certified, CPDH tested for Low VOCs, ISO 9001 Certified, OEKO-TEX Standard 100 Certified, FR Rated, Lead free, PVC free, Phthalate free, fragrance free, Eco-Friendly. Color selections to be chosen using the manufacturers standard selections.
        3. Mesa Blackout: White backed blackout fabric. Greenguard Gold Certified, CPDH tested for Low VOCs, ISO 9001 Certified, OEKO-TEX Standard 100 Certified, FR Rated, Lead free, PVC free, Phthalate free, fragrance free, Eco-Friendly. Color selections to be chosen using the manufacturers standard selections. AERC product certified for energy savings.
        4. Kleenscreen light-filtering screen: Lightweight 2x1 basketweave screen in 1%, 3%, and 5% openness. Features Sanitized® protection which inhibits the development of bacterial odors as well as the growth of mold and mildew. CDPH tested for Low VOCs, PVC free, OEKO-TEX Standard 100 Certified, FR Rated, Lead, phthalate, formaldehyde, and fragrance free. LBC Red List Compliant. Light filtering options and color selections to be chosen using the manufacturers standard selections. Using test method ASTM C423, Kleenscreen 1% achieves an NRC rating of .60 and an SAA rating of .61 for acoustical performance.
        5. Silverscreen light filtering screen: Aluminum backed 1x2 fiberglass core solar screen in 2% and 4%. Greenguard Gold Certified, ISO 9001 Certified, OEKO-TEX Standard 100 Certified, FR Rated, Lead, Phthalate, Formaldehyde, and fragrance free. Eco-Friendly and Energy Saving.
        6. Texstyle’s 3000 NET light filtering screen: Greenguard Gold Certified, CPDH tested for Low VOCs, ISO 9001 Certified, OEKO-TEX Standard 100 Certified, FR Rated, Lead free, Phthalate free, fragrance free, Eco-Friendly. Color selections to be chosen using the manufacturers standard selections. Using test method ASTM C423, 3000 Net 1% achieves an NRC rating of .55 and an SAA rating of .55 for acoustical performance. AERC product certified for energy savings.
        7. All fabrics to include current Health Product Declarations (HPD’s) issued by the HPD Collaborative, [https://www.hpd-collaborative.org/hpd-public-repository/.com](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Flinkprotect.cudasvc.com%2Furl%3Fa%3Dhttps%253a%252f%252fwww.hpd-collaborative.org%252fhpd-public-repository%252f.com%26c%3DE%2C1%2CdDFHbezZLnwppuJ0xowwQRhq3vZy48UHlVAXR5XflkHq6vUPTTUGOK3lfMDz7nw8fQ90qSIv_FTsTLww4b94xCmXOXeDWzilkK1dRSHwS4Wvvw%2C%2C%26typo%3D1&data=05%7C01%7Clindsey.desalvo%40rolleaseacmeda.com%7Cb25a5ab052304fb8cd3908db0dfb46d2%7Ca2aa5819e7354eeb847078d0820c861a%7C0%7C0%7C638119145103365171%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=S%2BP8rwHJ0J7ODocGUK6W746q1zVx4eqO5FIye4J9gvc%3D&reserved=0)

Other fabric selections can be made by visiting: [http:www//texstyle.com](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Flinkprotect.cudasvc.com%2Furl%3Fa%3Dhttp%253a%252f%252fTexstyle.com%26c%3DE%2C1%2CbQCALq_N_4kw9B6PufvwkYer2C77LMquSN-ub7K-WSCkJOirG7VoTrm-MK_zYmJwygdg71gEEzqtXKJg3yYBKm9L_jM6LNprwEGx-oXaMAYfwg%2C%2C%26typo%3D1&data=05%7C01%7Clindsey.desalvo%40rolleaseacmeda.com%7Cb25a5ab052304fb8cd3908db0dfb46d2%7Ca2aa5819e7354eeb847078d0820c861a%7C0%7C0%7C638119145103365171%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=17%2B7qKc2zgqB8y80AcjWgxip7bA3lm3hVnV36BqoGdI%3D&reserved=0)

* 1. ACCESSORIES
     1. Enclosures:
        1. Fascia:
           1. “L”-shaped Snap-On aluminum extrusion. Square profile option only

3”

4”

5”

* + - * 1. Inside mount no bracket end covers.
        2. Outside mount includes bracket end covers.
    1. Medium Enclosure system:
       1. Pelmet 95 (P95):
          1. One piece decorative with spring loaded attachment

Ceiling mounted

Wall mounted

* + - * 1. Fabric wrapped
        2. Non-Fabric wrapped
        3. Color

Pure White

Black

Anodized

Sandstone

Silver Frost

* + - 1. Cassette/Fascia (CF90)
         1. Enclosed box type w/end caps

Square

Round

* + - * 1. Color

Pure White

Black

Anodized

* + - 1. Fascia systems
         1. 3” Fascia

Single only

* + - * 1. 4” Fascia

Single

* + - * 1. 5” Fascia

Single

Dual

* + 1. Large Enclosure systems:
       1. Box 100
          1. Square
          2. Color

White

Black

* + - 1. Box 120
         1. Square
         2. Color

White

Black

* + - 1. Pocket:
         1. three-sided aluminum extrusion to conceal brackets, roller tube, fabric, and operating system above ceiling line or for recessed installation.

3” x 3” nominal with closure panel (optional: [2”] w/o brush)

4” x 4” nominal with closure panel (optional: [2”] w/o brush)

5” x 5” nominal with closure panel (optional: [2] [3”] w/o brush)

5” x 5” actual-AP with closure panel (optional: [2 "] [3”] w/o brush)

6” x 6” actual-AP with closure panel (optional: [2 "] [3”] [4”] w/o brush)

7” x 9” actual-AP with closure panel (optional: [2-1/4”], [3-3/4”], [4”], [5”] w/o brush)

* + - 1. Pocket Clip:
         1. “L” shaped pocket clip for edge conditions as an integral part to the existing gyp system with an overlap of 3/4". Providing an overlap condition at the border for acoustical ceiling systems.

2” w/o brush feature Closure Panel.

3” w/o brush feature Closure Panel.

4” w/o brush feature Closure Panel.

5” w/o brush feature Closure Panel

* + - * 1. “I” shaped pocket clip for trim conditions as an integral part to the existing gyp system with an overlap of 1/16".

2” w/o brush feature Closure Panel.

3” w/o brush feature Closure Panel.

4” w/o brush feature Closure Panel.

5” w/o brush feature Closure Panel

* + - 1. Cassette:

Flat Cassette 100 – 3 1/4" x 3” w/ spline attachment for fabric wrapped option.

* + - 1. Closure panel options for pockets and pocket clips:
         1. For use with pockets

Closure panel w/o brush feature (2”, 3”, 4”, 5”)

* + - * 1. For use with “L” or “I” pocket clips

Closure panel w/o brush feature (2”, 3”, 4”, 5”)

* + - 1. Edge Side Channels:
         1. Extruded aluminum channels are generally used to eliminate light infiltration (or leakage) at side or bottom clearances to jambs and/or sills.
         2. Finish color as selected by architect from manufacturer’s full range.
      2. Wire Guided Mount:
         1. 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 corrosion resistant zinc plated, or powder coated.
      3. Zipscreen:
         1. Provide for positive mechanical attachment of fabric utilizing a number 6 zip heat-welded to the shade fabric and inserted into a receiver channel.
         2. One (1) Aluminum “U” channel extrusion mounting to the substrate.
         3. One (1) Aluminum extrusion with the receiver channel for the number 6 zipper allows tension and field alignment and adjustable.
         4. Light brush for the extruded channels.
         5. Bubble gasket for ground contact and pitched openings.

1. EXECUTION
   1. MANUFACTURERS INSTRUCTIONS
      1. Compliance: Comply with manufacturer’s product data, including product technical bulletins, product installation instructions and published technical guidelines.
   2. EXAMINATION
      1. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
      2. Review areas of potential radio wave interference and conflicts, and coordinate layout and support provisions for interfacing work.
      3. Adjust and perform work as necessary for plumb and true alignments.
      4. Proceed with installation only after unsatisfactory conditions have been corrected.
   3. INSTALLATION
      1. Conform to Manufacturer's instructions and provisions of Contract Documents.
      2. Install shades level, plumb, square, and true per manufacturer's instructions and approved shop drawings. Locate so shade band is at least 2 inches (51 mm) from interior face of glass. Allow proper clearances for window operation hardware. Use mounting devices as indicated.
      3. Replace shades outside the specified tolerances at no extra cost to Owner.
      4. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric.
      5. Clean roller shade surfaces after installation, per manufacturer's written instructions.
      6. Demonstrate operation and maintenance of window shade system to Owner's personnel.
      7. Manufacturer's authorized personnel are to train Owner's personnel on operation and maintenance of system.
         1. Use operation and maintenance manual as a reference, supplemented with additional training materials as required.
      8. Demonstrate and provide instruction on the use of any electronic devices present in the finished work.
   4. FIELD QUALITY CONTROL
      1. Manufacturer’s Field Technical Service: Make intermittent and final inspection to verify installation in conformance to Manufacturer instructions and suitable as framing assembly for subsequent cladding installations.
         1. Confirm framing members installed in correct orientation and as per the approved Shop Drawings.

END OF SECTION 12 24 14