

Division 12 – Furnishings
Section 12552.03 – Motorized Roller Shades

1.0 General

1.1 Related sections:

- 1.1.1 Section 06100 Rough Carpentry
- 1.1.2 Section 08520 Aluminum Windows
- 1.1.3 Section 08920 Glazed Aluminum Curtain Wall
- 1.1.4 Section 09250 Gypsum Board
- 1.1.5 Section 09510 Acoustic Ceilings
- 1.1.6 Section 16000 Electrical

Products Supplied by this section but installed by other trades
Specifier to co-ordinate this work with designated trades in other sections of these project specifications

- 1.1.7 Aluminum or steel shade pockets recessed into either gypsum or system ceilings.
- 1.1.8 Aluminum, ceiling closure or housing trim profiles.
- 1.1.9 Electrical control components to enable control functions as specified in this section.

1.2 Summary:

- 1.2.1 Provide electrically operated interior roller shade (single solar shade), and/or (single blackout shade) and/or (dual motor shade) system, with related hardware to complete the installation to the following locations: Specifier to provide scope of work.
- 1.2.2 Roller shades shall be mounted: Specifier select applicable position: between the vertical window framing, on the face of the window framing to the underside of the window framing/ ceiling or bulkhead, In a metal pocket provided in this section or a recessed housing in the ceiling.

1.3 Quality Assurance

- 1.3.1 All bidders submitting bids on the work of this section shall meet or exceed the quality of materials, components and assemblies specified herein Bidders who do not comply with these performance specifications shall refrain from submitting a bid.
- 1.3.2 Alternate Bids, Alternative Products shall be submitted to the Design Consultant 10 days prior to tender closing.

Alternative Bids can only be submitted as an alternate Bid to the specified base Bid Product. Manufacturers that meet the performance criteria and are approved, as an alternate by the Design Consultant shall be listed in an addendum.

- 1.3.3 All work specified under this section supplied and installed entirely by one Subcontractor using his own forces.
- 1.3.4 Manufacturer shall have a minimum of fifteen (15) years experience in the manufacture of specified shading system.
- 1.3.5 Shades to be installed by a firm, with a minimum of ten (10) years experience, specializing in the installation of shading systems.
- 1.3.6 Conform to applicable Building Code and Local Authority having jurisdiction and all other standards noted.
- 1.3.7 Install one complete operating sample with accessories on site. Review the installation before proceeding with the remainder of the work. Adjust sample installation to gain acceptance. Accepted work may form part of the final installation.

1.4 Submittals and Test Reports

- 1.4.1 Submit fully detailed drawings prepared in AutoCAD 2002/2004 format showing all components, finishes and perimeter construction conditions, installation, wiring and controls, and all applicable dimensions according to Section 01300 - Submittals.
- 1.4.2 Submit duplicate samples of the specified fabric / shade cloth of each color and texture minimum size 8.5@ x 11@ (215mm x 280mm) for review.
- 1.4.3 Submit duplicate samples of the specified sections of fascia, closure, pocket, housing, trim, roller tube, hembar, operating hardware, brackets, and side channel for review as required.
- 1.4.4 Submit duplicate copies of compliance to the following tests
 - A. Fire tests: NFPA 701-89 SM, NFPA 701-89 LG Flat, NFPA 701-96 TM#1
 - B. Toxicity: UPITT
 - C. Fungal Resistance: ASTM G 21
 - D. Bacterial Resistance: ASTM G 22
- 1.4.5 Electric shade motors and all electronic control equipment supplied by this section shall comply with CSA/UR and ULC/UL standards. Copies of compliance available for submission upon request.
- 1.4.6 Submit duplicate copies of operating and maintenance instructions including, name and telephone number of local service company.

1.5 Inspection / Preparation

- 1.5.1 Verify that all blocking and framing necessary to carry shade assembly hardware is properly installed and secure.
- 1.5.2 Verify that electrical and control wiring is completed (refer to Division 16).
- 1.5.3 Notify Owner in writing of any deficiencies in the work of other trades that would affect the window treatment system.
- 1.5.4 Make accurate measurements at the site before fabrication. Check layout of glazing framing sections, spans, and loading capabilities.

1.6 Delivery Storage and Handling:

- 1.6.1 Do not deliver to site until areas to receive shades are completely finished, all walls and ceilings completed and painted.
- 1.6.2 Deliver materials in original protective wrappings or containers, with manufacturers labels and sealed intact.
- 1.6.3 Handle and store materials according to manufacturers recommendations protecting materials and finishes from damages, marring of finishes or soiling.

1.7 Warrantee

- 1.7.1 Provide a limited manufacturers warrantee from the Date of Substantial Completion, covering the following:
 - A. Shade Hardware including electric motors: Ten (10) years
 - B. Electronic Control Equipment: Five (5) Years
 - C. Fabrics / Shade Cloth: Ten (10) Years
 - D. Aluminum and steel coatings: Ten (10) Years
- 1.7.2 Provide a limited installation warranty from Date of Substantial Completion, covering a period of one (1) year.
- 1.7.3 Submit standard manufacturers maintenance contract for review by Owner.

2.0 Products

2.1 Manufacturer:

- 2.1.1 Nysan Shading Systems Ltd. - #1, 115 - 28th Street S.E. Calgary AB T2A 5K4 Phone: 403.204.8675 Fax: 403.204.8676 Email: sales@nysan.com Website: <http://www.nysan.com> Specifier: Please note when approving and alternate manufacturer please ensure that the

performance criteria set forth in these specifications (quality assurance 1.3.1 and 1.3.2) are met. This will ensure a fair price comparison and will not create a disadvantage for the specified manufacturer. Alternative Bids can only be submitted as an alternate Bid to the specified base Bid Product. Manufacturers that meet the performance criteria and are approved as an alternate by the Design Consultant shall be listed in the addendum

2.2 Hardware: Specifier please note that this section required editing to meet specific project requirements. All items not required should be deleted.

2.2.1 Shade Mounting Brackets

- A. Mounting assembly
 - a. 38mm x 3mm x L (1.5"x 1/8"thick x L) (L, varies depending upon bracket size) aluminum mounting plate
 - b. Mounting plates shall be attached to 100mm, 125mm, or 150mm (4", 5" or 6"), depending upon system size, square HDPE plates.
 - c. All shade brackets shall be shipped completely assembled from the factory.
 - d. Motor coupling and end assemblies shall be as per the above angle and plate with an adjustable (Alan key) setscrew, to ensure proper leveling of the system.
 - e. Multiple shade panels (bands) being driven by a single motor may be coupled to a maximum angle of 90°
- B. Mounting assembly shall allow for continuous front or back-roll fascia across multiple shades without exposed fasteners.
- C. Shade roller tube shall be removable from mounting assembly without hardware removal.
- D. All non-metal components shall be self-lubricating.
- E. Shade hardware system shall provide for field adjustment or component replacement without removal of brackets, regardless of mounting location.
- F. Shade hardware shall allow for a bottom-up or a sideways roller tube installation and removal without removing brackets

2.2.2 Electrical Shade Motors

- A. Shade motor located inside the extruded aluminum roller tube with appropriate adaptors to allow for a smooth operation. Lifting capacity with a 30% safety ratio and not exceeding 30DB. **Specifier include this option if required by your local code:** Shade motor shall be equipped with a disconnect plug at motor lead.
 - B. Shade motor shall be an asynchronous unit, start and run, single phase type (125V - 60 Hz or 230V - 50 Hz), thermally protected, brush-less motor, permanently lubricated bearings and gearbox manufactured from non corrosive metal gears containing a 3 phase planetary gear reducer. Non-metal planetary gearboxes will not be acceptable.
 - C. Shade motor shall contain a conical steel disk brake allowing no slippage under high torque
 - D. Shade motor shall be fitted with solid steel adjustable drive extensions, rectangular bar shaped for drive and torque transfer to single or multiple coupled extruded roller tubes.
 - E. Motor speed shall range from 12 to 30 RPM and draw 1.1 to 3.4 Amps as selected by the shade manufacturer for proper system operation. Motor lead shall be plenum rated quality.
 - F. Shade motor shall be equipped with externally located control wheels which allow exact control of shade limits in raised and lowered positions, preventing over winding of the fabric/shade cloth.
 - G. Include all components for proper unit operation.
- 2.2.3 Motor Control System: **(Option 1)** **Specifier please see document labeled Std motor control specifications.doc**
- 2.2.3 Intelligent Motor Control System: **(Option 2)** **Specifier please see document labeled Matrix Motor control specification.doc**
- 2.2.4 Roller Tube assembly:
- A. Top roller tube of one piece extruded aluminum tube, with 10 micron thick clear anodised coating, at the manufacturers recommended engineered diameter and wall thickness for maximum allowable deflection of L/700; Mill finish tubes will not be acceptable

- B. The roller tube shall be extruded with provision made for mechanical engagement with the operator and drive assembly.
- C. The extrusion shall have various channels to accept fabric attachment spline. The spline and slot reinforces the tube and retains the fabric and operating system.
- D. The spline will be an extruded vinyl profile, welded to the fabric band or panel, such that removal and re-installation of the fabric panels can occur without removing the roller tube and hardware. Fabric panels must be replaceable on site. Attachment of the fabric to the tube with double sided adhesive tapes, adhesives, staples, or rivets is not acceptable.

2.2.5 Hembars and Hembar Pockets: **Specifier please select**

- A. (Option 1) Custom A shaped Flat steel profile, 37 mm (1.5") high, wall thickness engineered for weight requirements and adaptation to uneven surfaces, in welded hembar pocket with closed ends, to maintain bottom of shade fabric straight, and flat.
- A. (Option 2) Aesthetically designed exposed extruded aluminum alloy 6063-T5, custom oval **or** rectangular, **or** round shaped, with matching end caps, pre-weighted, to maintain bottom of shade fabric straight and flat. Colour pre-finished to match adjacent window framing or as selected by Consultant. Underside of hembar available with Schlegel light seal. Hembar attached to fabric panel with welded fabric spline
- A. (Option 3) Round shaped profile, 15 mm (0.625") diameter, wall thickness engineered to weight requirements, in welded hembar pocket with open ends. Finished with coloured PVC round end caps.

2.2.6 Fasteners:

- A. Non-corrosive to manufacturers recommendations.

2.2.7 Fabrics: For all Fabric Specifications please see the file labeled Fabrics.zip

2.2.8 Optional Accessories:

- A. **Aluminum Fascia: Specifier note: Fascia selection shall depend upon the type of fabric used, roll**

direction, and site conditions (site conditions may require use of custom fascia in a size other than those specified below. All other specifications Shall remain applicable


- a. Back/Regular roll fascia:
 - a Extruded aluminum alloy 6063-T5, prefinished, 105 mm x 45 mm x 1.6 mm wall thickness (4.13" x 1.77" x 0.063"), custom designed profile to fit onto remoulded end mounting brackets without exposed fasteners. Colour prefinished to match adjacent window framing or as selected by Consultant.
 - b Fascia shall allow for continuous placement across multiple shades (to a maximum length of 6.1m (20ft.)) without exposed fasteners.
 - c Fascia shall conceal the mounting hardware, power and control cables, drive mechanism, roller tube, and all fabric rolled on the tube
 - d Fascia shall not fit snug against side channels to prevent thermal shock to the glazing system **Specifier: Please note that the manufacturer strongly recommends that snug fitted side channel and fascia systems be used only in situations where complete darkness is absolutely necessary (i.e. Photographic development lab) and the possibility of thermal shock to the window system has been carefully investigated.**
- b. Front / Reverse Roll Shade Fascia:
 - a Extruded aluminum alloy 6063-T5, pre-finished, 105 mm x 10 mm x 1.6 mm wall thickness (4.13" x 0.394" x 0.063"), custom designed closure to fit onto pre-moulded end mounting brackets without exposed fasteners. Colour pre-finished to match adjacent window framing or as selected by Consultant
 - b Fascia shall allow for continuous placement across multiple shades

(to a maximum length of 6.1 m (20ft.) without exposed fasteners.

- c Fascia shall conceal the mounting hardware, power and control cables, drive mechanism, roller tube, and all fabric rolled on the tube.
- d Fascia shall not fit snug against side channels to prevent thermal shock to the glazing system. **Specifier:**
Please note that the manufacturer strongly recommends that snug fitted side channel and fascia systems be used only in situations where complete darkness is absolutely necessary (i.e. Photographic development lab) and the possibility of thermal shock to the window system has been carefully investigated.

c. Pockets and Closures: **Specifier:** Pocket and closure selection shall depend upon type of fabric used, Roll Direction and site conditions (site conditions may require the use of custom pocket and closure other than those specified below)

- a **Shade Pocket:** Manufactured from 2.5 mm (0.098") thick aluminum or 1.5 mm (0.059") thick satin coat steel pocket engineered to meet site conditions. Design considerations include, but are not limited to, mounting conditions, wall/ceiling construction, type and quantity of shades in pocket, and shade length, as indicated on the drawings.
- b **Aluminum Closure:**
 - i Extruded aluminum alloy, 6063-T5, pre-finished, 82 mm wide x 1.5 mm thickness (3.23" x 0.059"). Colour shall be pre-finished to match the adjacent window framing or as selected by the Consultant.

	ii	Designed for attachment to the corresponding pocket and/or hardware using an extruded aluminum clip and return angle, both made of 6063-T5 aluminum alloy, without exposed fasteners.
	c	<p>Room Darkening Side and Bottom Channel:</p> <p>i Continuous extruded aluminum alloy, 6063-T5, U-shaped 51 mm x 22 mm x 1.5 mm thick (2" x 0.875" x 0.0625") with interior channels for 6 mm (0.25") wide continuous Schlegel light seals. Colour shall be pre-finished to match the adjacent window framing or as selected by the Consultant.</p> <p>ii Custom manufactured for easy snap-on installation, allowing channel to snap into place without exposed fasteners and to be removable without damage to the substrate.</p>

2.3 Aluminum Finishes:

2.3.5 All exposed aluminum shall be clear anodised oxide finish according to AA-M12C22A31 or coloured to match window framing.

2.3.6 Unexposed aluminum unless otherwise specified: mill finish.

3.0 Execution:

3.1 Fabrication:

3.1.1 Shading system components manufactured and assembled allowing for installation techniques to suit project requirements.

- 3.1.2 Finished assemblies shall be, square, true to size and free from distortion, twist, or other defects that could affect their strength, operation or appearance. Factory applied finish shall be uniform, smooth and without blemishes.
- 3.1.3 The fabric shall be colourfast, retain its shape, not be affected by moisture or heat, and shall be non-flammable. Cut fabric to eliminate glare and reflection from shining surfaces while maintaining exterior view. The top of the fabric is retained in recessed spline of the shade roller and the bottom of the fabric is retained by the selected hem.
Specifier please note: Battens will not be required in the majority of shades. If shades are wider than the woven width of the fabric (see fabric spec), contact the manufacturer at the location specified in section 2.1 for verification of any batten requirements.

3.2 Installation:

- 3.2.1 Install work by manufacturer's skilled tradesmen and installed in strict accordance with manufacturers recommendations.
- 3.2.2 All items installed, plumbed, squared, rigidly coupled and adequately anchored, maintaining uniformed clearances, accurate alignment levels, and parallel with the window plane. Fabric shall not travel more than 3 mm (0.125") in either direction within channels after installation.
- 3.2.3 The solar screen and / or blackout fabric shall be pre-measured and manufactured off-site

3.3 Adjusting and Cleaning:

- 3.3.1 Adjust shades and operating components as required to ensure smooth and trouble free operation without binding.
- 3.3.2 Adjust shade and shade-cloth to hang flat without buckling or distortion.
- 3.3.3 Clean shades and exposed components.
- 3.3.4 Replace work, which cannot be satisfactorily repaired, adjusted, or cleaned.