

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 09 22 16 – Gypsum Board Assemblies.
- .2 Section 09 51 99 – Acoustical Ceilings

1.2 REFERENCES

- .1 Aluminum Association (AA)
 - .1 AA DAF 45-03(R2009), Designation System for Aluminum Finishes.
- .2 ASTM International
 - .1 ASTM D1784-11, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- .3 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for Commercial Interiors.
- .4 CSA International
 - .1 CAN/CSA-Z809-08, Sustainable Forest Management.
- .5 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
- .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .7 Sustainable Forestry Initiative (SFI)
 - .1 SFI-2010-2014 Standard.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario Canada.
 - .2 Indicate dimensions in relation to window jambs, operator details, top and bottom rail, conditions between adjacent blinds corner conditions anchorage details, hardware and accessories details,.
- .4 Samples:

- .1 Submit one representative working sample of solarshade in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate samples of manufacturer's standard colours, patterns and textures of specified vane and rail materials for selection by Departmental Representative.
- .3 After approval samples will be returned for incorporation in the Work.
- .5 Sustainable Design Submittals:
 - .1 Construction Waste Management:
 - .1 Submit project Waste Management Plan Waste Reduction Workplan highlighting recycling and salvage requirements.
 - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.
 - .2 Wood Certification: submit vendor's Chain-of-Custody Certificate number for CAN/CSA-Z809 or FSC or SFI certified wood.
- .6 Quality control submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.
 - .2 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3, FIELD QUALITY CONTROL.
- .7 Closeout Submittals:
 - .1 Provide operation and maintenance data for shading devices for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 QUALITY ASSURANCE

- .1 Sustainable Standards Certification:
 - .1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
 - .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 DESIGN REQUIREMENTS**

- .1 Design shading devices to following requirements:
 - .1 Allow replacement of wear susceptible parts by user or manufacturer.
 - .2 Guarantee of at least five-years of available replacement parts following discontinued products by manufacture.
 - .3 Provide instructions for replacing or repairing worn parts, including inventory numbers for parts and procedures for ordering replacement parts.
 - .4 Program allowing for refurbishing or return of used shading devices.
 - .5 Permit disassembly of components for recycling of materials where recycling markets exist.
 - .6 Include stamps on major plastic components indicating composition code to facilitate recycling efforts.

2.2 COMPONENTS

- .1 Window Shades: mounted as shown in architectural details drawings.
 - .1 Extruded aluminum, 6063-T5 alloy with clear anodized finish, to match the existing window frame assembly.
 - .2 All exposed aluminum parts shall be clear anodized.
 - .3 Steel parts shall be either nickel plated, satin finish, or bonderized prior to painting with baked enamel finish. Colour as selected by Departmental Representative.
 - .4 Use a push up hood system to mount and conceal shade assembly recessed in bulkhead as shown in drawings.
- .2 Shade cloth:
 - .1 Fabric shall be certified by an independent Laboratory to pass the Small Scale Vertical Burn Requirements test CAN/ULC-S1090M87.
 - .2 Fabric shall be sufficiently heat-set so edges do not ravel when knife cut.
 - .3 The fabric shall be tensioned in the finishing range prior to heat setting to keep the warp ends straight and minimize or eliminate weave distortion to keep the fabric flat. The fabric shall be dimensionally stable.
 - .4 The fabric will be two sided for maximum performance in heat reduction, glare reduction and improved visibility.
 - .5 Composition: 36% fibreglass and 64% vinyl on fibreglass
 - .6 Thickness: .71 mm
 - .7 Openness factor 3%+0.0%-0.5%
 - .8 NRC of .05
 - .9 Weight per/sq/yd 21 oz.
 - .10 Warp ends per inch 42
 - .11 Fill ends per inch 31
 - .12 Stretch % (271 lb.wt): WARP 2% FILL 3%
 - .13 Set % WARP 1.5% FILL 1.5%

- .14 Abrasion Resistance YARN NONE
RUPTURE NONE
WEAR TRACE
- .15 U.V. Deterioration FADE NONE (200 Sun Fade Hours)
- .16 TENSION RETENSION 96%
- .17 Performance: As a 'shade cloth' the fabric shall hang flat, without buckling or distortion. The edge, when trimmed, shall hang straight without raveling. An unguided roller shade cloth shall roll true and straight, without shifting sideways more than 1/8" in either direction due to warp, distortion, or weave design.
- .18 Colour and finish: as selected by Departmental Representative from manufacturer's full range.

2.3 OPERATION

- .1 Shade system: system shall be a smooth operating chain and sprocket roller shade system.
- .2 All shades systems specified shall be provided by one manufacturer who shall take full responsibility for the total project.
- .3 Operation: Easy-Lift (chain operated) Action with infinite positioning. Left or right hand operation available.
- .4 Non-traversing: free hanging.

2.4 BRACKET ASSEMBLY

- .1 .1 Provide full factory assembled shade unit consisting of 2 end brackets, shade tube, extruded aluminum fascia, hembar, side channels and fabric specified.
 - .1 Mounting type – side channels on face of mullions.
 - .2 Removal must not require the disassembly of the shade unit.
- .2 End bracket: the 77mm x 96mm end bracket shall be a two piece moulded ABS construction with a 64mm diameter nylon drive sprocket. Brackets colour shall co-ordinate with the fascia colour.
- .3 Shade tube: 38mm extruded aluminum shade tube shall be 1.52m thick with three internal continuous fins 4.82mm high, for strength and drive capabilities when attached to the nylon sprocket. Fins shall be spaced 120 degrees apart.
- .4 Fascia: the extruded aluminum half fascia shall be 1.7mm thick, complete with three continuous screw flute, anodized.
- .5 Drive assembly:
 - .1 shall be factory set for size and travel of shades.
 - .2 capable of being field adjusted from the exterior of the shade unit without having to disassemble the hardware.
 - .3 provided with a built-in shock absorber system to prevent chain breakage, under normal usage conditions.
- .6 Drive Train: shall be No. 10 stainless steel bead chain formed in a continuous loop. The chain shall have a 90# test. Installer to coordinate with furniture layout for location of chains, so they are accessible.
- .7 Exterior Hembar: extruded aluminum with plastic end finials.

- .8 Finish: clear anodized.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

- .1 Install Solar Shades in accordance with manufacturer's instructions.
- .2 Install shades, secure, accurately aligned and free of sag.
- .3 On completion and just prior to substantial completion, clean and adjust all shades and leave them in proper working order. Replace defective shade and/or shade components.
- .4 Install solar shades all exterior windows in the project area. (refer to drawings)

3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.4 VERIFICATION

- .1 Verification requirements in accordance with Section 01 47 17 - Sustainable Requirements: Contractor's Verification], include:
 - .1 Materials and resources.
 - .2 Storage and collection of recyclables.
 - .3 Construction waste management.
 - .4 Resource reuse.
 - .5 Local/regional materials.
 - .6 Low-emitting materials.

END OF SECTION