Part 1 General

1.1 RELATED SECTIONS

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

1.2 REFERENCES

.1 ASTM International

.1 ASTM G 21, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

.2 NFPA 70, National Electrical Code

.3 NFPA 701, Fire Tests for Flame Resistant Textiles and Films

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature and data sheets for roller shades and include: Preparation instructions and recommendations, Styles, Material descriptions, Construction details, Dimensions of individual components and profiles, Features, Finishes, Operating instructions, and performance criteria.

.2 Submit manufacturer’s storage and handling requirements and recommendations.

.3 Submit manufacturer’s mounting details and installation methods.

.2 Shop Drawings:

.1 Indicate on drawings the locations and dimensions of roller shades. Include elevations, sections, details and dimensions not shown in product data sheets. Show installation details, mountings, attachment to other work, operational clearances, and relationship to adjoining work.

.3 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 outles and inlets, recessed shades and other junctures of ceilings with adjoining construction.

.3 Shade mounting assembly and attachment.

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

.4 Samples:

.1 Submit samples for initial selection:

.1 Include samples for each type of shade indicated and similar samples of accessories involving color selection.

.2 Submit samples for verification including:

.1 Complete, full-size operating unit not less than 400mm 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 76mm square, with specified treatments applied. Mark face of material.

.2 Window treatment schedule: for roller shades.

.4 After approval samples will be returned for incorporation into Work.

.5 Product certificates:

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

.6 Maintenance Data:

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

.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.

1.4 QUALITY ASSURANCE

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

.2 Installer 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.

.3 Fire-Test-Response Characteristics:

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

.2 Provide roller shade band materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated above by UL/ULC or another testing and inspecting agency acceptable to authorities having jurisdiction.

.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 ravelling. Screen cloths to have inert core yarns: i.e. fibreglass 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.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Replace defective or damaged materials with new.

.4 Store extra materials required for maintenance, where directed by Contract Administrator.

1.6 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 the 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 Contract Administrator of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the work.

1.7 EXTRA MATERIALS

.1 Provide 1 full shade in original product packaging and protection, clearly identified, upon completion of work of this section.

1.8 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 The City upon completion of installation.

1.9 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 the Contract Administrator.

.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 on drawings or a comparable product by MechoShade Systems, Inc. (MechoShade), as a basis of design, performance and warranties, or equal in accordance with B7.

.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 3.18mm thick plated steel or heavier as required to support 150% 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 9.525mm steel pin.

.3 The brake shall be an over – running clutch design which disengages to 90% 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 25.4mm diameter holes per 305mm allowing the solar gain to flow above the ceiling line.

.3 Provide pocket end caps where required.

.10 Fascia:

.1 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.

.2 Color: Selected from manufacturer’s standard colors.

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

2.2 MATERIALS AND 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 ravelling. Fabricate unguided shadecloth to roll true and straight without shifting sideways more than 3.18mm in either direction per 2438mm 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 Contract Administrator from manufacturer's full range.

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 PREPARATION

.1 Clean surfaces thoroughly prior to installation.

.2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

.1 Install roller shades level, plumb, square, and true according to manufacturer's written instructions, and located so shade band is not closer than 50 mm to interior face of glass. Allow proper clearances for window operation hardware.

.2 Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

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

.4 Engage Installer to train The City's maintenance personnel to adjust, operate and maintain roller shade systems.

3.4 ADJUSTING

.1 Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.5 CLEANING

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

3.6 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION