PART 1 General

1.1 RELATED SECTIONS

.1 This section describes requirements for room darkening roller shades with manual operators.

1.2 PRODUCT DATA

.1 For each type of product indicated. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, operating instructions, and typical wiring diagrams including integration of motor controllers with building management system, audiovisual and lighting control systems as applicable.

1.3 SHOP DRAWINGS

.1 Show location and extent of roller shades. Include elevations, sections, details, and dimensions not shown in Product Data. Show installation details, mountings, attachments to other work, operational clearances, and relationship to adjoining work.

1.4 COORDINATION DRAWINGS

.1 Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

.1 Ceiling suspension system members and attachment to building structure.

.2 Ceiling-mounted or penetrating items including light fixtures, air outlets and inlets, speakers, sprinklers, recessed shades, and special moldings at walls, column penetrations, and other junctures of acoustical ceilings with adjoining construction.

.3 Shade mounting assembly and attachment.

.4 Size and location of access to shade operator, chain locations, and adjustable components.

1.5 SAMPLES

.1 Samples for Initial Selection: For each coloured component of each type of shade indicated:

.1 Include similar Samples of accessories involving color selection.

.2 Samples for Verification:

.1 Complete, full-size operating unit not less than 400 mm wide for each type of roller shade indicated.

.2 For each finish product specified, one complete set of shade components, unassembled, demonstrating compliance with specified requirements. Shadecloth sample and aluminum finish sample as selected. Mark face of material to indicate interior faces.

.3 For the following products:

.1 Shade Material: Not less than 76 mm square, with specified treatments applied. Mark face of material.

.2 Window Treatment Schedule: For roller shades.

1.6 PRODUCT CERTIFICATES

.1 For each type of roller shade, signed by product manufacturer.

1.7 MAINTENANCE DATA

.1 For roller shades to include in maintenance manuals. Include the following:

.1 Methods for maintaining roller shades and finishes.

.2 Precautions about cleaning materials and methods that could be detrimental to fabrics, finishes, and performance.

.3 Operating hardware.

.4 Motorized shade operator.

1.8 QUALITY ASSURANCE

.1 Manufacturer Qualifications: Obtain roller shades through one source from a single manufacturer with a minimum of five years of experience in manufacturing products comparable to those specified in this section.

.2 Fire-Test-Response Characteristics: Provide roller shade band materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

.3 Flame-Resistance Ratings: Passes NFPA 701-99 small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.

.4 Product Standard: Provide roller shades complying with WCMA A 100.1.

.5 Shade cloth to “pass” indoor air quality / VOC testing as per ASTM D 5116-97 ASTM D 6670-01, USEPA-ETV (U.S. Environmental Protection Agency’s Environmental Technology Verification Protocol).

.6 Shade Cloth: Anti-Microbial Characteristics: 'No Growth' per ASTM G 21 results for fungi ATCC9642, ATCC9644, ATCC9645.

.7 Shade Cloth to be constructed of a woven screen material consisting of yarns comprised of extruded vinyl coated Polyester core yarn as a composite Thermoplastic shade cloth that shall be sealed at the edges, assuring binding the core yarn to the coating at the cut edge to assure a sealed edge to substantially minimize raveling. Screen cloths to have inert core yarns: i.e. Fiberglass yarns shall not be acceptable.

.8 Use only injection-molded Delrin engineered plastics by Dupont for all plastic components of shade hardware. Styrene based, PVC, or glass reinforced polyester thermo polymer plastics are not acceptable.

1.9 DELIVERY, STORAGE AND HANDLING

.1 Protect on site stored or installed absorptive material from moisture damage.

.2 Store extra materials required for maintenance, where directed by Departmental Representative or designate.

1.10 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Special Provisions of the contract.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Separate for recycling and place in designated containers waste in accordance with Waste Reduction Workplan.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with Regional and Municipal regulations.

.6 Fold up metal and plastic banding, flatten and place in designated area for recycling.

1.11 ENVIRONMENTAL REQUIREMENTS

.1 Environmental Limitations: Do not install roller shades until construction and wet and dirty finish work in spaces, including painting, is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

.2 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 operable glazed unit's operation hardware throughout the entire operating range. Notify Architect of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.12 EXTRA MATERIALS

.1 Provide acoustical units amounting to minimum 1 full shade in original product packaging and protection, clearly identified as to installed rooms or locations.

.2 Ensure extra materials are from same production run as installed materials.

.3 Clearly identify type of acoustic unit, including colour and texture.

.4 Deliver to Departmental Representative or designate upon completion of the work of this section.

1.13 WARRANTY

.1 Roller Shade Hardware, Chain and Shade cloth; Manufacturer's standard fit-for-use, including normal wear and tear, non-depreciating, Limited Lifetime twenty-five year warranty. Warranty to transfer to owner upon completion of installation.

.2 Roller Shade Motors and Motor Control Systems: Manufacturer's standard non-depreciating eight-year warranty.

1.14 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Special Provisions of the contract.

.2 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative or designate.

.3 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.4 Dispose of packaging material in appropriate on-site bin for recycling in accordance with site Waste Reduction Work plan.

PART 2 Products

2.1 ROLLER SHADES

.1 Basis-of-Design Product: Subject to compliance with requirements, provide products indicated in Drawings or a comparable product by one of the following:

.1 MechoShade Systems, Inc (MechoShade), as basis of design, performance and warranties, or equal.

.2 Room Darkening Shades: Provide room darkening (50% light reduction) window shades designed to reduce visible light gaps when shades are fully closed.

.3 Shade Band Material: The selection of density and color of sunscreen shadecloth shall be based on the relationship with the specified glass, in accordance with the specific project requirements for reducing heat loads and glare.

.1 Fabric Width: As per manufacturer’s standard.

.2 Pattern: As per manufacturer's standard.

.3 Colors: As per manufacturer's standard.

.4 Material Openness Factor: As per manufacturer's recommendation for specified glass type and applicable conditions.

.5 Bottom Hem: Fabric wrapped and electronically sealed at ends. Sewn hems and open hem pockets are not acceptable.

.4 Rollers: Extruded-aluminum tube of diameter and wall thickness required to support and fit internal components of operating system and the weight and width of shade band material without sagging; designed to be easily removable from support brackets. Provide for positive mechanical attachment of shade band to roller tube; shade band shall be made removable / replaceable with a "snap-on" snap-off" spline mounting, without having to remove shade roller from shade brackets. Mounting spline shall not require use of adhesives, adhesive tapes, staples, and/or rivets.

.5 Provide shade hardware system that allows multi-banded shades to be capable of smooth operation when the axis is offset a maximum of
6 degrees on each side of the plane perpendicular to the radial line of the curve, for a 12 degrees total offset.

.6 Direction of Roll: Reverse or regular roll, as required. Provide for universal, regular and offset drive capacity, allowing drive chain to fall at front, rear or
non-offset for all manual shade drive end brackets. Universal offset shall be adjustable for future change.

.7 Mounting Brackets: Provide shade hardware constructed of minimum 3.18 mm thick plated steel or heavier as required to support 150 percent of the full weight of each shade.

.1 Bracket shall be fully integrated with all accessories, including, but not limited to: fascia, room darkening side / sill channels, center supports and connectors for multi-banded shades.

.2 Drive sprocket and brake assembly shall rotate and be supported on a welded 9.525 mm steel pin.

.3 The brake shall be an over - running clutch design which disengages to
90 percent during the raising and lowering of a shade. The brake shall withstand a pull force of 22 kg in the stopped position.

.4 The braking mechanism shall be applied to an oil-impregnated hub on to which the brake system is mounted. The assembly shall be permanently lubricated. Products that require externally applied lubrication and or not permanently lubricated are not acceptable. The entire assembly shall be fully mounted on the steel support bracket, and fully independent of the shade tube assembly, which may be removed and reinstalled without effecting the roller shade limit adjustments.

.8 Drive Chain: #10 qualified stainless steel chain rated to 41 kg minimum breaking strength. Nickel plated steel chain shall not be accepted.

.9 Roller Shade Pocket for recessed mounting in acoustical tile, or drywall ceilings.

.1 Provide either extruded aluminum and or formed steel shade pocket, sized to accommodate roller shades, with exposed extruded removable closure panel to provide access to shades.

.2 For open return air plenum, provide "Vented Pocket" such that there will be a minimum of four 1 inch (25.4 mm) diameter holes per foot allowing the solar gain to flow above the ceiling line.

.3 Provide pocket end caps where required.

.10 Fascia:

.11 Continuous removable extruded aluminum fascia that attaches to shade mounting brackets without the use of adhesives, magnetic strips, or exposed fasteners. Fascia shall be able to be installed across two or more shade bands in one piece. Fascia shall fully conceal brackets, shade roller and fabric on the tube. Provide bracket / fascia end caps where mounting conditions expose outside of roller shade brackets. Notching of Fascia for manual chain shall not be acceptable.

.1 Color: Selected from manufacturer's standard colors.

.12 Manual Operation: Chain locations to be on right hand side of user.

2.2 ROLLER SHADE FABRICATION

.1 Fabricate units to completely fill existing openings from head to sill and jamb-to-jamb, unless specifically indicated otherwise. Fabricate shadecloth to hang flat without buckling or distortion. Fabricate with heat-sealed trimmed edges to hang straight without curling or raveling. Fabricate unguided shadecloth to roll true and straight without shifting sideways more than 1/8 inch (3.18 mm) in either direction per 8 feet (2438 mm) of shade height due to warp distortion or weave design.

.2 Installation Brackets: Designed for easy removal and reinstallation of shade, for supporting roller, and operating hardware and for hardware position and shade mounting method indicated.

.3 Installation Fasteners: No fewer than two fasteners per bracket, fabricated from metal noncorrosive to shade hardware and adjoining construction; type designed for securing to supporting substrate; and supporting shades and accessories under conditions of normal use.

.4 Color-Coated Finish: For metal components exposed to view, apply manufacturer's standard baked finish complying with manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness.

.5 Colors of Metal and Plastic Components Exposed to View: As selected by Architect from manufacturer's full range, unless otherwise indicated.

PART 3 Execution

3.1 EXAMINATION

.1 Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, accurate locations of connections to building electrical system, and other conditions affecting performance.

.1 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ROLLER SHADE INSTALLATION

.1 Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions. Allow clearances for window operation hardware.

.2 Installer shall train LAWA's maintenance personnel to adjust, operate and maintain roller shade systems.

3.3 ADJUSTING

.1 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

.1 Clean roller shade surfaces after installation, according to manufacturer's written instructions.

.2 Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that roller shades are without damage or deterioration at time of Substantial Completion.

.3 Replace damaged roller shades that cannot be repaired, in a manner approved by LAWA, before time of Substantial Completion.

3.5 DEMONSTRATION

.1 Engage a factory-authorized service representative to train LAWA's maintenance personnel to adjust, operate, and maintain roller shades.

END OF SECTION