

**University of Houston Master Specification**

<Insert Project Name>  
<Insert U of H Proj #>

<Insert Issue Name>  
<Insert Issue Date>

SECTION 12 2413 - WINDOW ROLLER SHADES – MANUAL OPERATION

Maintain Section format, including the UH master spec designation and version date in bold in the center columns of the header and footer. Complete the header and footer with Project information.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Roller shades, manual operation and accessories.
  - 2. Shade fabric.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
  - 1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
  - 2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction*.

1.3 ALLOWANCES

- A. None.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, features, finishes, and operating instructions for roller shades.
- B. Shop Drawings:
  - 1. Prepare shop drawings to include plans, elevations, sections, product details, installation details, operational clearances, and relationship to adjacent work.

## University of Houston Master Specification

<Insert Project Name>  
<Insert U of H Proj #>

<Insert Issue Name>  
<Insert Issue Date>

2. Provide location plan showing all manual shade control locations. Cross-reference furniture plans for optimal positioning of chains.
  3. Provide elevations showing shade band layout. Indicate any necessary seam or batten locations, and align with horizontal mullions where possible.
  4. Submit all documents in electronic format.
- C. Samples for Selection and Verification: For each type of roller shade.
1. Shade Fabric: Not less than 10 inches square. Mark interior face of material if applicable.
  2. Roller Shade: Full-size operating unit, not less than 16 inches wide by 36 inches long for each type of roller shade indicated.
  3. Installation Accessories: Full-size unit, not less than 10 inches long.
- D. Product Schedule: For roller shades.

### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer. Refer to Section 01 4000 "Quality Requirements."
- B. Product Certificates: From manufacturer for each type of shade material.
1. Submit Greenguard, Clean Air and Cradle to Cradle certifications.
- C. Product Test Reports: For each type of shade material, for tests performed by a qualified testing agency.

### 1.6 MOCK-UP

- A. Provide a mock-up of one roller shade assembly for evaluation of mounting, appearance and accessories.
1. Locate mock-up in window designated by Architect.
  2. Mockup Size: Full size.
  3. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
  4. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
  5. Do not proceed with remaining work until mock-up is accepted by Architect.
  6. Retain mock-up during construction as a standard for comparison with completed work.
  7. Do not alter or remove mock-up until work is completed or removal is authorized.
  8. Full-sized mock-up may become part of the final installation.

### 1.7 STORAGE, AND HANDLING

- A. Deliver roller shades in factory packages, marked with manufacturer, product name, and location of installation using same designations indicated on Drawings.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not install roller shades until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operating hardware of operable glazed units through entire operating range. Notify Architect and Owner of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.9 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For roller shades to include in Owner’s maintenance manuals.
- B. Maintenance Materials (Attic Stock): Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Roller Shades: Full-size units equal to 5 percent of quantity installed for each size, color, and shade material indicated, but no fewer than two (2) units.

1.10 WARRANTY

- A. Roller Shade Hardware and Chain Warranty: Manufacturer's standard non-depreciating, transferrable warranty for interior shading.
  - 1. Shade Hardware: 25 years unless otherwise indicated.
  - 2. Shade Fabric: Manufacturer's standard 25-year warranty.
  - 3. Roller Shade Installation: One year from date of Substantial Completion, not including scaffolding, lifts or other means to reach inaccessible areas.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain roller shades from a single source from a single manufacturer.

2.2 SINGLE-ROLLER SHADES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Draper, Inc.
  - 2. Hunter Douglas Architectural
  - 3. MechoShade Systems
  - 4. Springs Window Fashions (SWF Contract)

**University of Houston Master Specification**

<Insert Project Name>  
<Insert U of H Proj #>

<Insert Issue Name>  
<Insert Issue Date>

- B. Manual Operation: Chain-and-Clutch Operating Mechanisms with continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.
  - 1. Bead Chains: Stainless steel.
    - a. Loop Length: Full length of roller shade.
    - b. Limit Stops: Provide upper and lower ball stops.
    - c. Chain-Retainer Type: Clip, jamb mount.
  - 2. Spring Lift-Assist Mechanisms: Manufacturer's standard for balancing roller shade weight and for lifting heavy roller shades.
    - a. Provide for shades that weigh more than 10 lbs. or for shades as recommended by manufacturer, whichever criterion is more stringent.
- C. Rollers: Corrosion-resistant steel or extruded-aluminum tubes of diameters and wall thicknesses required to accommodate operating mechanisms and weights and widths of shades indicated without deflection. Provide with permanently lubricated drive-end assemblies and idle-end assemblies designed to facilitate removal of shades for service.
  - 1. Roller Drive-End Location: Right side of interior face of shade.
  - 2. Direction of Shade Roll: Regular, from back (exterior face) of roller.
  - 3. Shade-to-Roller Attachment: Removable spline fitting into integral channel in tube.
- D. Mounting Hardware: Brackets or endcaps, corrosion resistant and compatible with roller assembly, operating mechanism, installation accessories, and mounting location and conditions indicated.
- E. Roller-Coupling Assemblies: Coordinated with operating mechanism and designed to join up to three inline rollers into a multiband shade that is operated by one roller drive-end assembly.
- F. Shades:
  - 1. Shade Fabric: Light-filtering fabric, color as specified in "Shade Materials" below.
  - 2. Shade Bottom (Hem) Bar: Steel or extruded aluminum.
    - a. Type: Enclosed in sealed pocket of shade material.
    - b. Color and Finish: Match fabric.
- G. Installation Accessories:
  - 1. Front Fascia: Aluminum extrusion that conceals front and underside of roller and operating mechanism and attaches to roller endcaps without exposed fasteners.
    - a. Shape: L-shaped.
    - b. Height: Manufacturer's standard height required to conceal roller and shade assembly when shade is fully open, but not less than four inches.
  - 2. Endcap Covers: To cover exposed endcaps.

2.3 SHADE MATERIALS

- A. Shade Material Flame-Resistance Rating: Comply with NFPA 701. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  
- B. Light-Filtering Fabric: Woven fabric, stain and fade resistant.
  - 1. Source: Roller shade manufacturer.
  - 2. Type: PVC-Free.
  - 3. Weave: Mesh.
  - 4. Roll Widths and Lengths: As required by window openings. Refer to Drawings.
  - 5. Orientation on Shade: Railroaded.
  - 6. Openness Factor:
    - a. Five (5) percent open at north- and east-facing windows.
    - b. Three (3) percent open at south- and west-facing windows.
    - c. Use the lower openness factor in spaces that face in multiple directions.
  - 7. Color: Architect to select from manufacturers' standard medium-to-dark grey fabrics. Approved colors:
    - 1) Draper: "Rain" or "Storm" or "Slate."
    - 2) MechoShades: "Shadow Grey"
    - 3) Hunter Douglas: "Slate"
    - 4) SWF Contract: "Smoke/Platinum" or "Steel Grey"
  
- C. Blackout Fabric: Woven fabric, stain and fade resistant.
  - 1. If a second shade is desired for blackout purposes, in addition to the primary light filtering shade, use opaque shade at all orientation locations.
  - 2. Source: Roller shade manufacturer.
  - 3. Type: PVC-Free.
  - 4. Weave: Mesh.
  - 5. Roll Widths and Lengths: As required by window openings. Refer to Drawings.
  - 6. Orientation on Shade: Railroaded.
  - 7. Openness Factor: 0%
  - 8. Color: Architect to select from manufacturers' standard medium-to-dark grey fabrics. Approved colors:
    - 1) Draper: "Pewter"
    - 2) MechoShades: "Steel" or "Onyx"
    - 3) Hunter Douglas: "Grey/Grey"
    - 4) SWF Contract: "Dark Grey"
  - 9. Fabric to be medium-to-dark grey on both sides. White or light-colored backing is not acceptable.

2.4 ROLLER SHADE FABRICATION

- A. Product Safety Standard: Fabricate roller shades to comply with WCMA A 100.1, including requirements for flexible, chain-loop devices; lead content of components; and warning labels.
  
- B. Unit Sizes: Fabricate units in sizes to fill window and other openings as follows, measured at 74 deg F:
  - 1. Between (Inside) Jamb Installation:

**University of Houston Master Specification**

<Insert Project Name>  
<Insert U of H Proj #>

<Insert Issue Name>  
<Insert Issue Date>

- a. Width equal to jamb-to-jamb dimension of opening in which shade is installed less 1/4 inch per side or 1/2-inch total, plus or minus 1/8 inch.
  - b. Length equal to head-to-sill or -floor dimension of opening in which shade is installed less 1/4 inch, plus or minus 1/8 inch.
- C. Shade Fabrication: Fabricate shades without battens or seams to extent possible, except as follows:
- 1. Vertical Shades: Where width-to-length ratio of shade is equal to or greater than 1:4, provide battens and seams at uniform spacings along shade length to ensure shade tracking and alignment through its full range of movement without distortion of the material.
  - 2. Railroaded Materials: Railroad material where material roll width is less than the required width of shade and where indicated. Provide battens and seams as required by railroaded material to produce shades with full roll-width panel(s) plus, if required, one partial roll-width panel located at top of shade.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 ROLLER SHADE INSTALLATION**

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions.
  - 1. Shades: Located so shade is not closer than 2 inches to interior face of glass. Allow clearances for window operation hardware.
- B. Roller Shade Locations: As indicated on Drawings.

**3.3 ADJUSTING**

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

**3.4 CLEANING AND PROTECTION**

- A. Clean roller shade surfaces after installation according to manufacturer's written instructions.
- B. Protect installed products and maintain conditions, in a manner acceptable to manufacturer and installer, to ensure that roller shades are without damage or deterioration at time of Substantial Completion.

**University of Houston Master Specification**

<Insert Project Name>  
<Insert U of H Proj #>

<Insert Issue Name>  
<Insert Issue Date>

- C. Clean soiled shades and exposed components as recommended by manufacturer.
  
- D. Replace damaged roller shades that cannot be cleaned or repaired in a manner approved by Architect before time of Substantial Completion.

END OF SECTION 12 2413