

# ROLLER SHADE SPECIFICATIONS

## ***MOTORIZED SHADES – ILT & DDI***

### **SECTION 12492**

#### ***Part 1 – General***

##### 1.1 Scope

- A. Furnish and install Shop Collection motorized roller shades provided by Diamond Drapery Company Inc., Orange County, California
- B. Related work specified elsewhere

##### 1.2 Quality Assurance

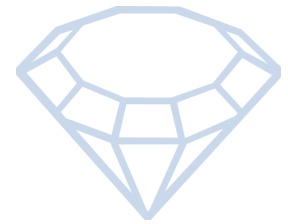
- A. Installer qualifications:
  - 1. The installer shall be a firm approved by Diamond Drapery Company, Inc.
  - 2. The installer shall be qualified to install the product specified, as demonstrated by prior experience.
- B. Job mock-up: A sample shade may be installed on the jobsite prior to the beginning of the project.

##### 1.3 Submittals

- A. Product information: Submit Diamond Drapery product literature and installation instructions.
- B. Shop drawings
  - 1. Indicate field-measured dimensions of opening which are to receive shades, details on mounting surface and sill conditions, and details of corners and conditions between adjacent shades.
  - 2. Provide system wiring diagrams.
- C. Color samples: Submit a sample of each type and color of material specified.
- D. LEED
  - 1. SS c8.0
    - a. Sustainable Sites - eliminate light trespass from the building and site, the maximum candela value of all interior lighting shall fall within the building (not out through windows).
  - 2. EA c1.0
    - a. Optimize Energy Performance - achieve increasing levels of energy performance above the prerequisite standard to reduce environmental impacts associated with excessive energy use.
  - 3. IE c6.1
    - a. Controllability of Systems - provide a high level of thermal and lighting system control by individual occupants or specific groups in multi-occupant spaces to promote the productivity, comfort and well-being of building occupants.
  - 4. IE c7.1
    - a. Thermal Comfort - provide a thermally comfortable environment that supports the productivity, health and well-being of building occupants.
  - 5. IE c8.1
    - a. Daylight and Views - provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

##### 1.4 Delivery, Storage, and Handling

- A. Packing and shipping:
  - 1. Materials shall be delivered to the Project in Diamond Drapery's original unopened packaging with labels intact.
- B. Storage:
  - 1. Materials shall be stored in a clean area, which is free of corrosive fumes, dust, and away from construction activities.
  - 2. Materials shall be stacked horizontally using plastic or wood shims such that drainage and ventilation are provided for, and such that water cannot accumulate in, about or upon containers.
  - 3. Stacks shall be covered with tarpaulins or plastic such that ventilation is provided for, and such that contaminants are prevented from contacting surfaces.



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#### ***Part 1 – General (continued)***

##### 1.5 Project/Site Conditions (Before Product Installation Begins)

- A. Roof must be tight, windows and frames installed and glazed, and interior doors hung.
- B. Wet work including concrete, masonry, plaster, stucco, terrazzo, sheetrock, spackling, and taping (including sanding) shall be complete and dry.
- C. Ceilings, window pockets, electrical, and mechanical work above the product shall be complete.
- D. Electrical power (110 volt AC) shall be available for installer's tools within 500 ft. of product installation areas.
- E. Flooring materials such as carpet, tile, etc. must be completed.

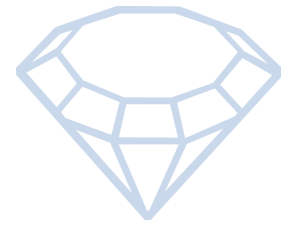
##### 1.6 Warranty

- A. Lifetime limited warranty: Diamond Drapery Company, Inc. shall repair or replace for the ten year expected life of the roller shade, at its option, without charge, any part found defective in workmanship or material as long as the roller shade remains in the same window for which it was purchased.

#### ***Part 2 – Products***

##### 2.1 Manufacturer and Product Description

- A. Acceptable product: Shop Collection ILT motorized roller shades manufactured by Diamond Drapery Company, Inc.
- B. Materials:
  1. Fabric: Selected from Diamond Drapery's Roller Shade Shop Collection. Available in a variety of solar screen, light filtering, and room darkening fabrics.
  2. ILT – Intelligent Drive Unit
    - a. Tubular, asynchronous operator, built in reversible capacitor, brushless 110V AC (60 Hz) single phase motor, thermally protected, permanently lubricated gearbox, maintenance free.
    - b. Built in, digital control system, delivers automatic alignment with a +/- 2mm accuracy, programmable configuration via PC. Systems using a "time function" for positioning are not acceptable.
    - c. Upper and lower limits are pre set by shade manufacturer and adjustable on site via hand held device, no need to access the roller assembly. No external, mechanical limit wheels or buttons are involved.
    - d. Up to sixteen intermediate stopping points are electronically precision set and locked into non-volatile memory.
    - e. 100 degrees of resolution: motor can be positioned at full-up, full-down or any position between 0-100% in 1 percent increments.
    - f. Motor can be a member of up to 16 groups; the system can have an unlimited number of groups.
    - g. Each unit is capable of automatically aligning itself to a referenced shade position upon receiving a command from the DDI control software.
    - h. Each drive unit has a whisper quiet sound output (this can vary based on installation environment and shade mfr hardware).
      - i. 504 S2 ILT Sonesse = 44dBA
      - ii. 506 S2 ILT = 55dBA
      - iii. 515 S2 ILT = 55dBA
      - iv. 535 S2 ILT = 55dBA
    - i. Power cord (high voltage)
      - i. 6' (2m) standard
      - ii. 12' (4m) optional



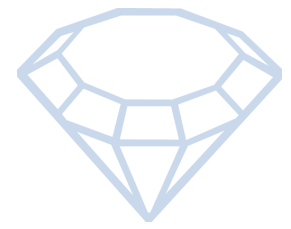
# ROLLER SHADE SPECIFICATIONS

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#### ***Part 2 – Products (continued)***

- iii. 18' (6m) optional
- iv. 24' (8m) optional
- j. Control Cord (low voltage)
  - i. 6' (2m) of four conductor flat control cable with an RJ-9 modular connector.
- k. Testing
  - i. All motors are UL recognized and meet CSA standards.
  - ii. All internal electrical components are tested to withstand a 15kV electrostatic discharge without damage or loss of memory.
- 3. Tube Mechanism: All tubes shall be 100% extruded T6 aluminum with a diameter and a wall thickness required to support shade fabric without excessive deflection. Four tube extrusions shall be used depending upon the size of the shade and the weight of the fabric selected. Each tube shall have splined fabric slots to increase the rigidity of the tube and thus enabling shades to span wider openings without the risk of the tube sagging when the shade is operated.
  - a. 2 1/2" Tube: Shall have an outside diameter of 2 1/2" and shall be extruded with three slots for splined fabric attachment and three pairs of ribs for increased strength.
  - b. 3 1/2" Tube: Shall have an outside diameter of 3 1/2" and shall be extruded with six slots for splined fabric attachment and six pairs of ribs for increased strength.
- 4. Spline Mounting System: Shall be a flexible PVC extrusion engineered by Diamond Drapery Company, Inc to be RF welded to the shade fabric. The spline shall be inserted into a slot on the extruded aluminum tube. The spline shall provide for a positive mechanical attachment of the shade band to the roller tube; shade bands shall be made removable and/or replaceable with the "push-in" and "pull-off" spline system. Spline shall allow fabric to be easily removed and re-installed on the roller shade tube without having to remove the shade's roller tube from its brackets.
  - a. Mounting spline shall not require the use of adhesives, adhesive tapes, staples, and/or rivets.
  - b. Any method of securing the shade cloth to the roller tube that requires the use of adhesives, adhesive tapes, staples, and/or rivets are not acceptable.
- 5. Hembar Options
  - a. Sealed Pocket
    - i. Shall be an aluminum extrusion 1" in height held inside a fabric bottom-pocket. The bottom-pocket shall be created by folding a 1 1/4" section of fabric behind the bottom of the shade and RF welding the fabric to itself. After the aluminum weight is inserted into the bottom-pocket, the edges will be sealed by again RF welding the fabric edges to create a completely sealed pocket.
  - b. External Hembar
    - i. Shall be an aluminum extrusion 1" in height attached to the bottom of the fabric. Color shall be selected from the manufacturer's standard range of hembar colors and endcaps will be provided to match.
  - c. External Hembar with Hold-downs
    - i. Shall be an aluminum extrusion 1" in height attached to the bottom of the fabric. Color shall be selected from the manufacturer's standard range of hembar colors and endcaps will be provided to match. Pins will be inserted into the ends of the hembar and brackets will be provided to secure the hembar to the desired mounting surface.
- 6. Installation Brackets without Fascia: Shall be universal. Brackets may be installed top, face, or side fixed and can be used for shades with both left hand and right hand motors.



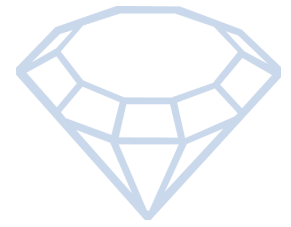
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## ***MOTORIZED SHADES – ILT & DDI***

### **SECTION 12492**

#### ***Part 2 – Products (continued)***

7. Installation Brackets with Fascia: Shall be universal. Brackets may be installed top, face, or side fixed and can be used for shades with both left hand and right hand motors. Brackets shall be available in a white, black, dark bronze, or gray painted finish.
  8. Valance Options
    - a. Fascia
      - i. 4" Square Fascia: Shall be a "L" shaped aluminum extrusion that covers the front and bottom of the roller. The fascia shall lock into its brackets with snap-in fittings. Color shall be selected from the manufacturer's standard range of fascia colors.
      - ii. 4" Round Fascia: Shall be a contoured shaped aluminum extrusion that covers the front and bottom of the roller. The fascia shall lock into its brackets with snap-in fittings. Color shall be selected from the manufacturer's standard range of fascia colors.
      - iii. 4" Round Fabric Wrapped Fascia: Shall be a contoured shaped aluminum extrusion that covers the front and bottom of the roller. The fascia shall lock into its brackets with snap-in fittings. Color shall be selected from the manufacturer's standard range of fascia colors.
    - b. Headbox
      - i. Standard Headbox shall be a one-piece "U" shaped aluminum extrusion with optional removable bottom closure plate. The shade pocket will encase and conceal the roller shade tube mechanism. It is designed to be installed either in a ceiling pocket, to the ceiling, or to the wall. Aluminum end caps are available and may be fixed at both ends of the extrusion. Color shall be selected from the manufacturer's standard range of headbox colors.
      - ii. Standard Headbox with Tile Clip shall be a one-piece "U" shaped aluminum extrusion with optional removable bottom closure plate. The shade pocket will encase and conceal the roller shade tube mechanism. It is designed to be installed flush with a T-Bar type ceiling. Aluminum end caps are available and may be fixed at both ends of the extrusion. Color shall be selected from the manufacturer's standard range of headbox colors.
      - iii. Dual Headbox shall be a one-piece "U" shaped aluminum extrusion with optional removable bottom closure plate. The shade pocket will encase and conceal the dual roller shade tube mechanisms. It is designed to be installed either in a ceiling pocket, to the ceiling, or to the wall. Aluminum end caps are available and may be fixed at both ends of the extrusion. Color shall be selected from the manufacturer's standard range of headbox colors.
  9. Side & Sill Channels: Shall be a one-piece "U" shaped aluminum extrusion that may be installed at each side and/or to the window sill to eliminate left, right, and bottom edge light gaps.
- 2.2 Controls
- A. Non-Intelligent
    1. Utilizing low voltage switches, run shades individually, in groups, or configure into zones. Each switch directly controls the motor, group, or zone to which it is physically connected.
  - B. Diamond Digital Interface (DDI)
    1. Control the shades using unique motor IP addresses through an RS-485 network with the ability to support up to 65,025 motors on a single DDI.
    2. Configurable and easily managed from any PC on the local area network. No dedicated PC is required.
    3. Provide password protection with varying level of access for managers and maintenance personnel.
    4. Master switch can be configured to provide a manual override for authorized personnel in specific areas.
    5. Easy interconnectivity with Building Management Systems (BMS) via RS-232 or RS-485.



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## ***MOTORIZED SHADES – ILT & DDI***

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#### ***Part 2 – Products (continued)***

6. Local Control
    - a. Virtual desktop switch
    - b. DDI Switch (wired). 3-6 buttons, fully programmable to single shades, groups, or desired zones.
  7. Sun Tracking
    - a. Provide active shade control based upon position of the building in relation to the sun.
    - b. Direct unfiltered sunlight shall not penetrate further than 2' into building interior to increase occupant comfort and reduce the load on the building's cooling system.
    - c. After sunset, all shades shall be lowered to increase thermal efficiency and reduce the load on the building's heating system.
    - d. System will automatically make seasonal adjustments as the sun's azimuth changes throughout the year.
  8. Sun Sensor
    - a. Provide sun sensors to accommodate for cloudy days and shadows or reflections cast by surrounding buildings
  9. Smart Scheduling
    - a. Shades can be set to position themselves at desired heights throughout the building based upon preset days and times.
- 2.3 Fabrication
- A. Prior to fabrication, verify actual opening dimensions by on-site measurement. Calculate roller shade dimensions to fit within specified tolerances.
  - B. Fabricate roller shades to fill openings from head to sill and jamb to jamb. The minimum clearance shade-to-shade shall be 1/4". Locate blind divisions at mullions.

#### ***Part 3 – Execution***

##### **9.1 Inspection**

- A. Verify that the work area in which the roller shades will be installed is free of conditions that interfere with roller shade installations and operations. Begin shade installation only when unsatisfactory conditions have been corrected.
  1. General: The shade shall be free of sharp edges, burrs or other defects which might be harmful. When other materials result in improved specifications, they may be adopted.
  2. Size Limitations:
    - a. Maximum width: To be determined depending upon the size of the shade tube. Multiple band shade panels connected with intermediate brackets are also available.
    - b. Maximum drop: To be determined depending upon the size of the shade tube.