
USACE / NAVFAC / AFCEA / NASA UFGS-12 24 13 (August 2010)

Preparing Activity: USACE Superseding
UFGS-12 24 13 (February 2010)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated April 2011

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08/10

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SECTION 12 24 13

ROLLER WINDOW SHADES 08/10

NOTE: This guide specification covers the requirements for roller window shades and hardware.

Adhere to [UFC 1-300-02](#) Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a [Criteria Change Request \(CCR\)](#).

PART 1 GENERAL

NOTE: Use Section 12 21 00 for WINDOW BLINDS. Use Section 12 22 00 for CURTAINS AND DRAPES

1.1 GENERAL REQUIREMENTS

Provide roller window shades, complete with necessary brackets, fittings, and hardware [in accordance with paragraph ROLLER WINDOW SHADE PLACEMENT SCHEDULE] [as located in the drawings]. Mount and operate equipment in accordance with manufacturer's instructions. Windows to receive a shade shall be completely covered.

- a. Submit drawings showing plans, elevations, sections, product details, installation details, operational clearances, wiring diagrams and relationship to adjacent work. Include the use of same room designations as indicated on the drawings.

- b. Provide manufacturer's data composed of catalog cuts, brochures, product information, and operating and maintenance instructions on each product to be used. Include styles, profiles and features.
- c. Furnish samples of each type and color of roller shade fabric and roller shade channel. Shade material shall be minimum 150 by 150 mm6 by 6 inch in size. Mark face of material to indicate interior faces.
- d. Mock up: Install shade in area designated by Contracting Officer. Do not proceed with remaining work until the Contracting Officer approves workmanship and operation. Re-work mock-up as required to produce acceptable work. The approved shade can be used in installation.
- e. Submit fire resistance data, flame spread and smoke contribution data.
- f. Provide LEED documentation relative to: local/regional materials (LEED) credit and recycled content credit in accordance with LEED Reference Guide. Include in LEED Documentation Notebook.

1.2 REFERENCES

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a RID outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

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

ASTM INTERNATIONAL (ASTM)

ASTM G 21 (2009) Determining Resistance of Synthetic Polymeric Materials to Fungi

GREENGUARD ENVIRONMENTAL INSTITUTE (GEI)

GEI Greenguard Standards for Low Emitting Products

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701 (2010) Standard Methods of Fire Tests for

Flame Propagation of Textiles and Films

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS

Scientific Certification Systems
(SCS) Indoor Advantage

UNDERWRITERS LABORATORIES (UL)

UL 325

(2002; Reprint Nov 2010) Door, Drapery,
Gate, Louver, and Window Operators and
Systems

1.3 SUBMITTALS

NOTE: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.] [information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES

SD-02 Shop Drawings

Installation[; G][; G, [_____]]

SD-03 Product Data

Window Shades [; G] [; G, [____]]
Certification

SD-04 Samples

Window Shades [; G] [; G, [____]]

SD-06 Test Reports

Window Shades

SD-08 Manufacturer's Instructions

Window Shades

SD-10 Operation and Maintenance Data

Window Shades

SD-11 Closeout Submittals

Local/Regional Materials (LEED)
Shade Cloth (LEED)

1.4 QUALITY ASSURANCE

1.4.1 Qualifications

1.4.1.1 Manufacturer's Qualifications

Obtain motor-controlled roller shades through one source from a single manufacturer with a minimum of twenty years experience and minimum of three projects of similar scope and size in manufacturing products comparable to those specified in this section.

1.4.1.2 Installer's Qualifications

Installer trained and certified by the manufacturer with a minimum of ten years experience in installing products comparable to those specified in this section.

1.4.2 Flammability Requirements

Passes in accordance with **NFPA 701** small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.

1.4.3 Electrical Requirements

NFPA Article 100 listed and labeled in accordance with **UL 325** or other testing agency acceptable to authorities having jurisdiction, marked for intended use, and tested as a system. Individual testing of components will no be acceptable in lieu of system testing.

1.4.4 Anti-Microbial Requirements

'No Growth' per **ASTM G 21** results for fungi ATCC9642, ATCC 9644, ATCC9645.

1.4.5 Sustainable Design Documentation

Environmental Certification: Submit written certification from the manufacturer, including third party evaluation, recycling characteristics, and perpetual use certification as specified below. Initial submittals, which do not include the Environmental Certification, below will be rejected. Materials that are simply 'PVC free' without identifying their inputs will not qualify as meeting the intent of this specification and shall be rejected.

- a. Third Party Evaluation: Provide documentation stating the [shade cloth \(LEED\)](#) has undergone third party evaluation for all chemical inputs, down to a scale of 100 parts per million, that have been evaluated for human and environmental safety. Identify any and all inputs, which are known to be carcinogenic, mutagenic, teratogenic, reproductively toxic, or endocrine disrupting. Also identify items that are toxic to aquatic systems, contain heavy metals, or organohalogens. The material shall contain no inputs that are known problems to human or environmental health per the above major criteria, except for an input that is required to meet local fire codes.
- b. Recycling Characteristics: Provide documentation that the shade cloth can and is part of a closed loop of perpetual use and not be required to be down cycled, incinerated or otherwise thrown away. Scrap material can be sent back to the mill for reprocessing and recycling into the same quality yarn and woven into new material, without down cycling. Certify that this process is currently underway and will be utilized for the project.
- c. Perpetual Use Certification: Certify that at the end of the useful life of the shade cloth, that the material can be sent back to the manufacturer for recapture as part of a closed loop of perpetual use and that the material can and will be constituted into new yarn, for weaving into new shade cloth. Provide information on each shade band indicating that the shade band can be sent back to the manufacturer for this purpose.

1.4.6 Sustainable Design Certification

Product shall be third party certified by [GEI Greenguard Indoor Air Quality Certified](#), [SCS Scientific Certification Systems Indoor Advantage](#) or equal. Certification shall be performed annually and shall be current.

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver components to the jobsite in the manufacturer's original packaging with the brand or company name, item identification, and project reference clearly marked. Store components in a dry location that is adequately ventilated and free from dust, water, or other contaminants and has easy access for inspection and handling. Store materials flat in a clean dry area with temperature maintained above [10 degrees C](#) [50 degrees F](#). Do not open containers until needed for installation unless verification inspection is required.

1.6 WARRANTY

Provide 10 year minimum limited warranty.

PART 2 PRODUCTS

NOTE: Coordinate with the drapery hardware
specified for the project.

2.1 WINDOW SHADES

NOTE: Light filtering shades are translucent and
softly diffuse light to the amount that the fabric
selected by the designer allows. Room darkening
(black-out) shades are opaque and block out light
completely. The designer should specify a complete
room darkening system only if total light block is
necessary, as in an audio visual application. A
room darkening shade is typically made of a vinyl
coated fiberglass cloth. Do not specify cotton
cambric fabric for room darkening shades since it
cannot provide total light block. Coordinate
maximum unit sizes available with the window sizes.

Roller tube shall operate smoothly and be of sufficient diameter and
thickness to prevent excessive deflection. Provide brackets that are
appropriate for [inside] [outside] [ceiling] mount. The shade cloth shall
meet the performance described in NFPA 701, small scale test. Treat steel
features for corrosion resistance.

2.1.1 Light Filtering Shades

Provide light filtering window shades to conform with the following:

- a. Roller tube shall be extruded aluminum or steel. Diameter, wall
thickness, and material to be selected by the manufacturer to
accommodate the shade size. Provide roller idler assembly of molded
nylon and zinc-plated steel pin. Sliding pin shall allow easy
installation and removal of roller. Fabric shall be connected to the
roller tube with double sided adhesive specifically developed to attach
coated textiles to metal to eliminate horizontal impressions in fabric
or attached with a spline lock system.
- b. Fascia shall be L-shaped aluminum extrusion to conceal shade roller and
hardware that snaps onto end caps without requiring exposed fasteners
of any kind. Fascia can be mounted continuously across two or more
shade bands.
- c. End caps shall be stamped steel with universal design suitable for
mounting to window mullions. Provide size compatible with roller
size. End cap covers shall match fascia/headbox finish.
- d. Provide hardware that allows for field adjustment or removal of shade
roller tube and other operable hardware component[or adjustment of
motor] without requiring removal of brackets and end or center
supports. Provide hardware system that allows for operation of
multiple shade bands by a single operator. Connectors shall be offset
to assure alignment from the first to the last shade band. Provide
shade hardware constructed of minimum 3 mm 1/8 inch thick plated steel

or heavier as required to support 150 percent of the full weight of each shade.

- [e. Manual Operated Chain Drive Hardware shall provide for universal, regular and offset drive capacity, allowing drive chain to fall at front, rear or non-offset for all shade drive end brackets. Universal offset shall be adjustable for future change. Provide positive mechanical engagement of drive mechanism to shade roller tube. The drive bracket shall be fully integrated with all accessories. Drive chain shall be #10 stainless steel chain rated to 33 kg 90 lb. minimum breaking strength.]
- [f. Motors shall be [hard-wired, wired into the building electrical system] [plug-in to standard ac electrical outlets]. The position of the motor and electrical connection shall be [left] [right] side of roller, based on the hand of the user facing the shade from inside, unless otherwise indicated [on drawings] [in the Roller Window Shade Placement Schedule].]
- [g. Activation Controls of Shades:
 - (1) [Wall mounted controls: [key pads] [switches] [_____] [hand held remote] 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.]
 - (2) [Sun sensor controls: Programmable system activated by LEDs detecting daylight intensity and responding by automatically adjusting shades]
 - (3) [Radio controls: Digital system consisting of code-compatible universal coaxial receiver, [one per shade] [one per roller] [where indicated on Drawings] and [2] [_____] portable multiple-channel transmitters for operating [2] [4] [_____] shades individually, each with a single button to open and close shades.]
 - (4) [Infrared Controls: System consisting of concealed receiver complete with external eye and connecting modular cable, and [2] [_____] portable, multiple-channel transmitters with separate buttons to open and close up to [12] [_____] individual shades or groups of shades, to open and close all shades simultaneously, and to stop.]
 - (5) [Whole building shade control system can be preprogrammed and reprogrammed to accomplish many different operations with management flexibility. System includes: [_____]..]]
- [h. Timer Controls: Clock timer, [24-hour] [7 day] [_____] programmable for regular events.]
- [i. Switches that are adjustable and interlocked with motor controls and set to automatically stop the shade at fully raised and fully lowered positions shall be provided.] [Low voltage switching is required.]
- j. Operating function: [Stop and hold shade at any position] [Stop and hold shade at open, midpoint, and closed positions] [Stop and hold shade at 3 pre-determined positions including open, closed, and user-programmed position] [Stop and hold shade at 5 pre-determined

positions including open, closed, and 3 user-programmed positions]
[____].

- k. Provide the following options: [Low Voltage System] [Group switching with integrated switch control; single face plate for multiple switch cut-outs.] [Capable of interface with [audiovisual] [multi-room] [____] control system] [Capable of accepting input from building automation control system] [Override switch] [Backup gear and crank operator for manual operation during power failures with detachable handle, [1.8 m 6 feet long] [length required to make operation convenient from floor level] [Power failure memory for the life of the systems which protects presets] [____].]

2.1.2 Room Darkening Shades

Provide room darkening (black-out) window shades designed to eliminate all visible light gaps when shades are fully closed, and conform with the following:

- a. Roller tube shall be aluminum, controlled by [webbing tape] [crank operated gear box with steel rods]. Provide shop fabricated light traps, consisting of a head box to house the shade roller, and U-shaped channels to serve as guides for the shade along the sides and to receive the bottom edge of the shade along the sill.
- b. Provide light trap made of sheet steel having a minimum thickness of 0.85 mm (22 gauge) 22 gauge or anodized, extruded, aluminum. The legs of the channels shall be not less than 44 mm 1-3/4 inches long and separated by the minimum distance that will permit free operation of the shade. Edges of light trap coming into contact with the shade cloth shall be smooth pile light seal. The exposed face of the head box shall be hinged or removable for access to the shade roller. The interior or unexposed surfaces of the light trap shall have a finish coat of flat black enamel. The exposed portions of the light trap shall have a factory-applied priming coat of gray paint.
- c. Cloth shall be of type for blackout purposes. Make the shade from a single piece of [canvas duck cloth laminated to vinyl] [____]. When not finished with a selvage, the vertical edges of the shade shall be bound or hemmed using a high-grade thread. Make needle holes lightproof by applying a suitable filler.
- d. Fit the bottom edge of the shade with a steel operating bar. Shades will engage positively with bottom rail through operating bar or chain pull. Paint bars with flat black enamel. Make pull cords of No. 4 braided nylon or beaded chain having not less than 335 N 175 pounds breaking strength.

2.2 COLOR

NOTE: Editing of color reference sentence(s) must be coordinated with the Government. Generally, Section 09 06 90 COLOR SCHEDULE or drawings are used to indicate color references. Color must be selected from manufacturer's standard colors or identified as a manufacturer's color in this specification only when the project has minimal finishes.

When the government directs that color be located in the drawings, a note shall be added to the drawings that states: "Where color is shown as being specific to one manufacturer, an equivalent color by another manufacturer may be submitted for approval. Manufacturers and materials specified are not intended to limit the selection of equal colors from other manufacturers. The word "color" as used herein includes surface color and pattern."

Considerations of fabric selection include: glare control, view maintenance, privacy and heat build-up. Identify if solar reflective property is required on the backside of the fabric and specify a dual-sided fabric if applicable.

When more than one type, pattern or color is specified identify location.

When a manufacturer's name, stock number, pattern, and color is specified for color, verify that the product conforms to the specification, as edited and is not a proprietary product.

Provide color, pattern and texture for metal and shade fabric [in accordance with Section 09 06 90 COLOR SCHEDULE.] [as indicated on the drawings] [____]. Color listed is not intended to limit the selection of equal colors from other manufacturers. [Openness factor of shade fabric shall be [____] percent.]

PART 3 EXECUTION

3.1 FIELD MEASUREMENTS

After becoming familiar with details of the work, verify all dimensions in the field, and advise the Contracting Officer of any discrepancy before performing the work.

3.2 ROLLER WINDOW SHADE PLACEMENT SCHEDULE

NOTE: The Roller Window Shade Placement Schedule will be provided at the designer's option when it will clarify placement of the window treatments. When all exterior windows are to receive a window treatment, a note can be added to this effect instead of filling out the schedule completely. The location of window treatment placement should be clearly defined within this specification. The Placement Schedule will be completely filled out with the room number/name, window covering type, window type and quantity.

[All exterior windows include [____].] [Provide window covering as follows:

Room	Roller Window Shade	Window	Window
------	---------------------	--------	--------

Number/Name	Covering Type	Type/Size	Quantity
[_____]	[_____]	[_____]	[_____]

3.3 INSTALLATION

Perform installation in accordance with the approved detail drawings and manufacturer's installation instructions. Install units level, plumb, secure, and at proper height and location relative to window units. Provide and install supplementary or miscellaneous items in total, including clips, brackets, or anchorages incidental to or necessary for a sound, secure, and complete installation. Do not start installation until completion of room painting and finishing operations.

3.4 CLEAN-UP

Upon completion of the installation, clean window treatments and adjust them for form and appearance and proper operating condition. Repair or replace damaged units as directed by the Contracting Officer. Isolate metal parts from direct contact with concrete, mortar, or dissimilar metals. Ensure shades installed in recessed pockets can be removed without disturbing the pocket. The entire shade, when retracted, shall be contained inside the pocket. For shades installed outside the jambs and mullions, overlap each jamb and mullion 20 mm 0.75 inch or more when the jamb and mullion sizes permit. Include all hardware, brackets, anchors, fasteners, and accessories necessary for a complete, finished installation.

-- End of Section --