



October 7, 2015

Re: Southeast Library Phase 6

Dear Bidders:

Attached is one (1) copy of Addendum Southeast Library Phase 6, hereby made a part of the above-referenced Invitation to Bid (ITB).

Except as provided herein, all terms and conditions in the ITB referenced above remain unchanged and in full force and effect.

Sincerely,

Elsa D. Castro

Elsa D. Castro

Assistant Purchasing Agent

This Addendum forms a part of the contract documents and **modifies** the original ITB documents as noted below:

See Attachment

ACKNOWLEDGEMENT OF ADDENDUM NO. 1

The undersigned Proposer acknowledges receipt of this Addendum by returning one (1) copy of this form with the proposal submittal package to the Department of Purchasing & Contract Compliance, Fulton County Public Safety Building, 130 Peachtree Street, S.W., Suite 1168, Atlanta, Georgia 30303 by the ITB due date and time [Insert Project Due Date, Time]

This is to acknowledge receipt of Addendum No. One (1), _____ day of _____, 2015.

Legal Name of Bidder

Signature of Authorized Representative

Title

**SOUTHEAST ATLANTA LIBRARY
ADDENDUM #1
OCTOBER 05, 2015**

This Addendum #1 dated October 05, 2015 issued by C D Moody Construction Co. Inc., is hereby made part of the Southeast Atlanta Library documents. The changes and/or clarifications included in this Addendum shall be considered as part of the Bidding Documents and shall supersede, amend, add to, or subtract from those conditions included in the original Bid Documents, including the Project Bid Package, Drawings, Specifications, previous Addenda, etc.

Failure to acknowledge this Addendum may subject Bidder to disqualification.

Addendum #1 Division 12C – Window Treatments

- Bid Package #6 Division 12C revised to be titled “WINDOW TREATMENTS”
- Specification Section 12 2217 Light Control Shades were added to bid package for clarification

END OF ADDENDUM #1

BID PACKAGE #6

DIVISION 12C – WINDOW TREATMENTS

Specifications Sections included in work category

<u>Section</u>	<u>Description</u>
01 2300 – 01 9100	All General Requirements
12 2217	Light Control Shades
	RFI 00106 date 9/02/2015

General Requirements

1. Subcontractor shall provide all submittals, engineering, shop drawings, schedules, samples, mock-ups, and erection drawings required by the contract documents, and other reasonable submittal requests by the CDM for coordination purposes.
2. Subcontractor shall coordinate its work with CDM, other subcontractors, and Owners forces. Coordination shall include review of all fabrication and shop drawings, all product data, and other contract documents referring to items requiring integration and compatibility with the Work required of Subcontractor. Subcontractor shall advise CDM of any potential conflicts between its work and work being provided and/or performed by others. Subcontractor shall be responsible for damages, including removing and replacing its Work and time lost, incurred by its failure to coordinate with all fabrication and shop drawings, all product data, and other contract documents provided, onsite or otherwise, for coordination.
3. Prior to the construction of the permanent building perimeter wall, CDM will coordinate the installation of temporary perimeter safety railings as required. Subcontractor shall coordinate and sequence the access of materials and all other operations involving the temporary removal and replacement of these safety railings with CDM and shall exercise due care to protect all safety railings and shall carry out all work in a manner to minimize the number of openings in safety railings.
4. Subcontractor shall be responsible for all delivery costs of their respective materials/equipment. Subcontractor will be responsible for scheduling and unloading of material/equipment deliveries with CDM and other affected trades. Protection of material/equipment during delivery is the responsibility of the subcontractor.
5. Subcontractor shall provide all hoisting, scaffolding, hoist operators, and personnel and hoisting accessories, including barricades and/or trained flagmen in the vicinity of hoisting operations and on the ground below hoisting operations.
6. CDM shall furnish benchmarks and base control lines at each level of the building for use by all subcontractors. All other layout, field engineering, and field measurements required for the execution of this subcontract will be the responsibility of Subcontractor.
7. CDM will coordinate basic security/construction fencing around the jobsite to be maintained during construction. Should the Subcontractor deem it necessary to remove any portion of this construction fence for the execution of his work, it will be his responsibility to replace the fencing to its original state and to protect the area during the period he has the portion removed. In addition, he shall be responsible for repairing or replacing any portion of the fence damaged by his work forces.
8. Subcontractor includes all come-back/remobilization operations relating to this subcontract that is normal and to be expected.
9. Subcontractor shall provide labor, material, and coordination of all block outs, sleeves, or embedded items to be placed within the structure to allow for the completion of this scope of work. Subcontractor is to remain in close contact with the CDM regarding project schedule to ensure that all necessary items are included to eliminate the need for any cutting and patching.
10. Subcontractor shall provide firesafing or sealing at all penetrations as required.

11. Subcontractor to comply with all governing local, state, and federal ordinances, zoning requirements, standards, and codes.
12. Subcontractor shall provide all required testing, re-testing, certification, licenses, fees, permits, and agency approvals involving this scope of work. CDM to provide General Building Permit only.
13. Subcontractor shall provide all administration services, documentation and materials to establish project LEED certification (relative to subcontractor's scope of work) as outlined by Contract Documents.
14. Subcontractor shall coordinate mechanical, electrical, plumbing, structural, and architectural requirements to be used in conjunction with this scope of work.
15. Subcontractor shall provide Payment and Performance Bond if contract value is greater than fifty thousand dollars (\$50,000.00).
16. Subcontractor shall direct his crews to work Saturdays to compensate for any normal workdays lost due to inclement weather, holidays, or other circumstances.
17. All work must be performed in strict accordance to all OSHA rules and regulations; and specifically including fall protection and personal safety equipment.
18. Subcontractor is responsible for purchasing and adhering to all Contract/Bidding Documents listed in the Instructions to Bidders for the entire project duration.
19. Storage of materials, tools, equipment, and field offices will be subject to CDM's coordination and approval. Subcontractor may be required, at its expense, to relocate.
20. Subcontractor will be responsible for postage and courier charges incurred by the CDM for returning information to the Subcontractor for the Subcontractor's benefit of maintaining the schedule.
21. Subcontractor warrants and represents that it has fully educated itself on the recent material price escalations and quantity shortages in the steel, aluminum, copper and other metal material industries. Subcontractor is aware how the material price escalations and delivery time periods effect the commitments made to CDM in this Subcontract agreement. Subcontractor is experienced and fully qualified to perform the obligations of this Subcontract, that it has fully investigated, is fully familiar with and has taken into account material costs and availability, shipping and other related charges, and all other aspects of the raw material and fabricated material markets relating to the obligations of this Subcontract, and that it can perform the obligations of this Subcontract for the price and within the time set forth therein. Subcontractor further agrees not to seek a cost or time increase on the basis of the factors set forth above."
22. Subcontractor includes minor adjustments to typical conditions, connections, transitions, etc. that are normal and to be expected.
23. Commencement of the work or any portion of by the Subcontractor shall constitute acceptance of the condition for the installation of the work.
24. Subcontractor is responsible for insuring all requirements associated with Subcontractor's work for inspections are met prior to scheduled inspections. Subcontractor shall be responsible for any cost and/or delays caused by work or material not being in place at time of inspections.
25. Subcontractor is responsible for adequately covering/protecting block-outs and openings required by Subcontractors scope of work.
26. Subcontractor shall coordinate all rough-in locations with other trades. Any cutting and patching required will be included by the subcontractor. Cutting and patching will be performed in a professional manner that is acceptable to CDM.

27. Shop drawing re-submittals shall be made within one week of notification of rejection or as requested by CDM.
28. Subcontractor shall provide material procurement schedule, critical path method schedule and updated as-built drawings with the Subcontractor's application for payment.
29. Subcontractor shall furnish all close out documents with or prior to 80% completion billing.
30. Subcontractor is responsible for locating all existing permanent utilities and is responsible for any damage caused to existing utilities in the process of Subcontractor's Work.
31. CDM will coordinate location of dumpsters for debris. Subcontractor shall clean-up daily in strict accordance with the contract. Removal of debris not appropriate for the provided dumpster is the responsibility of the subcontractor. All roadways shall be kept clean as per local authorities. Subcontractors shall clean up any debris in the roadway and/or clean all vehicles leaving the site that they are responsible for.
32. The Subcontractor shall be represented by a person or persons authorized to represent it at weekly Safety and Subcontractor Meetings, commencing two (2) weeks prior to the commencement date of the Work covered by this Agreement.
33. The Subcontractor shall submit a daily construction report to the Contractor, which shall, at a minimum, include a description of the Subcontractor's activities for the day and any delays or hindrances encountered, a work force count by trade for the Subcontractor and any of its sub-subcontractors, and a listing of any major deliveries. The Subcontractor's daily report is due by noon the following day.
34. Warranty for this scope of work will commence based upon acceptance of the entire project by the governing authority.
35. CDM will implement a Quality Assurance Program relative to industry standards and the Contract/Bidding Documents.
36. Final Completion for this project is 304 days from Notice to Proceed from Fulton County. The Construction Documents stipulate if substantial completion is not complete in 304 days then liquidated damages in the amount of \$1,500 per calendar day will be assessed. The Subcontractor is aware that if their Contract Work is not performed in accordance with the Project Schedule, then the Subcontractor will bear the burden of liquidated damages if any are assessed on this project. In addition, the Subcontractor will also be liable for any costs CDM incurs from late completion of work and liquidated damages.

Summary of Work

1. Provide and install Light Control Shades per the Contract Documents.
2. Install shades in locations as noted in the enclosed RFI 00106.
3. Subcontractor must meet ADA (Americans with Disabilities Act) and CDA (Copper Development Association) requirements as outlined by Contract Documents.
4. Subcontractor to coordinate all block out and blocking requirements necessary for proper installation of shades.
5. Shades shall be installed using specified fasteners, level, plumb, true to line and mounted at height as required by specifications.

End of Section



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Request For Information

Project [L006] - **View Date** 8/20/2015
Southeast Library

C. D. Moody
Construction
Company, Inc. **RFI No.** 00106
6017 Redan Road
Lithonia, Georgia
30058
Phone: (678) 482-
7778
Fax: (678) 482-
7727

Primary Responder	Diana Alarcon Stanley Love-Stanley P.C. 1056 Spring Street, N.W. Atlanta, Georgia 30309-3818 United States Phone: (404) 876-3055 ext 35 Fax: (404) 876-6841	Date	8/19/2015
CC	Phillip Roney (C. D. Moody Construction Company, Inc.) Iziah "Ike" Tiggs (C. D. Moody Construction Company, Inc.) Jeffrey Pettit (Heery/Russell a joint Venture) Ivenue Love-Stanley (Stanley Love-Stanley P.C.)	Status	Open
From	Romon Moultrie C. D. Moody Construction Company, Inc.	Resolved Date	
		Reason for Request	Other
		Action Requested	Direction
		Probable Cost Effect	None
		Probable Time Effect	None
		Priority	High
		Response Due	8/29/2015

Subject Blinds for work areas
Drawing No. A1.31
CSI Code
Detail No.
Other Ref. No.

Information Requested

Per the OAC Meeting/ Progress Meeting held on 8/18/15, provide details and information for blinds in the following rooms: Branch Manger (20) and Break Room (21). If blinds are specified for these area, state if they will be horizontal louver blinds (12 2113) or light control shades (12 2217). Per the selection, a specification section will need to be deleted (since not used) from the manual.

Recommendation

Response Information

Responder	Date	Response
Diana Alarcon		The owner requested Mecho Shades and not blinds. See the attachment with the locations. SLS 09/02/2015

Authorized Signature _____ Diana Alarcon (Stanley Love-Stanley P.C.)
Printed Name _____ Date _____

Supporting documents and attached files

This RFI has the following supporting documents and attached files:

Description	Date	Open as
Attached file: RFI_106_blinds_for_windows.pdf 157KB		

SECTION 12 2217
LIGHT CONTROL SHADES

PART 1 - GENERAL

1.1 SUMMARY:

- A. Work of this section includes:
 - 1. Manually operated sunscreen roller shades.
 - 2. Electrically operated room-darkening shades.
 - 3. Control system for motorized shade operation.
- B. Related work:
 - 1. Rough Carpentry: Wood blocking and grounds for mounting roller shades and accessories.
 - 2. Gypsum Board: Coordination with gypsum board assemblies for installation of shade pockets, closures and related accessories.
 - 3. Acoustical Ceilings: Coordination with acoustical ceiling systems for installation of shade pockets, closures and related accessories.
 - 4. Division 26 - Electrical: Electric service for motor controls.

1.2 REFERENCES:

- A. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- B. NFPA 701-99 - Fire Tests for Flame-Resistant Textiles and Films.
- C. NFPA 70 - National Electrical Code.

1.3 SUBMITTALS:

- A. Product data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
 - 3. Storage and handling requirements and recommendations.
 - 4. Mounting details and installation methods.
- B. Shop drawings: Plans, elevations, sections, product details, installation details, operational clearances, wiring diagrams and relationship to adjacent work. Prepare shop drawings on Autocad or Microstation format using base sheets provided electronically by the Architect.
- C. Wiring diagrams: Submit typical wiring diagrams including integration of motor controllers with building management system, audiovisual and lighting control systems as applicable.
- D. Window treatment schedule: For all roller shades. Use same room designations as indicated on the Drawings and include opening sizes and key to typical mounting details.
- E. Selection samples: For each finish product specified, one set of shade cloth options and aluminum finish color samples representing manufacturer's full range of available colors and patterns.

- F. Verification samples: 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.
- G. Maintenance data: Submit methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.

1.4 QUALITY ASSURANCE:

- A. Manufacturer qualifications: Obtain roller shades through one source from a single manufacturer with a minimum of ten (10) years experience in manufacturing products comparable to those specified in this section.
- B. Installer qualifications: Installer trained and certified by the manufacturer with a minimum of five (5) years experience in installing products comparable to those specified in this section.
- C. Fire-test-response characteristics: Passes NFPA 701-99 small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.
- D. Electrical components: NFPA Article 100 listed and labeled by either UL or ETL or other testing agency acceptable to authorities having jurisdiction, marked for intended use, and tested as a system. Individual testing of components will not be acceptable in lieu of system testing.
- E. Anti-microbial characteristics: 'No Growth' per ASTM G 21 results for fungi ATCC9642, ATCC 9644, ATCC9645.
- F. Recycling characteristics: Provide documentation that the shade cloth can and is part of a closed loop of perpetual use and not be required to be down cycled, incinerated or otherwise thrown away. Scrap material can be sent back to the mill for reprocessing and recycling into the same quality yarn and woven into new material, without down cycling. Certify that this process is currently underway and will be utilized for this project.
- G. Perpetual use certification: Certify that at the end of the useful life of the shade cloth, that the material can be sent back to the manufacturer for recapture as part of a closed loop of perpetual use and that the material can and will be reconstituted into new yarn, for weaving into new shade cloth. Provide information on each shade band indicating that the shade band can be sent back to the manufacturer for this purpose.
- H. Mock-up: Provide a mock-up (manual shades only) of one roller shade assembly for evaluation of mounting, appearance and accessories.
 - 1. Locate mock-up in window designated by Architect.
 - 2. Do not proceed with remaining work until, mock-up is accepted by Architect.

- I. Turn-key single-source responsibility for motorized interior roller shades: To control the responsibility for performance of motorized roller shade systems, assign the design, engineering, and installation of motorized roller shade systems, motors, controls, and low voltage electrical control wiring specified in this Section to a single manufacturer and their authorized installer/dealer. The Architect will not produce a set of electrical drawings for the installation of control wiring for the motors, or motor controllers of the motorized roller shades. Power wiring (line voltage), shall be provided by the roller shade installer/dealer, in accordance with the requirements provided by the manufacturer. Coordinate the following with the roller shade installer/dealer:
 1. Contractor shall provide power panels and circuits of sufficient size to accommodate roller shade manufacturer's requirements, as indicated on the mechanical and electrical drawings.
 2. Contractor shall coordinate with requirements of roller shade installer/dealer, before inaccessible areas are constructed.
 3. Installer shall run line voltage as dedicated home runs (of sufficient quantity, in sufficient capacity as required) terminating in junction boxes in locations designated by roller shade dealer.
 4. Installer shall provide and run all line voltage (from the terminating points) to the motor controllers, wire all roller shade motors to the motor controllers, and provide and run low voltage control wiring from motor controllers to switch/ control locations designated by the Architect. All above-ceiling and concealed wiring shall be plenum-rated, or installed in conduit, as required by the electrical code having jurisdiction.
 5. Contractor shall provide conduit with pull wire in all areas, which might not be accessible to roller shade contractor due to building design, equipment location or schedule.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver shades in factory-labeled packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same room designations indicated on Drawings and in the Window Treatment Schedule.

1.6 PROJECT CONDITIONS:

- A. Environmental limitations: Install roller shades after finish work including painting is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.7 WARRANTY:

- A. Roller shade hardware, chain and shadecloth: Manufacturer's standard non-depreciating twenty-five (25) year limited warranty.
- B. Roller shade motors and motor control systems: Manufacturer's standard non-depreciating five (5) year warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. Acceptable manufacturers:
 1. Basis of design: As scheduled on drawings.
 2. MechoShade Systems, Inc.

3. Draper.
4. Hunter Douglas Contract.
5. Lutron.

2.2 SHADE CLOTH:

- A. Visually transparent single-fabric sunscreen shade cloth:
 1. Basis of design: Match patterns and colors as scheduled on drawings.
 2. Material: PVC (coating) and polyester (yarn).
 3. Openness factor: 3%.
 4. Pattern and colors: As scheduled on drawings.
- B. Vinyl room darkening (blackout) shade cloth:
 1. Blackout material, washable and colorfast laminated and embossed vinyl coated fabric, 0.012 inches thick (0.30 mm) blackout material and weighing 0.81 lbs. per square yard, with a minimum of 62 threads per square inch in colors selected from manufacturer's available range.
 2. Colors: As selected by Architect from manufacturer's standard colors.

2.3 SHADE BAND:

- A. Shade bands: Construction of shade band includes the fabric, the hem weight, hem-pocket, shade roller tube, and the attachment of the shade band to the roller tube. Sewn hems and open hem pockets are not acceptable.
- B. Hem pockets and hem weights: Fabric hem pocket with RF-welded seams (including welded ends) and concealed hem weights. Hem weights shall be of appropriate size and weight for shade band. Hem weight shall be continuous inside a sealed hem pocket. Hem pocket construction and hem weights shall be similar, for all shades within one room.
- C. Shade band and shade roller attachment:
 1. Use extruded aluminum shade roller tube of a diameter and wall thickness required to support shade fabric without excessive deflection. Roller tubes less than 1.55 inch (39.37 mm) in diameter for manual shades, and less than 2.55 inches (64.77 mm) for motorize shades are not acceptable.
 2. Provide for positive mechanical engagement with drive / brake mechanism.
 3. 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.
 4. Mounting spline shall not require use of adhesives, adhesive tapes, staples, and/or rivets.
 5. Any method of attaching shade band to roller tube that requires the use of: adhesive, adhesive tapes, staples, and/or rivets are not acceptable.

2.4 SHADE FABRICATION:

- A. Fabricate units to completely fill existing openings from head to sill and jamb-to-jamb, unless specifically indicated otherwise.

- B. Fabricate shadecloth to hang flat without buckling or distortion.
1. 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. Fabricate hem as follows: Bottom hem weights for sunscreen applications. Exposed blackout hembar with light seal for blackout applications.
- C. Provide battens in standard shades as required to assure proper tracking and uniform rolling of the shadebands. Contractor shall be responsible for assuring the width-to-height (W:H) ratios shall not exceed manufacturer's standards or, in absence of such standards, shall be responsible for establishing appropriate standards to assure proper tracking and rolling of the shadecloth within specified standards. Battens shall be roll-formed stainless steel or tempered steel, as required.
- D. For railroaded shadebands, provide seams in railroaded multi-width shadebands as required to meet size requirements and in accordance with seam alignment as acceptable to Architect. Seams shall be properly located.
1. Furnish battens in place of plain seams when the width, height, or weight of the shade exceeds manufacturer's standards. In absence of such standards, assure proper use of seams or battens as required to, and assure the proper tracking of the railroaded multi-width shadebands.
 2. Provide battens for railroaded shades when width-to-height (W:H) ratios meet or exceed manufacturer's standards. In absence of manufacturer's standards, be responsible for proper use and placement of battens to assure proper tracking and roll of shadebands.
- E. Blackout shadebands, when used in side channels, shall have horizontally mounted, roll-formed stainless steel or tempered-steel battens not more than 3 feet (115 mm) on center extending fully into the side channels. Battens shall be concealed in a integrally-colored fabric to match the inside and outside colors of the shadeband, in accordance with manufacturer's published standards for spacing and requirements.
1. Battens shall be roll formed of stainless steel or tempered steel and concave to match the contour of the roller tube.
 2. Batten pockets shall be self-colored fabric front and back RF welded into the shadecloth. A self-color opaque liner shall be provided front and back to eliminate any see through of the batten pocket that shall not exceed 1-1/2 inches (38.1 mm) high and be totally opaque. A see-through moiré effect, which occurs with multiple layers of transparent fabrics, shall not be acceptable.

2.5 COMPONENTS:

- A. Access and material requirements:
1. Provide shade hardware allowing for the removal of shade roller tube from brackets without removing hardware from opening and without requiring end or center supports to be removed.
 2. Provide shade hardware that allows for removal and re-mounting of the shade bands without having to remove the shade tube, drive or operating support brackets.
 3. Use only Delrin engineered plastics by DuPont for all plastic components of shade hardware. Styrene based plastics, and /or polyester, or reinforced polyester will not be acceptable.

- B. Motorized shade hardware and shade brackets:
1. Provide shade hardware constructed of minimum 1/8-inch (3.18 mm) thick plated steel, or heavier, thicker, as required to support 150 percent of the full weight of each shade.
 2. Provide shade hardware system that allows for field adjustment of motor or replacement of any operable hardware component without requiring removal of brackets, regardless of mounting position (inside, or outside mount).
 3. Provide shade hardware system that allows for operation of multiple shade bands offset by a maximum of 8-45 degrees from the motor axis between shade bands (4-22.5 degrees) on each side of the radial line, by a single shade motor (multi-banded shade, subject to manufacturer's design criteria).
- C. Manual operated chain drive hardware and brackets:
1. Provide for universal, regular and offset drive capacity, allowing drive chain to fall at front, rear or non-offset for all shade drive end brackets. Universal offset shall be adjustable for future change.
 2. Provide hardware capable for installation of a removable fascia, for both regular and/or reverse roll, which shall be installed without exposed fastening devices of any kind.
 3. Provide shade hardware system that allows for removable regular and/or reverse roll fascias to be mounted continuously across two or more shade bands without requiring exposed fasteners of any kind.
 4. Provide shade hardware system that allows for operation of multiple shade bands (multi-banded shades) by a single chain operator, subject to manufacturer's design criteria. Connectors shall be offset to assure alignment from the first to the last shade band.
 5. Provide shade hardware system that allows multi-banded manually operated 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. Provide positive mechanical engagement of drive mechanism to shade roller tube. Friction fit connectors for drive mechanism connection to shade roller tube are not acceptable
 7. Provide shade hardware constructed of minimum 1/8-inch (3.18 mm) thick plated steel or heavier as required to support 150 percent of the full weight of each shade.
- D. Drive bracket / brake assembly:
1. Drive 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 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 50 lbs. (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 oil impregnated hub design includes an articulated brake assembly, which assures a smooth, non-jerky operation in raising and lowering the shades. The assembly shall be permanently lubricated. Products that require externally applied lubrication and or not permanently lubricated are not acceptable.

5. The entire M5 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.
- E. Drive chain: #10 qualified stainless steel chain rated to 90 lb. (41 kg) minimum breaking strength. Nickel plate chain shall not be accepted.

2.6 SHADE MOTOR DRIVE SYSTEM:

- A. Shade motors:
 1. Tubular, asynchronous (non-synchronous) motors, with built-in reversible capacitor operating at 110v AC (60hz), single phase, temperature Class A, thermally protected, totally enclosed, maintenance free with line voltage power supply equipped with locking disconnect plug assembly furnished with each motor.
 2. Conceal motors inside shade roller tube.
 3. Maximum current draw for each shade motor of 2.3 amps.
 4. Use motors rated at the same nominal speed for all shades in the same room.
- B. Total hanging weight of shade band shall not exceed 80 percent of the rated lifting capacity of the shade motor and tube assembly.

2.7 ACCESSORIES:

- A. 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 aluminum closure mount, tile support and removable closure panel to provide access to shades.
 2. 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.
- B. Fascias:
 1. Continuous removable extruded aluminum fascia that attaches to shade mounting brackets without the use of adhesives, magnetic strips, or exposed fasteners.
 2. Fascia shall be able to be installed across two or more shade bands in one piece.
 3. Fascia shall fully conceal brackets, shade roller and fabric on the tube.
 4. Provide bracket / fascia end caps where mounting conditions expose outside of roller shade brackets.
 5. Notching of Fascia for manual chain shall not be acceptable.
- C. Room darkening side and / or sill channels:
 1. Extruded aluminum with polybond edge seals and SnapLoc-mounting brackets and with concealed fastening. Exposed fastening is not acceptable. Channels shall accept one-piece exposed blackout hembar with vinyl seal to assure side light control and sill light control.

2. Side channels for manual blackout shades: 1-15/16 inches (49.2 mm) wide by 1-3/16 inches (30.1 mm) deep, two-band center channels, 2-5/8 inches (66.6 mm) wide by 1-3/16 inches (30.1 mm) deep. The 2-5/8-inch (66.6 mm) double-center channels may be installed at center-support positions of multi-band-shades. Side channels 2-5/8 inch (66.6 mm) may be used as center supports for shadebands up to 8 high. For shadebands over 8 feet (2438 mm), provide side channels.
3. Side channels for motorized blackout shades: 2-1/2 inches (63.5 mm) wide by 1-3/16 inches (30.1 mm) deep; two-band center channels 5 inches (127 mm) wide by 1-3/16 inches (30.1 mm) deep. The 2-5/8-inch (66.6 mm) double-center channels may be installed at center-support positions of multi-band-shade. Side channels 2-5/8 inches (66.6 mm) may be used as center supports for electric shades. Also provide for use with manually operated room darkening shades over 8 feet (2438 mm) in height.
4. Colors: Standard colors as selected by Architect.

2.8 MOTOR CONTROL SYSTEMS:

- A. Specifications and design of shade motors and motor control system are based on the motor logic control system. Other systems may be acceptable provided that all of the following performance capabilities are provided.
 1. Motor control system:
 - a. Provide power to each shade motor via individual 3 conductor line voltage circuits connecting each motor to the relay based motor logic controllers.
 - b. Control system components shall provide appropriate (spike and brown out) over-current protection (+/- 10 percent of line voltage) for each of the four individual motor circuits and shall be rated by UL or ETL as a recognized component of this system and tested as an integrated system.
 - c. Motor control system shall allow each group of four shade motors in any combination to be controlled by each of four local switch ports, with up to fourteen possible "sub-group" combinations via local 3 button wall switches and all at once via a master 3 button switch. System shall allow for overlapping switch combinations from two or more local switches.
 - d. Multiple "sub-groups" from different lcontrol components shall be capable of being combined to form "groups" operated by a single 3 button wall switch, from either the master port or in series from a local switch port.
 - e. Each shade motor shall be accessible (for control purposes) from up to four local switches and one master switch.
 - f. Control system shall allow for automatic alignment of shade hem bars in stopped position at 25 percent, 50 percent, and 75 percent of opening heights, and up to three user-defined intermediate stopping positions in addition to all up / all down, regardless of shade height, for a total of five positions. Control system shall allow shades to be stopped at any point in the opening height noting that shades may not be in alignment at these non-defined positions).
 - g. Control system shall have two standard operating modes: Normal mode allowing the shades to be stopped anywhere in the window's opening height and uniform mode, allowing the shades to only be stopped at the predefined intermediate stop positions. Both modes shall allow for all up / all down positioning.

- h. Control system components shall allow for interface with both audiovisual system components and building fire and life safety system via a dry contact terminal block.
 - i. Control system components shall allow for interface with external analog input control devices such as solar activated controllers, 24 hour timers, and similar items; via a dry contact terminal block.
 - j. Reconfiguration of switch groups shall not require rewiring of the hardwired line voltage motor power supply wiring, or the low voltage control wiring. Reconfiguration of switch groups shall be accomplished within the motor control device.
2. Wall switches:
- a. Three-button architectural flush mounted switches with metal cover plate and no exposed fasteners.
 - b. Connect local wall switches to control system components via low voltage (12V DC) 4-conductor modular cable equipped with RJ-11 type connectors supplied, installed and certified under Division 26 - Electrical.
 - c. Connect master wall switches to control system components via low voltage (12V DC) 6-conductor modular cable equipped with RJ-12 type connectors supplied, installed and certified under Division 26 - Electrical.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION:

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION:

- A. Install roller shades level, plumb, square, and true according to manufacturer's written instructions and approved shop drawings, and located so shade band is not closer than 2 inches (50 mm) to interior face of glass. Allow proper clearances for window operation hardware.
- B. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.
- C. Clean roller shade surfaces after installation, according to manufacturer's written instructions.
- D. Installer shall train Owner's maintenance personnel to adjust, operate and maintain roller shade systems.

3.4 PROTECTION:

- A. Protect installed products until Date of Substantial Completion.
- B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

End of Section