

SECTION 122416
CELLULAR WINDOW SHADES

CSI 3-PART GUIDE 'SHORT' SPECIFICATION: USE FOR OUTLINE OR DD ISSUES.
EDIT TO SUIT PROJECT

PART 1 - GENERAL

1.1 SUMMARY

NOTE: Edit the following if all shades are manual only to eliminate references to motorized operators and controls.

- A. Work of this Section includes manually operated and motorized, cellular window shades including motor operator, controls, mounting hardware, side tracks, and other accessories.

1.2 SUBMITTALS

- A. Submit per DIVISION 01, unless noted otherwise.

NOTE: Edit the following if all shades are manual only to eliminate references to motorized operators and controls.

- B. Shop Drawings: Submit indicating window rough openings, sill, jamb & head-frame section, details, shade type, location, dimensions, clearance requirements, attachment method, blocking requirements, motor system housing, and wiring diagrams. Submit window shade schedule.
- C. Samples: Submit fabric and metal finish samples for each system component exposed to view for initial and final selections by Architect.
- D. Quality Assurance Submittals per DIVISION 01: Submit Performance and Rating Certificates, and Qualification Statements.

GREEN NOTE: Edit LEED Requirements below to suit project.

GREEN NOTE: For maximum possibility of LEED credits specify double-celled cellular blinds with sidetrack system, remotely operated and controlled through a building management system.

- E. Sustainable Design (USGBC [LEED®](#)) Submittals:

1. LEED Credit EA, Energy & Atmosphere. Submit completed LEED-NC 2.2 Submittal Templates and required paperwork as follows:
 - a. EA Prerequisite 1: Fundamental Commissioning of the Building Energy Systems (Lighting and daylighting controls; energy systems)
 - b. EA 1: Optimize Energy Performance (Building energy management system tied to operable shades)
 - c. EA 5: Measurement & Verification (Building energy management system tied to operable shades)

NOTE: Delete item MR 5.1 and 5.2 below if project site is not within 500 miles of fabrication plant.

2. LEED Credit MR, Materials & Resources. Submit completed LEED-NC 2.2 Submittal Templates and other required paperwork as follows:

NOTE: Select MR 5.1 or MR 5.2 or delete both.

- a. MR 5.1: 10% Regional Materials
- b. MR 5.2: 20% Regional Materials

3. LEED Credit EQ, Indoor Environmental Quality. Submit completed LEED-NC 2.2 Submittal Templates and required paperwork as follows:
 - a. EQ 6.1: Controllability of Systems - Lighting Controls: Submit proof of shading devices.
 - b. EQ 6.2: Controllability of Systems - Thermal Comfort: Submit proof of building energy management system tied to operable shades.
 - c. EQ 8.1, Daylight and Views: Submit proof of daylight redirection and/or glare control devices; exterior and interior permanent shading devices; automatic photocell-based controls.
 - d. EQ 8.2, Daylight and Views: Submit proof of interior shading devices, automatic photocell-based controls.

1.3 CLOSEOUT SUBMITTALS

NOTE: Coordinate and edit to the correct Section number below.

- A. Closeout Submittals: Operation and Maintenance Data, Executed Warranty Documentation, and Record Documents.

GREEN NOTE: Edit LEED Requirements below to suit project.

1. Sustainable Design Closeout Documentation including completed USGBC LEED® Templates for the following credits:
 - a. EA Prerequisite 1, EA Credit 1, EA Credit 5

Select MR 5.1 or MR 5.2 or delete both.

- b. MR 5.1, MR 5.2
- c. EQ 6.1, EQ 6.2, EQ 8.1, EQ 8.2

- B. Maintenance Material Submittals

1. Spare Parts: Submit no less than one (1) percent additional clutches, brackets, motors, remotes, controls and other furnished items, plus two (2) percent additional for each cellular fabric type, with each item wrapped and labeled.

1.4 QUALITY ASSURANCE

- A. Qualifications: Manufacturer and Installer firms with minimum ten (10) years of successful experience. Installer workmen with a minimum three (3) years successful experience. Fabricator a subsidiary or licensed agent of the component manufacturers.
- B. Field Samples: Provide large field samples of each different cellular shade fabric selected by the Architect to demonstrate aesthetic effects of materials in situ, assisting in making final selections prior to fabrication.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, Storage and Handling per manufacturer's instructions and recommendations, and per DIVISION 01 requirements.

1.6 WARRANTY

- A. Manufacturer's Material Warranty:
 1. Cellular Shade Fabric and Components: Manufacturer's limited lifetime warranty against defects in materials and workmanship.
 2. Shade Fabrication: Provide fabricator's standard supplemental five (5) year limited "fit for use" warranty covering all failures, including cord breakage, excepting willful misuse.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Fabricator/Supplier List: Double Honeycomb Cellular Shades
1. **EcoSmart Insulating Cellular Shades** by Gordon's Window Décor; Essex Junction, VT;
http://gordonswindowdecor.com/cellular_shades.html
- B. Window Shade Motors & Controls Manufacturer: Somfy Systems; 800.64 SOMFY; 609-395.1300; <http://www.somfy.com/nam/index.cfm>
- C. Substitution Limitations: Manufacturers of equivalent products shall be considered when submitted in accordance with DIVISION 01 requirements.

NOTE: When bidding public work requiring a minimum three equivalent products, add the language for the two manufacturers listed below.

Properly submitted equivalent products by the following manufacturers will be considered:

2. Hunter Douglas; www.hunterdouglas.com
3. Lafayette Interior Fashions; www.lafvb.com

2.2 DESCRIPTION

- A. General System Description:
1. Light Filtering, double honeycomb cellular construction, made from non-woven polyester fabric, with a two-tone color with (neutral) uniform off-white color to the outside.
 2. Room Black Out, double honeycomb cellular construction, made from aluminum metalized polyester fabric, with two-tone color with (neutral) uniform gray color to the outside.
 3. Operating Hardware Mechanisms.
 - a. Pull Cord
 - b. Continuous Cord
 - c. Cordless
 - d. Motorized
- B. Regulatory Requirements
1. Flame Retardance:
 - a. Passes NFPA 701, Small Scale vertical burn
 - b. California Administrative Code Title 19, Section [1237](#)
 - c. Passes U.S. Dept. of Transportation Motor Vehicle Safety Standard Part 571-[302](#).
 2. Shadecloth Total Lead Content per 16 CFR 1303: Below limits.
- C. Sustainability Characteristics

NOTE: Coordinate and edit below to the correct LEED [Version and Rating](#) selected.

NOTE: Edit below to products selected for project use.

1. USGBC LEED Rating: Comply with project requirements intended to achieve [NC v. 2.2 Platinum](#) rating, as measured and documented per USGBC LEED® Green Building Rating System
2. Applicable LEED Credits: Performance requirements of the following LEED Categories and Credits apply to this Section and are met as follows:

NOTE: LEED Credits below are the most commonly used. Edit to suit project.

NOTE: Most relevant LEED credits are tied to sensor controlled motorized shading systems.

NOTE: If LEED for Homes is selected edit below to the proper and different LEED for Homes Credit designations.

- a. Energy & Atmosphere (EA): EA Prerequisite 1, EA 1, EA 5
- b. Materials & Resources (MR): MR 5.1, MR 5.2. EcoSmart is manufactured in Essex, VT.
- c. Indoor Environmental Quality (EQ): EQ 6.1, EQ 6.2, EQ 8.1, EQ 8.2

2.3 MATERIALS

NOTE: Click on [Shading](#) link below for a design criteria overview PDF of shading strategy.

NOTE: Document takes a minute to download.

A. Design Criteria: [Shading](#)

NOTE: Select shade type(s) to suit project and delete items not selected.

1. Cellular Shade Applications for each exterior window of rooms and spaces shown on the Drawings with related mounting systems and accessories.
 - a. Shade Type 1: Manual cord-up operation with light filtering double cell honeycomb fabric.
 - b. Shade Type 2: Manual cord up-operation with blackout double cellular fabric.
 - c. Shade Type 3: Manual continuous cord up-operation with light filtering cellular fabric.
 - d. Shade Type 4: Manual continuous cord up-operation with blackout double cellular fabric.
 - e. Shade Type 5: Manual cord top-down and bottom-up operation with light filtering double cellular fabric.
 - f. Shade Type 6: Manual cord top-down and bottom-up operation with blackout double cellular fabric.
 - g. Shade Type 7: Manual spring assisted, cordless up-operation with light filtering double cellular fabric.
 - h. Shade Type 8: Manual spring assisted, cordless up-operation with blackout double cellular fabric.
 - i. Shade Type 9: Motorized light filtering cellular shades, and related motor control systems.
 - j. Shade Type 10: Motorized black out cellular shades, and related motor control systems.

B. Manual Window Shade Operating Systems

1. Universal Shade Hardware: Provide for all manually operated under 72 inch (1.83m) in height or width.
2. Continuous Cord Loop Heavy Duty Operating System: Provide for all manually operated shades over 72 inch (1.83m) in width or length or where cord control is important
3. Top-Down Bottom-Up Shade Operation. Provide Universal Hardware and the following:

GREEN NOTE: Use of sidetracks reduces drafts by 22+/- percent.

4. Side Tracks: Two-part finned sidetracks mounted inside window jams.
 - a. Room Darkening: Notch fabric and provide special grooved end caps for shades to ride on finned sidetracks.

C. Motorized and Manual Window Shade Operating Systems

1. Window Shade System: Manual system modified with an electrically operated motor, controls, sensor & timer low voltage inputs, software, PC (by others), controllers, and hand-held transmitters.

- a. Product: Louvolite mechanical shade systems with various cellular shade fabrics modified with Somfy motors as fabricated by Gordon's Window Décor to accommodate each window shade application.
2. Motorized Shade System (for use in Skylights): Techniku Systems LCR200 Concealed motor made for intermittent use and rated per UL; Lift Automation Assembly for Cellular / Cellular at ANY Angle or Shape with Automated stack-top or stack-bottom operation with motor and stationary rails.

NOTE: Select products from either Techniku Systems (for skylights) above or Somfy (for most windows) below, and delete type not chosen.

3. Shade Motor System: Somfy Cord Lift WireFree™ RTS sprocket Motor with built-in radio control concealed inside each shade head rail made for intermittent use, battery powered and rated per UL.
4. Individual and Group Control (Somfy)

NOTE: Select from all of the wireless radio remote control products listed below to suit project and delete those not selected.

- a. Wireless Radio Wall Switch: Customizable single (1) or five (5) channel.
- b. Wireless Radio Remote Control: Choice of Single (1), Five (5) with or without Sun/Wind Function, Twenty (20) Channel with On-Screen Display, or a Universal RTS Interface.
- c. Programmable Timer: Four (4) function individual or group timer with optional sun sensor interface, or a Multi-channel timer with on-screen display.
- d. Sun Sensor: Battery powered indoor wireless Somfy / Sunis Indoor WireFree™ RTS
- e. Automation Controls: Building energy management software running on a standard personal computer.

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Conditions and Measurements: Visit jobsite to verify installation conditions and window [measurements](#).

3.2 EXAMINATION, PREPARATION AND INSTALLATION

- A. Examination, preparation and installation per manufacturer's current written instructions, approved submittals, and DIVISION 01 requirements.
 1. Proceed with installation only after unsatisfactory conditions have been corrected.
 2. Coordinate requirements for wood blocking structural support to ensure proper shade system installation.
 3. Coordinate interface and installation of window shades with provisions of HVAC system, lighting system, motorized projection screens, motorized projector lift, or video projector.
 4. Verify and coordinate requirements for power supply, conduit, and wiring required for window shade motors and controls.
 5. GC shall provide job elevator, lift, and scaffold access during construction up to Final Completion.

3.3 PROTECTION

- A. Protect shade assemblies from soiling and damage during construction operations.

3.4 CLOSEOUT ACTIVITIES

- A. Substantial Completion Requirements per DIVISION 01.

END OF SECTION