

**SECTION 12 24 00**  
**WINDOW SHADES**

**PART 1 - GENERAL**

**1.1 DESCRIPTION:**

- A. This section includes cloth shades, vertical blinds and venetian blinds. Provide window shades complete, including brackets, fittings and hardware.

**1.2 RELATED WORK:**

- A. Color of shade cloth and color of exposed parts of venetian blinds, (including tapes and cords) and color of vertical blinds/: Section 09 06 00, SCHEDULE FOR FINISHES.

**1.3 QUALITY ASSURANCE:**

- A. Manufacturer's Qualification: Submit evidence that the manufacture has a minimum of three (3) years' experience in providing item of type specified, and that the blinds have performed satisfactorily on similar installations. Submit qualifications.
- B. Submit qualifications for installers who are trained and approved by manufacturer for installation of units provided.
- C. Electrical Requirements:
  - 1. NFPA 70 Article 100.
  - 2. Listed and labeled in accordance with UL 325.
  - 3. Marked for intended use, and tested as a system.
  - 4. Individual testing of components is not acceptable in lieu of system testing.

**1.4 SUBMITTALS:**

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples:
  - 1. Shade cloth, each type, 610 mm (24 inch) square, including cord and ring, showing color, finish and texture.
- C. Manufacturer's literature and data; showing details of construction and hardware for:  
Cloth and window shades
- D. Shop Drawings: Provide fabrication and installation details for cloth shades, including shade cloth materials, their orientation to rollers, and their seam and batten locations.

**ADDENDUM #3**

1. Motor-Operated Shades: Include details of installation and diagrams for power, signal, and control wiring.

E. Fire Testing: Submit report of flame spread and smoke developed during product material tests by independent testing laboratory.

F. Manufacturer's warranty.

**1.5 WARRANTY:**

A. Construction Warranty: Comply with FAR clause 52.246-21, "Warranty of Construction".

B. Manufacturer Warranty: Manufacturer shall warranty their window shades for a minimum of five (5) years from date of installation and final acceptance by the Government. Submit manufacturer's warranty.

**1.6 APPLICABLE PUBLICATIONS:**

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced to in the text by the basic designation only.

B. Federal Specifications (Fed. Spec.):

AA-V-00200B.....Venetian Blinds, Shade, Roller, Window, Roller, Slat, Cord, and Accessories

C. ASTM International (ASTM):

A240/A240M-14.....Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

B221-14.....Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes

B221M-13.....Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes (Metric)

G21-13.....Determining Resistance of Synthetic Polymeric Materials to Fungi

D. National Electric Manufacturer's Association (NEMA):

ICS 6-93(R2006).....Industrial Control and Systems Closures

E. National Fire Protection Association (NFPA):

70-14.....National Electrical Code (NEC)

701-15.....Fire Tests for Flame Propagation of Textiles and Films

F. Underwriters Laboratories Inc. (UL):

325-06(R2013).....Door, Drapery, Gate, Louver, and Window Operators and Systems

**PART 2 - PRODUCTS**

**2.1 CLOTH SHADES:**

- A. Light-Filtering Shade Cloth: Woven fabric, stain and fade resistant.
  - 1. Basis of Design: Insolroll Nocturne Clutch Shade.
  - 7. Fire-Test-Response Characteristics: Passes NFPA 701 small and large-scale vertical burn. Submit report for testing of shade cloth materials identical to products provided.
  - 8. Drive-End Location: As indicated on construction documents or VA COR direction
  - 9. Shade Cloth Anti-Microbial Characteristics: 'No Growth' per ASTM G21 results for fungi ATCC9642, ATCC9677, and ATCC9645.
  - 10. Cordless Shades: Provide roller containing spring operating mechanism sized to accommodate shade size indicated in construction documents. Provide with positive locking mechanism that can stop shade movement at each half-turn of roller and with manufacturer's standard pull.
    - a. Pole: Manufacturer's standard type in length required to make operation convenient from floor level and with hook for engaging pull.
  - 11. Motorized Operating System: Provide factory-assembled, shade-operator system of size and capacity and with features, characteristics, and accessories suitable for conditions indicated on construction documents, complete with electric motor and factory-prewired motor controls, power disconnect switch, enclosures protecting controls and operating parts, and accessories required for reliable operation without malfunction. Include wiring for motor controls to motors. Coordinate operator wiring requirements and electrical characteristics with building electrical system.
    - a. Electrical Components: Listed and labeled as defined in NFPA 70, by a qualified testing agency and marked for intended location and application.
    - b. Electric Motor: Manufacturer's standard tubular, enclosed in roller.
    - c. Remote Control: Electric controls with NEMA ICS 6, Type 1 enclosure for surface recessed or flush mounting. Provide the following for control activation of shades:
      - 1) Wall mounted controls: key pads, switches with hand held remote that are able to electronically set and reconfigure

shade open and close limits, shade preset positions, system groups and system subgroups at the control without rewiring and without access to the Electronic Drive Unit.

- 5) Timer Controls: Clock timer,
- 6) Provide switches that are adjustable and interlocked with motor controls and set to automatically stop the shade at fully raised and fully lowered positions. Provide low voltage switching.
- 7) Operating Function: Stop and hold shade at any position.
- 8) Provide the following options: Group switching with integrated switch control; single face plate for multiple switch cut-outs.

**2.3 MATERIALS:**

- A. Stainless Steel: ASTM A240/A240M.
- B. Extruded Aluminum: ASTM B221M (B221).
- C. Cords for Cloth roller shades: No. 4 braided nylon or No. 4-1/2 braided cotton or #10 stainless steel chain having not less than 80 kg (175 pounds) breaking strength.

**2.4 FASTENINGS:**

- A. Zinc-coated or cadmium plated steel or stainless steel fastenings of length and type recommended by manufacturer. Except as otherwise specified, provide fastenings for installation with various structural materials as follows:

Type of Fastening	Structural Material
Wood screw	Wood
Tap screw	Metal
Case-hardened, self-tapping screw in pre-drilled hole	Solid masonry, concrete
Screw or bolt in expansion shields	Solid masonry, concrete
Toggle bolts	Hollow blocks, gypsum wallboard, plaster

**2.5 FABRICATION:**

- A. Fabricate cloth shade to fit measurements of finished openings obtained at site.

**ADDENDUM #3**

- B. Cloth Shades: Rolling type, constructed of shade cloth mounted on rollers. Provide shade cloth with plain sides, and with hem at bottom to accommodate weight bar.
1. Provide separate shades for each individual sash within opening. Provide shade length that exceeds height of window by 305 mm (12 inches) measured from head to sill, in addition to material required to make-up hem:
    - a. Provide rollers with spindles, nylon bearings, tempered steel springs, and other related accessories required for positive action.
    - b. Provide rollers of diameter and wall thicknesses required to accommodate operating mechanisms, weights, and widths of shadebands indicated without deflection.
    - c. Provide rollers with permanently lubricated drive-end assemblies and idle-end assemblies designed to facilitate removal of shadebands for service.
    - d. Secure shade cloth to rollers to prevent wrinkling or folding, and on line parallel to axis of rollers so that shade hangs plumb.
    - e. Secure shade cloth with zinc-coated steel or stainless steel machine screws spaced not over 228 mm (9 inches) on centers.
    - f. Do not attach shade cloth to rollers with tacks.
    - g. Provide hem bar of extruded aluminum for entire width of shade band. Heat seal hem bar on all sides to prevent removal.
    - h. Provide eyelets with clear openings large enough to accommodate cords, without cutting into cloth when set.
    - i. Provide cords of sufficient length to permit shades to be drawn to bottom of opening with ends looped and held with cord rings. Attach cords to hems through metal eyelets in center of slats in bottom hems.

**PART 3 - EXECUTION**

**3.1 INSTALLATION:**

- A. Measure openings before fabrication. Do not scale construction documents.

**ADDENDUM #3**

- B. Cloth Shades: Mount window shades on end of face brackets, set on metal gussets, or casing of windows as required. Provide extension face brackets where necessary at mullions.
1. Locate rollers in level position as high as practicable at heads of windows.
  2. Install shades to prevent infiltration of light over rollers.
  3. Where extension brackets are necessary for alignment of shades, provide metal lugs, and rigidly anchor lugs and brackets.
  4. Place brackets and rollers so that shades do not interfere with window and screen hardware.
  5. Mount shades at wire mesh window guards on head rails of hinged frame.
  6. Mount shades at detention, or protection screens on room side of head rail hinged frame, with face brackets located approximately 38 mm (1-1/2 inches) from outside edges.
  7. Mount shade to allow clearances for window operation hardware.
  8. Electrical Connections: Connect motor-operated shade cloth roller shades to building electrical system.
  9. Shade installation methods not specifically described, are subject to approval of Contracting Officer Representative (COR).

**3.2 ADJUSTING:**

- A. Adjust and shades to operate smoothly, free from binding or malfunction throughout entire operational range.

**3.3 CLEANING AND PROTECTION:**

- A. Clean shade surfaces after installation, according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions that ensure that shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged shades that cannot be repaired, in a manner approved by COR before time of Substantial Completion.

**3.4 DEMONSTRATION:**

- A. Furnish services of factory-authorized service representative to train maintenance personnel to adjust, operate, and maintain motorized shade operation systems.

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