DIVISION 1

GENERAL REQUIREMENTS

BUSHEY FEIGHT MORIN ARCHITECTS INC.
473 NORTH POTOMAC STREET
HAGERSTOWN, MARYLAND 21740
301-733-5600 FAX: 301-733-5612

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Contract description.

B. Work by Owner.

C. Owner supplied products.

D. Specification Conventions.

1.2 CONTRACT DESCRIPTION

A. Work of the Project includes demolition and, renovation to the Washington County Central Administration Complex.

B. Perform Work of the Contract under fixed cost contract with Owner in accordance with Conditions of Contract.

1.3 WORK BY OWNER

A. The Owner will award contracts for additional construction services to the exterior of the building to occur while work is performed under this contract. The contractor shall coordinate with all other contractors in building access, egress, material storage, and termination of contract work.

B. Items noted NIC (Not in Contract), movable cabinets, furnishings, and minor equipment, will be furnished and installed by Owner beginning before substantial completion.

1.4 OWNER SUPPLIED PRODUCTS

A. Owner's Responsibilities:
   1. Arrange for and deliver Owner-reviewed Shop Drawings, Product Data, and Samples, to Contractor.
   2. Arrange and pay for delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:
   1. Review Owner-reviewed Shop Drawings, Product Data, and Samples.
   2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
   3. Handle, store, install and finish products.
   4. Repair or replace items damaged after receipt.

1.5 CONTRACTORS USE OF SITE AND PREMISES

A. Limit use of site and premises to allow:
   1. Work by Others and Work by Owner.

B. The Contractor and their personnel shall comply with the following:

1. Use of alcohol or drugs on site is prohibited.
2. Statement clothing considered offensive shall be prohibited.
3. Firearms shall be prohibited.
4. Use of tobacco products within the building structure will be prohibited.
5. Harassment of personnel will not be tolerated.

C. Anyone found in violation of the above will be removed from the site.

1.6 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.7 SPECIAL CONTRACT PROVISIONS

A. The Contractor and their personnel shall comply with the following:
1. Use of alcohol or drugs on site is prohibited.
2. "Statement" clothing considered offensive shall be prohibited.
3. Firearms shall be prohibited.
4. Use of tobacco products within the building structure will be prohibited.
5. Harassment of personnel will not be tolerated.
6. Anyone found in violation of the above will be removed from the site.

B. Work scheduled by the Contractor after hours or on weekends shall be requested in writing a minimum of 72 hours prior to time requested.

C. Project Manager and Superintendent:
1. Prior to the start of work, the Contractor shall submit resumes of the Project Manager, and Superintendent to the Owner for review and approval and shall be satisfactory to the Owner in all respects. The resumes must demonstrate that the personal assigned to this project are experienced in projects similar in scope and complexity. The Owner shall have the right to require Contractor to dismiss from the project any Project Manager and/or Superintendent with personnel satisfactory to Owner, at no additional cost. The Contractor shall not replace the Project Manager and/or Superintendent without the consent of the Owner except with personnel satisfactory to the Owner in all respects.

D. GC-2.05 Taxes-Responsibility for Payment, Exemptions, Forms to be Filed, Etc.:
1. The Contractor is responsible for and by submitting a Bid agrees to pay all retail sales, income, real estate, sales and use, transportation and special taxes applicable to and assessable against any materials, equipment, processes and operations incident to or involved in the project. The Contractor is responsible for ascertaining and acquainting his/herself with such taxes and making all necessary arrangements to pay same.
2. The Contractor shall complete a W-9 Vendor Information form (provide by the County) and return it to the Purchasing Agent.
3. The County hereby reserves the right to withhold payment under this Contract until the Contractor and any subcontractor performing any duties under this Contract have furnished or caused to be furnished the Comptroller of the State of Maryland with all properly completed forms required by the said Comptroller and until all of said retail sales and/or use taxes due the State of Maryland by the Contractor have been paid and the Contractor exhibits a release or receipt from the Comptroller evidencing such payment.

4. The Contractor is hereby advised of Section 1-106(b)(3) of the Code of Public Local Laws of Washington County, MD: “If a bidder has not paid all taxes owed to the County or a municipal corporation in the County, the County Commissioners may reject the bidder’s bid.”

E. Subcontractor Bond:
   1. WCBC retains the right to request a subcontractor to submit a performance and payment bond in the amount of his Contract to the General Contractor.
   2. WCBC shall reimburse the subcontractor in the amount of the direct cost of the bond without subcontractor or General Contractor markup for overhead, profit or any other associated cost.

F. Coordination Drawings:
   1. The Contractor is responsible to provide mechanical coordination drawings as specified in Division 15.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cash allowances.

B. Schedule of values.

C. Applications for payment.

D. Change procedures.

E. Defect assessment.

F. Alternates.

G. Unit Prices.

1.2 CASH ALLOWANCES

A. Costs Included in Cash Allowances: Cost of product to Contractor or Subcontractor, less applicable trade discounts; delivery to site and applicable taxes.

B. Costs Not Included in Cash Allowances But Included in Contract Sum/Price: Product delivery to site and handling at site, including unloading, uncrating, and storage; protection of products from elements and from damage; and labor for installation and finishing.

C. Architect/Engineer Responsibilities:
1. Consult with Contractor for consideration and selection of products, and suppliers.
2. Select products in consultation with Owner and transmit decision to Contractor.
3. Prepare Change Order.

D. Contractor Responsibilities:
1. Assist Architect/Engineer in selection of products, suppliers and installers.
2. Obtain proposals from suppliers and installer] and offer recommendations.
3. On notification of selection by Architect/Engineer, Owner, execute purchase agreement with designated supplier and installer.
4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

E. Differences in costs will be adjusted by Change Order.

F. Allowances Schedule:

1.	Allowance No. 1:	Project Identification Sign	$3,000.00
2.	Allowance No. 2:	Unit Price Hazmat Contingency	$5,000.00
3.	Allowance No. 3:	Appliances	$4,000.00

G. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

1.3 SCHEDULE OF VALUES

A. Submit printed schedule on AIA Form G703 - Continuation Sheet for G702. Contractor's standard form or electronic media printout will be considered.

B. Submit 6 copies of Schedule of Values within fifteen (15) days after date established in Notice to Proceed.

C. Format: Utilize Table of Contents of this Project Manual. Identify each line item with number and title of major specification Section. Identify site mobilization, bonds and insurance, contingencies and allowances, job trailer and mechanical coordination drawings.

D. Include in each line item, amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.

E. Revise schedule to list approved Change Orders with each Application for Payment.

1.4 APPLICATIONS FOR PAYMENT

A. A draft/pencil copy of the Application for Payment is to be reviewed and approved by the Owner’s Representative prior to submittal to the Owner/Architect.

B. Submit six (6) copies of each application on AIA Form G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet for G702.

C. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

D. Submit updated construction schedule with each Application for Payment.

E. Payment Period: Monthly

F. Submit with transmittal letter as specified for Submittals in Section 01330 - Submittal Procedures.

G. Substantiating Data: When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
1. Partial release of liens from major subcontractors and vendors.
2. Affidavits attesting to off-site stored products.

1.5 CHANGE PROCEDURES

A. Submittals: Submit name of individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. The Architect/Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on AIA Form G710.

C. The Architect/Engineer may issue a Proposal Request including a detailed description of proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Contractor will prepare and submit estimate within fourteen (14) calendar days.

D. Contractor may propose changes by submitting a request for change to Architect/Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change, and effect on Contract Sum/Price and Contract Time with full documentation and a statement describing effect on Work by separate or other Contractors. Document requested substitutions in accordance with Section 01600 - Product Requirements.

E. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for Change Order as approved by Architect/ Engineer.

F. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under Construction Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material or Force Account Change Order.

G. Construction Change Directive: Architect/Engineer may issue directive, on AIA Form G714 Construction Change Directive signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.

H. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Architect/Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.

I. Maintain detailed records of work done on basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

J. Document each quotation for change in cost or time with sufficient data to allow evaluation of quotation.

K. Change Order Forms: AIA G701 Change Order.

L. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

M. Correlation Of Contractor Submittals:
   1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.

2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
3. Promptly enter changes in Project Record Documents.

1.6 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of the Architect/Engineer, it is not practical to remove and replace the Work, the Architect/Engineer will direct appropriate remedy or adjust payment.

C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Owner and Architect/Engineer.

D. Defective Work will be partially repaired to instructions of Owner and Architect/ Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Owner and Architect/Engineer.

E. Individual specification sections may modify these options or may identify specific formula or percentage sum/price reduction.

F. Authority of Owner and Architect/Engineer to assess defects and identify payment adjustments are final.

G. Non-Payment For Rejected Products: Payment will not be made for rejected products for any of the following:
1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from transporting vehicle.
4. Products placed beyond lines and levels of required Work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling, and disposing of rejected products.

1.7 ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work.

C. Schedule of Alternates:
1. Alternate No. 1: 2nd/ 3rd floor Curtainwall Replacement
   a. Description: In accordance with Section 08440 and the Contract Drawings. Submit the price to replace the aluminum curtainwall system spanning the 2nd and 3rd floors.
2. Alternate No. 2: Elevator Cab Replacement
   a. Description: In accordance with Section 14240. Submit the price to replace the passenger elevator cab located adjacent to Stair 1.

1.8 UNIT PRICES

A. Authority: Measurement methods are delineated in individual specification sections.

B. Measurement methods delineated in individual specification sections complement criteria of this section. In event of conflict, requirements of individual specification section govern.

C. Take measurements and compute quantities. Owner and Architect/Engineer will verify measurements and quantities.

D. Unit Quantities: Quantities and measurements indicated in Bid Form are for contract purposes only. Actual quantities provided shall determine payment.
   1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at unit sum/prices contracted.

E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application or installation of item of the Work; overhead and profit.

F. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Architect/Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.

G. Measurement Of Quantities:
   1. Weigh Scales: Inspected, tested and certified by applicable State Weights and Measures department within past year.
   2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.
   3. Metering Devices: Inspected, tested and certified by applicable State department within past year.
   4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
   5. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
   6. Measurement by Area: Measured by square dimension using mean length and width or radius.
   7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
   8. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

H. Unit Price Schedule: **(TBD)**

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination and project conditions.

B. Field engineering.

C. Preconstruction meeting.

D. Site mobilization meeting.

E. Progress meetings.

F. Pre-installation meetings.

G. Request for Information (RFI) processing.

H. Cutting and patching.

I. Special procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of various sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.

C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.

E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.

F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD ENGINEERING

A. Employ Land Surveyor registered in State of Maryland and acceptable to Owner and Architect/Engineer.

B. Locate and protect survey control and reference points. Promptly notify Architect/ Engineer of discrepancies discovered.

C. Control datum for survey is that shown on Drawings.

D. Verify set-backs and easements; confirm drawing dimensions and elevations.

E. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

F. Submit copy of site drawing and certificate signed by Land Surveyor certifying elevations and locations of the Work are in conformance with Contract Documents.

G. Maintain complete and accurate log of control and survey work as Work progresses.

H. On completion of foundation walls and major site improvements, prepare certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

I. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

J. Promptly report to Architect/Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.

K. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect/Engineer.

1.4 PRECONSTRUCTION MEETING

A. Owner and Architect/Engineer will schedule meeting after Notice of Award.

B. Attendance Required: Owner, Architect/Engineer, Sustainability Consultant, Contractor and major trade subcontractors.

C. Agenda:
1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing parties in Contract.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
8. Sustainability requirements and responsibilities

D. Architect will administer meeting and record minutes and distribute copies within seven (7) days after meeting to participants, and those affected by decisions made.

1.5 SITE MOBILIZATION MEETING

A. Owner and Architect/Engineer will schedule meeting at Project site prior to Contractor occupancy.

B. Attendance Required: Owner, Architect/Engineer, Special Consultants, Contractor, Contractor's Superintendent, and major Subcontractors.

C. Agenda:
1. Use of premises by Owner and Contractor.
2. Owner's requirements occupancy.
3. Construction facilities and controls provided by Owner.
4. Temporary utilities provided by Owner.
5. Survey and building layout.
6. Security and housekeeping procedures.
7. Schedules.
8. Application for payment procedures.
9. Procedures for testing.
10. Procedures for maintaining record documents.
11. Requirements for start-up of equipment.
12. Inspection and acceptance of equipment put into service during construction period.

D. The Architect shall administer meeting and record minutes and distribute copies within seven (7) days after meeting to participants and those affected by decisions made.

1.6 PROGRESS MEETINGS

A. The Architect shall schedule and administer meetings throughout progress of the Work at maximum bi-weekly intervals.

B. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Architect/Engineer, as appropriate to agenda topics for each meeting.

C. Agenda:
1. Review minutes of previous meetings.
2. Review of Work progress.
   a. Contractor to provide Two Week Look Back and Four Week Look ahead Reports in written form.
3. Field observations, problems, and decisions.
4. Identification of problems impeding planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to Work.

D. Architect will administer meeting and record minutes and distribute copies within seven (7) days after meeting to participants, and those affected by decisions made.

1.7 PRE-INSTALLATION MEETINGS

A. When required in individual specification sections, convene pre-installation meetings at Project site prior to commencing work of specific section.

B. Require attendance of parties directly affecting, or affected by, Work of specific section.

C. Notify Architect/Engineer seven (7) days in advance of meeting date.

D. Prepare agenda and preside at meeting:
1. Review conditions of installation, preparation and installation procedures.
2. Review coordination with related work.

E. The Contractor shall record minutes and distribute copies within seven (7) days after meeting to participants, with copies to Architect/Engineer, Owner and those affected by decisions made.

1.8 REQUEST FOR INFORMATION (RFI) PROCESSING

A. To expedite the RFI review process, the Construction team shall process RFIs electronically in .pdf format

B. Reference Section 013300 – Submittal Procedures.

1.9 ELECTRONIC RFI DELIVERY

A. To minimize printing reimbursables, shipping reimbursables and the impact on the environment, RFIs shall be processed and delivered electronically in .pdf format

B. RFI review comments and attachments from the design team, consultants and engineers will be returned electronically

1.10 FINAL RFI RECORD

A. At project completion the Contractor shall provide one (1) set of ‘hard’ copies of all RFI’s and log to the Owner.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching.

B. Submit written request in advance of cutting or altering elements affecting:
1. Structural integrity of element.

2. Integrity of weather-exposed or moisture-resistant elements.
3. Efficiency, maintenance, or safety of element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install or correct ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.

E. Cut masonry and concrete materials using masonry saw or core drill.

F. Restore Work with new products in accordance with requirements of Contract Documents.

G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material [in accordance with Section 07840, to full thickness of penetrated element.

J. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

K. Identify hazardous substances or conditions exposed during the Work to Architect/ Engineer for decision or remedy.

3.2 SPECIAL PROCEDURES

A. Materials: As specified in product sections; match existing with new products and salvaged products for patching and extending work.

B. Employ skilled and experienced installer to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to permit installation of new work and finishes.

G. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

H. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original and or specified condition.

I. Refinish existing visible surfaces to remain in renovated rooms and spaces, to specified condition for each material, with neat transition to adjacent finishes.

J. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

K. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect/Engineer for review.

L. Where change of plane of 1/4 inch or more occurs, request instructions from Architect/ Engineer.

M. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

N. Finish surfaces as specified in individual product sections.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. References.

B. Quality assurance.

C. Format.

D. Schedules.

E. Submittals.

F. Review and evaluation.

G. Updating schedules.

H. Distribution.

1.2 REFERENCES

A. The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry, Washington, D.C., The Associated General Contractors of America (AGC).

1.3 QUALITY ASSURANCE

A. Scheduler: Contractor's personnel specializing in CPM scheduling with two (2) years minimum experience in scheduling construction work of complexity comparable to this Project, and having use of computer facilities capable of delivering detailed graphic printout within 48 hours of request.

B. Contractor's Administrative Personnel: Five (5) years minimum experience in using and monitoring CPM schedules on comparable projects.

1.4 FORMAT

A. Listings: Reading from left to right, in ascending order for each activity. Identify each activity with applicable specification section number.

B. Diagram Sheet Size: 30 inches high x 36 inches wide, color prints.

C. Scale and Spacing: To allow for notations and revisions.

1.5 SCHEDULES

A. Prepare network analysis diagrams and supporting mathematical analyses using Critical Path Method, under concepts and methods outlined in AGC's "The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry".
   1. CPM Schedules shall be prepared issuing either Primavera Project Planner or ‘Sure Track’. A copy of the software used shall be supplied to Washington County for their use.

B. Illustrate order and interdependence of activities and sequence of work; how start of given activity depends on completion of preceding activities, and how completion of activity may restrain start of subsequent activities.

C. Illustrate complete sequence of construction by activity, identifying work of separate floors. Indicate dates for submittals including dates for Owner furnished items and return of submittals; dates for procurement and delivery of critical products; and dates for installation and provision for testing. Include legend for symbols and abbreviations used.

D. Mathematical Analysis: Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:
1. Preceding and following event numbers.
2. Activity description.
3. Estimated duration of activity, in maximum fifteen (15) day intervals.
4. Earliest start date.
5. Earliest finish date.
6. Actual start date.
7. Actual finish date.
8. Latest start date.
9. Latest finish date.
10. Total and free float; accrue float time to Owner and to Owner's benefit.
11. Monetary value of activity, keyed to Schedule of Values.
12. Percentage of activity completed.
13. Responsibility.

E. Analysis Program: Capable of compiling monetary value of completed and partially completed activities, of accepting revised completion dates, and recomputation of scheduled dates and float.

F. Required Sorts: List activities in sorts or groups:
1. By preceding work item or event number from lowest to highest.
2. By longest float, then in order of early start.
3. By responsibility in order of earliest possible start date.
4. In order of latest allowable start dates.
5. In order of latest allowable finish dates.
6. Contractor's periodic payment request sorted by Schedule of Values listings.
7. Listing of basic input data generating report.
8. Listing of activities on critical path.

G. Prepare sub-schedules for each stage of Work identified in Section 01100 - Summary.

H. Coordinate contents with schedule of values in Section 01330 - Submittal Procedures.

1.6 SUBMITTALS

A. Within ten (10) days after date established in Notice to Proceed, submit proposed preliminary network diagram defining planned operations for first sixty (60) days of Work, with general outline for remainder of Work.

B. Participate in review of preliminary and complete network diagrams jointly with Architect/Engineer.

C. Within twenty (20) days after joint review of proposed preliminary network diagram, submit draft of proposed complete network diagram for review. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.

D. Within ten (10) days after joint review, submit complete network analysis consisting of network diagrams and mathematical analysis.

E. Submit updated network schedules every thirty (30) days.

F. Submit number of opaque reproductions Contractor requires, plus four (4) copies Architect/Engineer will retain.

G. Submit under transmittal letter form specified in Section 01330 - Submittal Procedures.

1.7 REVIEW AND EVALUATION

A. Participate in joint review and evaluation of network diagrams and analysis with Architect/Engineer at each submittal.

B. Evaluate project status to determine work behind schedule and work ahead of schedule.

C. After review, revise network diagrams and analysis incorporating results of review, and resubmit within ten (10) days.

1.8 UPDATING SCHEDULES

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity. Update diagrams to graphically depict current status of Work.

C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

D. Indicate changes required to maintain Date of Substantial Completion.

E. Submit sorts required to support recommended changes.

F. Prepare narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken or proposed and its effect including effects of changes on schedules of separate contractors.
   1. Include report identifying Two Week Look Back and Four Week Look Ahead.
   2. Prepare Project Schedule for Reconciliation if work is delayed. Submit on a bi-weekly basis until scheduled is brought back on to accepted time line.

1.9 DISTRIBUTION

A. Following joint review, distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect/Engineer, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittal processing.

B. Submittal logs.

C. Electronic submittal delivery.

D. Samples and color selection.

E. Submittal transmittals.

F. Submittal stamps.

G. Record copy of submittals.

H. Construction progress schedules.

I. Proposed products list.

J. Design data.

K. Test reports.

L. Certificates.

M. Manufacturer's instructions.

N. Manufacturer's field reports.

O. Erection drawings.

1.2 SUBMITTAL PROCESSING

A. To expedite the submittal review process, the Construction team shall process submittals electronically in PDF format.

1.3 SUBMITTAL LOGS

A. The design and construction team shall collectively maintain the submittal log through Attolist’s submittal software.

B. It is not required that the contractor maintain a separate submittal log between the subcontractors and contractor.

C. Construction team shall make a reasonable effort to deliver all submittals electronically via attolist. Submittals shall not be delivered by email or FTP.

D. Samples shall be logged in via Attolist, but delivered hardcopy by mail.

1.4 SAMPLES AND COLOR SELECTION

A. All samples/color selections (minimum four (4) sets) shall be delivered by mail or courier to the design team for review.

B. Samples and color selection shall not be reviewed electronically.

C. See separate specification sections for quantities and sample selection process. The design team shall return review comments via Attolist.

1.5 SUBMITTAL TRANSMITTALS

A. Contractor transmittals are not required when the submittal is processed electronically via Attolist. Attolist automatically provides a time-stamped history of all information exchanged via the software.

1.6 SUBMITTAL STAMPS

A. The contractor or construction manager shall affix an electronic stamp to PDF submittals. Submittals with wet stamps which are scanned to PDF are acceptable.

B. Electronic stamps can be added to PDF submittals via Attolist's PDF software.

1.7 RECORD COPY OF SUBMITTALS

A. At project completing, the Contractor shall provide one (1) 'hard' copy and one (1) electronic copy each of the record submittals to the Owner and Architect inclusive of the Submittal Log.

B. Record copies shall be arranged in accordance to specification section and/or drawings.

1.8 PROPOSED PRODUCTS LIST

A. Within fifteen (15) days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.9 DESIGN DATA

A. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.

B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.10 TEST REPORTS

A. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.

B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.11 CERTIFICATES

A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Architect/Engineer, in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

1.12 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Architect/Engineer for delivery to Owner in quantities specified for Product Data.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.13 MANUFACTURER'S FIELD REPORTS

A. Submit reports for Architect/Engineer's benefit as contract administrator or for Owner.

B. Submit report within fifteen (15) days of observation to Architect/Engineer for information.

C. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.14 ERECTION DRAWINGS

A. Submit drawings for Architect/Engineer's benefit as contract administrator or for Owner.

B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

C. Data indicating inappropriate or unacceptable Work may be subject to action by Architect/ Engineer or Owner.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality control and control of installation.

B. Tolerances.

C. References.

D. Labeling.

E. Mock-up requirements.

F. Testing and inspection services.

G. Manufacturers' field services.

H. Examination.

I. Preparation.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.5 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
   1. Model number.
   2. Serial number.
   3. Performance characteristics.

1.6 MOCK-UP REQUIREMENTS

A. Tests will be performed under provisions identified in this section and identified in respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be comparison standard for remaining Work.

D. Where mock-up has been accepted by Architect/Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so by Architect/Engineer.

1.7 TESTING AND INSPECTION SERVICES

A. Contractor will employ and pay for services of an independent testing agency or laboratory acceptable to Owner to perform specified testing.
   1. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer, specialist and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.

B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by Architect/Engineer and Owner.
   1. Laboratory: Authorized to operate in State of Maryland.
   2. Laboratory Staff: Maintain full time registered Engineer on staff to review services.

3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.

C. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing as required by Architect/Engineer or Owner.

D. Reports will be submitted by independent firm directly to Owner, Architect/Engineer, Contractor, and authority having jurisdiction, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
1. Submit final report indicating correction of Work previously reported as non-compliant.

E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
1. Notify Architect/Engineer and independent firm 24 hours prior to expected time for operations requiring services.
2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.

F. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

G. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent firm on instructions by Architect/Engineer. Payment for re-testing or re-inspection will be charged to Contractor at no cost to the Owner.

H. Agency Responsibilities:
1. Test samples of mixes submitted by Contractor.
2. Provide qualified personnel at site. Cooperate with Architect/Engineer and Contractor in performance of services.
3. Perform specified sampling and testing of products in accordance with specified standards.
4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
5. Promptly notify Architect/Engineer and Contractor of observed irregularities or non-conformance of Work or products.
6. Perform additional tests required by Architect/Engineer.
7. Attend preconstruction meetings and progress meetings.

I. Agency Reports: After each test, promptly submit copies of report to Owner, Architect/ Engineer, Contractor, and authority having jurisdiction. When requested by Architect and Engineer, provide interpretation of test results. Include the following:
1. Date issued.
2. Project title and number.
3. Name of inspector.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Location in Project.
7. Type of inspection or test.
8. Date of test.
9. Results of tests.
10. Conformance with Contract Documents.

J. Limits On Testing Authority:
1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency or laboratory may not approve or accept any portion of the Work.
3. Agency or laboratory may not assume duties of Contractor.

4. Agency or laboratory has no authority to stop the Work.

1.8 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Architect/Engineer thirty (30) days in advance of required observations. Observer subject to approval of Architect/Engineer and Owner.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

D. Refer to Section 01330 - Submittal Procedures, MANUFACTURERS' FIELD REPORTS article.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary Utilities:
1. Temporary electricity.
2. Temporary lighting for construction purposes.
3. Temporary heating.
4. Temporary cooling.
5. Temporary ventilation.
6. Telephone service.
7. Facsimile service.
8. Temporary water service.
9. Temporary sanitary facilities.

B. Construction Facilities:
1. Field offices and sheds.
2. Vehicular access.
3. Parking.
4. Progress cleaning and waste removal.
5. Project identification.
6. Traffic regulation.
7. Fire prevention facilities.

C. Temporary Controls:
1. Barriers.
2. Enclosures and fencing.
3. Security.
4. Water control.
5. Dust control.
6. Erosion and sediment control.
7. Noise control.
8. Pest control.
9. Pollution control.
10. Rodent control.

D. Removal of utilities, facilities, and controls.

1.2 TEMPORARY ELECTRICITY

A. Provide and pay for power service required from utility source as needed for construction operation.

B. Provide temporary electric feeder from electrical service at location as directed by local utility.

C. Power Service Characteristics: 120/208 volt, amperage as required, three phase, four wire.

D. Complement existing power service capacity and characteristics as required for construction operations.

E. Provide power outlets, with branch wiring and distribution boxes located as required for construction operations. Provide flexible power cords as required for portable construction tools and equipment.

F. Provide main service disconnect and over-current protection at convenient location.

G. Permanent convenience receptacles may [not] be utilized during construction.

H. Provide distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.
   1. Provide 20 ampere duplex outlets, single phase circuits for power tools for every 500 sq ft of active work area.
   2. Provide 20 ampere, single phase branch circuits for lighting.

1.3 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain incandescent lighting for construction operations to achieve minimum lighting level of 2 watt/sq ft.

B. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.

C. Provide and maintain 0.25 watt/sq ft incandescent lighting to interior work areas after dark for security purposes.

D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps for specified lighting levels.

E. Maintain lighting and provide routine repairs.

F. Permanent building lighting may not be utilized during construction.

1.4 TEMPORARY HEATING

A. Provide and pay for heating devices and heat as needed to maintain specified conditions for construction operations.

B. Prior to operation of permanent equipment for temporary heating purposes, verify installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

C. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in product sections.

1.5 TEMPORARY COOLING

A. Provide and pay for cooling devices and cooling as needed to maintain specified conditions for construction operations.

B. Prior to operation of permanent equipment for temporary cooling purposes, verify installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

C. Maintain maximum ambient temperature of 80 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.6 TEMPORARY VENTILATION

A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.7 TELEPHONE SERVICE

A. Provide, maintain, and pay for telephone service to field office and Owner's Representative's field office at time of project mobilization.

1.8 FACSIMILE SERVICE

A. Provide, maintain and pay for facsimile service and dedicated telephone line to field office and Owner's Representative's field office at time of project mobilization.

1.9 TEMPORARY WATER SERVICE

A. Provide and pay for suitable quality water service as needed to maintain specified conditions for construction operations. Connect to existing water source. Provide separate metering to determine cost of water used.

B. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

1.10 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of project mobilization.

1.11 VEHICULAR ACCESS

A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of width and load bearing capacity to accommodate unimpeded traffic for construction purposes.

B. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage.

C. Extend and relocate vehicular access as Work progress requires, provide detours as necessary for unimpeded traffic flow.

D. Location as approved by Owner/Architect/Engineer.

E. Provide unimpeded access for emergency vehicles. Maintain 20 feet wide driveways with turning space between and around combustible materials.

F. Provide and maintain access to fire hydrants and control valves free of obstructions.

G. Provide means of removing mud from vehicle wheels before entering streets.

H. Use existing on-site traffic bearing areas for construction traffic.

1.12 PARKING

A. The Contractor will be allowed the use of the eight (8) parking spaces along the east side of the paved parking lot to the north of 120-128 W. Washington Street. The use of other onsite parking by the Contractor is prohibited.

B. When site space is not adequate, provide additional off-site parking.

C. Maintenance:
   1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
   2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

D. Removal, Repair:
   1. Remove temporary materials and construction when permanent paving is usable before at Substantial Completion.
   2. Remove underground work and compacted materials to depth of 2 feet; fill and grade site as specified.
   3. Repair permanent facilities damaged by use, to specified condition.

E. Mud From Site Vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.13 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from site weekly and dispose off-site.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.14 PROJECT IDENTIFICATION

A. Project Identification Sign:
   1. One painted sign, 32 sq ft area, bottom 6 feet above ground.
   2. Content:
      a. Project number, title, logo and name of Owner as indicated on Contract Documents.
      b. Names and titles of authorities.
      c. Names and titles of Architect/Engineer and Consultants.
      d. Name of Prime Contractor.
   3. Graphic Design, Colors, Style of Lettering: Designated by Architect/Engineer.

B. Project Informational Signs:
   1. Painted informational signs of same colors and lettering as Project Identification sign, or standard products; size lettering for legibility at 100 feet distance.
   2. Provide sign at each field office, storage shed, and directional signs to direct traffic into and within site. Relocate as Work progress requires.
   3. Provide municipal traffic agency directional traffic signs to and within site.
   4. No other signs are allowed without Owner permission except those required by law.

C. Design sign and structure to withstand 60 miles/hr wind velocity.

D. Sign Painter: Experienced as professional sign painter for minimum three years.

E. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.

F. Show content, layout, lettering, color, foundation, structure, sizes, and grades of members.

G. Sign Materials:
1. Structure and Framing: New wood structurally adequate.
2. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4 inches thick, standard large sizes to minimize joints.
3. Rough Hardware: Galvanized.
4. Paint and Primers: Exterior quality, two coats; sign background of color as selected.
5. Lettering: Pre-cut vinyl self-adhesive products, white.

H. Installation:
1. Install project identification sign within 15 days after date fixed by Notice to Proceed.
2. Erect at designated location. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.
3. Install sign surface plumb and level, with butt joints. Anchor securely.
4. Paint exposed surfaces of sign, supports, and framing.

I. Maintenance: Maintain signs and supports clean, repair deterioration and damage.

J. Removal: Remove signs, framing, supports, and foundations at completion of Project and restore area.

1.15 TRAFFIC REGULATION

A. Signs, Signals, And Devices:
1. Post Mounted and Wall Mounted Traffic Control and Informational Signs: As approved by authority having jurisdiction.
2. Traffic Cones and Drums, Flares and Lights: As approved by authority having jurisdiction.
3. Flag person Equipment: As required by authority having jurisdiction.

B. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

C. Flares And Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

D. Haul Routes:
1. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.
2. Confine construction traffic to designated haul routes.
3. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

E. Traffic Signs And Signals:
1. Provide signs at approaches to site and on site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
2. Provide, operate, and maintain traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations.
3. Relocate as Work progresses, to maintain effective traffic control.

F. Removal:
   1. Remove equipment and devices when no longer required and prior to at Substantial Completion.
   2. Repair damage caused by installation.
   3. Remove post settings to depth of 2 feet.

1.16 FIRE PREVENTION FACILITIES

A. Prohibit smoking with buildings under construction and demolition. Designate area on site where smoking is permitted. Provide approved ashtrays in designated smoking areas.

B. Establish fire watch for cutting and welding and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

C. Portable Fire Extinguishers: NFPA 10; 10 pound capacity, 4A-60B: C UL rating.
   1. Provide one fire extinguisher at each stair on each floor of buildings under construction and demolition.
   2. Provide minimum one fire extinguisher in every construction trailer and storage shed.
   3. Provide minimum one fire extinguisher on roof during roofing operations using heat producing equipment.

1.17 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and walkways required by authorities having jurisdiction for public rights-of-way.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.18 ENCLOSURES AND FENCING

A. Construction: Commercial grade chain link fence.

B. Provide 8 feet high fence around construction site; equip with vehicular and pedestrian gates with locks. Relocate fence sections and supports as required by Owner or authority having jurisdiction for duration of construction activities.

C. Exterior Enclosures:
   1. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.19 SECURITY

A. Security Program:
   1. Protect Work from theft, vandalism, and unauthorized entry.
   2. Initiate program at project mobilization.
   3. Maintain program throughout construction period until Owner acceptance precludes need for Contractor security.

B. Entry Control:
   1. Restrict entrance of persons and vehicles into Project site and existing facilities.
   2. Allow entrance only to authorized persons with proper identification.
   3. Maintain log of workers and visitors, make available to Owner on request.

C. Restrictions:
   1. Do not allow cameras on site or photographs taken except by written approval of Owner.

1.20 WATER CONTROL

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from erosion.

1.21 DUST CONTROL

A. Execute Work by methods to minimize raising dust from construction operations.

B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

1.22 EROSION AND SEDIMENT CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Minimize surface area of bare soil exposed at one time.

C. Provide temporary measures including berms, dikes, and drains, and other devices to prevent water flow.

D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.23 NOISE CONTROL

A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.24 PEST CONTROL

A. Provide methods, means, and facilities to prevent pests and insects from damaging the Work and entering facility.

1.25 POLLUTION CONTROL

A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

B. Comply with pollution and environmental control requirements of authorities having jurisdiction.

1.26 RODENT CONTROL

A. Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

1.27 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, and prior to Substantial Completion inspection.

B. Remove underground installations to minimum depth of 2 feet or as indicated on Drawings.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to the work of this section.

B. Coordinate Construction IAQ Plan with independent Commissioning Authority's work and schedule.

1.2 RELATED WORK

A. Section 01100 – Summary

B. Section 01351 – Sustainable Project Requirements

C. Section 01810 – Commissioning

1.3 SUMMARY

A. Sections include:
1. References
2. Definitions
3. System description
4. Submittals
5. Quality assurance
6. Low-emitting materials
7. Project conditions
8. Sequence and scheduling
9. System start-up
10. Indoor air quality testing equipment
11. Preparation
12. Indoor air quality
13. Control measures
14. Field quality control

1.4 REFERENCES

A. Other:
1. All publications included by reference in the SUMMARY OF REFERENCED STANDARDS sections and RESOURCES sections of all Credit Sections applicable to this Project, found in the LEED Reference Guide for Green Building Design and Construction, 2009 Edition, along with all errata and addenda released by the US Green Building Council on their website, www.usgbc.org ,on or before 1 MAY 2010.

1.5 DEFINITIONS

A. Volatile Organic Compounds (VOCs): are any carbon compounds that participate in atmospheric photochemical reactions (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonates, and ammonium carbonate).

B. Type A Finishes: Materials and finishes with potential for short-term levels of off-gassing from chemicals inherent in their manufacturing process, or which are applied in form requiring vehicles or carriers for spreading which release high levels of particulate matter in the process of installation and/ or curing. Including, but not limited to:

1. Composite wood products, specifically including particleboard from which millwork, doors, or furniture may be fabricated.
2. Adhesives, sealants, and glazing compounds, specifically those with petrochemical vehicles or carriers.
3. Wood preservatives, finishes, and paint.
4. Control and/ or expansion joint fillers.
5. Hard finishes requiring adhesive installation.
6. Gypsum board and associated finish processes.

C. Type B Finishes: Materials and finishes which are woven, fibrous, or porous in nature and tend to absorb chemicals off-gassed by Type A finishes or may be adversely affected by particulates. These materials become "skins" for deleterious substances which may be released much later, or collectors of contaminants that may promote subsequent bacterial growth. Including, but not limited to:
1. Carpet and padding.
2. Insulation exposed to air stream.
3. Acoustic ceiling materials.
4. Tectum acoustic wall panels.
5. Upholstered furnishings.
6. Materials that can be categorized as both Type A and Type B.

1.6 SYSTEM DESCRIPTION

A. Indoor Air Quality: Minimize air concentrations of certain pollutants in completed project at time of Owner Occupancy. Maximum allowable indoor air concentrations of certain pollutants have been established. Concentrations must be at or below these standards prior to building acceptance.

B. Indoor Air Quality: Indoor occupied spaces of facility shall comply with the following standards:
1. Carbon Monoxide: Not to exceed 9 PPM + no greater than 2 PPM above outdoor levels.
2. Carbon Dioxide: Not to exceed 800 PPM.
3. Airborne Mold and Mildew: Simultaneous indoor and outdoor readings.
4. Maximum Air Concentration Standards: Indoor room air concentration levels, emission rates and qualities of contaminants shall not exceed the following limits at time of substantial completion prior to occupancy of facility and installation of office furniture, occupants, and occupant activities.

MAXIMUM INDOOR AIR CONCENTRATION STANDARDS*

Indoor Contaminants	**Maximum Air Concentration Levels**
Formaldehyde	50 parts per billion
Total Volatile Organic Compounds (TVOC)	500 micrograms per cubic meter
4-Phenylcyclohexene (4-PCH)**	6.5 micrograms per cubic meter
Total Particulates (PM 10)	50 micrograms per cubic meter
Carbon Monoxide (CO)	9 parts per million and no greater than 2 parts per million above outdoor levels

* All levels must be achieved prior to acceptance of the building. The levels do not account for contributions from office furniture, occupants, and occupant activities.

** 4-phenylcyclohexene is an odorous contaminant constituent in carpets with styrene-butadienelatex rubber (SBR).

TLV-TWA Threshold Limit Value – Time Weighted Average

MERV- Minimum Efficiency Reporting Value (for filtration media)

Or current indoor contaminant levels allowed by the LEED 2009 Rating program.

1.7 SUBMITTALS

A. General: Submit in accordance with Section 01330 – Submittal Procedures.

B. Informational Submittals: Submit the following:
   1. A materials log book is required that includes MSDS sheets and additional information on chemical content of selected materials, including Volatile Organic Compounds (VOC) in terms of grams per liter (g/L) highlighted showing compliance with specification requirements. This log book shall be maintained by the contractor throughout the life of the project, shall be updated monthly to include any newly approved products, shall be available at all times to the Owner's Representative, and shall be submitted at the conclusion of construction.
   2. Indoor Air Quality Plan to outline measures to minimize contamination in the building during construction prior to Owner occupancy.
   3. Provide photographs of protected materials, duct sealing and other measures taken at regular intervals throughout the period of construction.
   4. Provide Cut Sheets of filtration media used during construction and installed immediately prior to occupancy highlighting MERV values. MERV values shall comply with the LEED 2009 rating system as noted in the applicable LEED for Schools Reference Guide.
   5. Coordinate and incorporate all work described herein with construction schedules.
   6. Passive Indoor Air Quality Test results.
      Based on results of passive indoor air quality testing, Owner reserves the right to require active indoor air quality testing.

C. Qualification Data: Indoor Air Quality Consultant's qualification data.

D. If required, Active Indoor Air Quality Test results.

1.8 QUALITY ASSURANCE

A. Indoor Air Quality Consultant Qualifications: Owner shall retain services of a recognized independent expert in testing of indoor air quality with access to proper testing equipment, with minimum of five years experience in testing of indoor air quality.

B. Regulatory Requirements: Comply with applicable codes, laws, rules, and regulations of authorities having jurisdiction concerning indoor air quality.

1.9 LOW-EMITTING MATERIALS

A. Adhesives, sealants, and sealant primers shall meet or be within the VOC limits of the LEED 2009 Rating system as noted in the applicable LEED Reference Guide.

B. Paints and coatings shall meet or be within the VOC and chemical component limits of the LEED 2009 Rating system as noted in the applicable LEED Reference Guide.

C. Flooring Systems and adhesives shall meet or be within the limits of the LEED 2009 Rating system as noted in the applicable LEED Reference Guide.

D. Composite Wood- shall meet or be within the limits of the LEED 2009 Rating system as noted in the applicable LEED Reference Guide.

1.10 PROJECT CONDITIONS

A. Environmental Requirements: Comply with requirements of Section 01351 – Sustainable Project Requirements.

1.11 SEQUENCE AND SCHEDULING

A. General: Sequence and schedule work in accordance with other sections as appropriate.

1.12 SYSTEM START UP

A. Starting of Systems: Comply with Sections 01810 – Commissioning.

PART 2 PRODUCTS

2.1 INDOOR AIR QUALITY TESTING EQUIPMENT

A. Passive Testing Equipment: Passive monitoring test kit to measure formaldehyde levels and total VOC levels, list three primary VOCs detected, and identify mold and other particulates collected. Include analysis and written report of tested air.
   1. Acceptable Product: IAQ Test Kit, Air Quality Sciences, Atlanta, GA, 770-933-0638.

B. Active Testing Equipment: As recommended and provided by Air Quality Testing Consultant.

PART 3 EXECUTION

3.1 PREPARATION

A. Indoor Air Quality Plan: Within 30 days of Notice to Proceed, prepare an Indoor Air Quality Plan tailored to the project, to ensure indoor air quality to comply with specified requirements, including but not limited to the following:
   1. Identify Type A and Type B finishes in project.
   2. Schedule and sequence installation of Type A and Type B finishes.
   3. Provide tracking of submittals and MSDS sheets that relate to VOC compliance.
   4. Describe method, rate, and schedule of ventilation during construction operations.
   5. Schedule Indoor Air Quality testing conforming to the requirements of LEED credit EQ3.2 (option 2).
   6. Schedule baseline IAQ testing after construction ends and prior to occupancy, using testing protocols consistent with the U.S. Environmental Protection Agency Compendium of Methods for the Determination of Air Pollutants in Indoor Air and as additionally detailed in the LEED for Schools Reference Guide credit EQ3.2 (option 2). Construction Manager's schedule should include this item in project schedule.

3.2 INDOOR AIR QUALITY

A. General: Schedule and sequence construction and provide ventilation during construction to maximize indoor air quality after occupancy.
   1. Schedule and sequence application of finishes to:
      a. Install Type A Finishes that off-gas significant quantities of deleterious material during curing.
      b. Ensure dissipation of emissions from Type A finishes before installation of Type B Finishes.
      c. Install Type B Finishes (absorptive materials).
      d. Avoid absorption of Type A Finish emissions by Type B Finishes.
      e. All absorptive materials either stored on site or installed shall be protected from moisture throughout the course of construction.
      f. Avoid subsequent release of unwanted substances in indoor spaces and mechanical systems after facility occupancy.

B. Temporary Heating and Ventilating: Comply with Section 01500 – Temporary Facilities and Controls.

3.3 CONTROL MEASURES

A. HVAC PROTECTION: All HVAC equipment shall be protected from collecting not only dust but also odors which can "stick" to porous materials in the system and later be released. Specific HVAC protection requirements generally apply to either the return side, central filtration, or supply side of the system. Identify in the Indoor Air Quality plan the methods to be utilized for HVAC protection.

1. Return Side: The return side of an HVAC system is, by definition, under negative pressure and thus capable of drawing in nearby construction dust and odor. HVAC shall not be used by the Contractor during construction period.
    a. The entire system shall be shut down during all construction activities unless otherwise agreed to by the Owner's Representative and the Commissioning Agent.
    b. The system shall be isolated from the surrounding environment as much as possible (e.g., all tiles in place for a ceiling plenum, duct and air handler leaks repaired) to prevent induction of pollutants.
    c. All return system openings in (or immediately adjacent to) the construction area shall be sealed with plastic.
    d. The mechanical room shall not be used to store construction or waste materials.
2. Central Filtration: Where major dust loading is expected to impact operating HVAC systems, upgrade filter efficiency. For example, filters with 60 to 80% dust spot efficiency may provide increased protection, if minimum airflow can be maintained. Where other control options for construction related odors are not deemed effective, provide filtration with media such as activated charcoal or potassium permanganate.
3. Supply Side: Diffusers, VAV boxes, and ducts may be adequately protected in most cases where the above measures are implemented. When the system is off for the duration of construction, diffusers and window units shall also be sealed in plastic for further protection. Ducts, diffusers, and window units shall be inspected upon completion of the work for the amount of deposited particulate resent and cleaned. If significant dust deposits are observed in the system during construction, some particulate discharge can be expected during start-up. When such a discharge is only minor, delaying occupancy only long enough to clean up the dust. In more severe cases, install temporary coarse filters on diffusers or clean the ducts. The condition of the main filters shall be checked whenever visible particulates are discharged from the system or as directed by the Owner's Representative.
4. Duct Cleaning: Clean the ducts and associated equipment during construction when the system becomes contaminated due to inadequate protection during the construction process. Provide specialized equipment and professional expertise as needed to ensure that dust is effectively removed and contained to the satisfaction of the Owner's Representative and the Commissioning Agent. The sequence in which duct cleaning occurs in the overall construction process needs to be carefully considered to avoid recontamination.

B. SOURCE CONTROL: The most effective type of pollution control is generally at the source. A variety of options are available depending on the type of products and equipment needed for the construction project. When any of the following control options appear to be feasible, costs should be compared to other measures (pathway interruption, intensified housekeeping, and scheduling changes) during the construction project. Although solvent content is often reduced, air quality advantages may be limited (e.g., most paints and adhesives stop significant off-gassing within a few weeks anyway). Product emission data is available from manufacturers and can be stated either as total VOCs or by specific compound. The time period of the testing is important (emissions should be expected to decline). Identify in the Indoor Air Quality plan source control methods to be utilized.

1. Modifying Equipment Operation: Use of equipment may need to be restricted in order to meet IAQ objectives. This will involve changing operating procedures. Examples of such controls include:
    a. Restricting traffic volume or prohibiting idling of motor vehicles where emissions could be drawn into occupied areas.
    b. Switching from diesel to bottled gas for equipment such as generators of forklifts (emissions are cleaner but still potentially harmful under some circumstances). Use of electric forklifts and other equipment shall be considered when feasible, since they do not burn fossil fuels, thus eliminating exposure to combustion gas emissions.
    c. Switching equipment such as chain saws from gasoline-powered to electric (job may take longer due to reduced performance).
    d. Cycling equipment off when not needed.
2. Changing Work Practices:
    a. For some tasks (e.g., paint stripping) provide techniques which produce less airborne dust.
    b. Provide painting techniques, which release less odor.
    c. Provide cleaning practices which raise less dust (see Section 3.03.D.3).
3. Local Exhaust: Pollution sources shall be directly exhausted to the outside. This shall be done through a portable exhaust fan vented to the outside and attached to the work site by flex duct. Depending on the nature of the material and the location of the exhaust, special filtration of the exhaust may or may not be necessary. Any emissions to the outside must be in compliance with applicable regulations and shall be directed well away from intakes.
4. Air cleaning: Where exhaust is not feasible, local recirculation of air through a portable air cleaner shall be provided. The type of filter shall be suitable for the material being controlled (e.g., charcoal or potassium permanganate for many odors, a moderate to high efficiency filter for dust).
5. Cover or Seal: VOC emissions are a result of evaporation from an exposed surface. Reducing the exposed surface reduces emissions. Provide the following measure including but not limited to:
    a. An enclosed tanker or closed/ hooded kettle for roofing.
    b. Containers of wet products shall be kept closed as much as possible.
    c. Waste materials which can release odor or dust shall be covered or sealed.
    d. A surface which is a persistent odor source shall be controlled by applying a sealer.

C. PATHWAY INTERUPTION: Provide methods that prevent and interrupt potential contaminant pathways and air movement from the work site. Identify in the Indoor Air Quality plan major pathways for the project. In the Indoor Air Quality Plan utilize the following five different factors to achieve environmental control:
1. *Depressurize the work area.* This shall be accomplished by adjusting the balance of the HVAC and exhaust systems or installing portable exhaust fans. Construction worker comfort may have to be a secondary consideration when cutting off conditioned air to the work site becomes necessary to help establish negative pressure environment. Some ventilation of the construction space will still be needed to dilute contaminants. This may be provided by air drawn into the work site from adjoining areas. Air exhausted to achieve negative pressure may or may not need to be filtered, depending on the nature of the materials, location of exhaust, and any applicable regulations. Care must be taken not to exhaust air where it can be drawn back into the building. When increasing the amount of air supplied to the space, it is imperative that the HVAC system itself remains protected from construction emissions. As a general rule, the work site shall be exhausted at a rate at least 10% greater than the rate of supply in order to maintain an effective negative pressure.
2. *Pressurize occupied space.* Increasing supply air and or reducing return exhaust air in the building during construction will help exclude airborne dust and odors. While HVAC systems generally shut down at night, consideration shall be given to temporarily extending the fan schedule. Overnight pressurization could help

prevent dust and odor from migrating into the space. When increasing the amount of air supplied to the occupied space, it is imperative that the HVAC system itself remains protected from construction emissions. Any temporary rebalancing during construction should be carefully planned with the Commissioning Agent and executed.

3. *Erect barriers to contain construction area.* Barriers can range from simple dust curtains for jobs generating only minor amounts of nuisance dust to a continuous plastic seal around the site, allowing for only the controlled inflow of make-up air. For non-asbestos projects, the extent of the barrier should be based on the materials involved and the implications of dust and odor escaping from the site. Id such a release is not considered a hazard and can be easily corrected by housekeeping, then a partial barrier or sealing of holes may be sufficient. Where no odor or dust can be tolerated outside the work area, a barrier approaching that required for asbestos projects may be needed. Barriers shall be designed in conjunction with favorable pressure differentials. Pressurization can only be achieved with a real partition between areas with pressure differences. In general, full containment of a work site with barriers, capping of return air ducts, and the application of negative pressure may be needed for spaces undergoing significant construction activities, and requirements shall be as directed by the Owner's Representative.
4. *Relocate pollutant sources.* When project equipment of staging area coincide with critical airflow pathways equipment shall be moved to a more favorable location in regard to air quality. For example, in a roofing job, tar tankers shall be located as far away from intakes as possible. Special care shall be taken to protect mechanical rooms with air handling equipment (e.g., store construction products and waste materials elsewhere).
5. *Temporarily seal the building.* Where construction emissions are occurring on the roof or adjacent to a building, contaminants may be drawn in through the outside air intake or (if the building is under negative pressure) other entries or cracks. If contaminant levels are unacceptable then the Owner's Representative or the Commissioning Agent shall direct the Contractor to seal the intake dampers. Special activities in the building that require outside air for dilution shall be temporarily discontinued. Control of the outside source may also necessitate closing or sealing exterior doors, the top of the elevator shaft, etc.

D. HOUSEKEEPING: As dust accumulates at a construction site, it will become airborne when disturbed by nearby activity. Similarly, spills or excess applications of products containing solvents will increase odors at a construction site. Finally, leaving the work site wet or even just damp for more than a day could result in the growth of mold and bacteria. Attention to site cleaning is, therefore, important to maintaining IAQ during construction. In the Indoor Air Quality Plan utilize these specific actions in regard to controlling contaminants at the work site including but not limited to:

1. Suppressing dust with wetting agents or sweeping compounds.
2. Increasing the cleaning frequency for dust.
3. Switching to a more efficient dust collection method (e.g., a damp rag, wet mop, or vacuum equipped with a high efficiency particulate filter or wet scrubber will discharge less material back into the air than conventional vacuuming, sweeping, or dusting).
4. Ensuring that all surfaces (including higher ledges, behind furniture, and inside mechanical equipment) are kept clean.
5. Removing spills or excess applications of solvent-containing products as soon as possible. Care shall be taken as to the selection of spot removers and cleaning agents (in general, products should be low odor emitters or used after hours with sufficient ventilation).
6. Removing accumulated water and keeping work areas as dry as possible (using dehumidification if necessary).
7. Vacuuming with HEPA filtered vacuum cleaners prevents aerolization of settled dust.
8. Protecting porous materials such as insulation from exposure to moisture (note: items which become wet/ damp will be replaced)

E. SCHEDULING: In the Indoor Air Quality Plan utilize construction sequencing to reduce absorption of VOCs by materials that act as sinks or contaminant sources. Complete application of wet and odor-emitting materials such as paints, sealants, and coatings before installing sink materials such as ceiling tiles, carpets, insulation, gypsum products, and fabric covered furnishings are installed. Materials directly exposed to moisture through precipitation, plumbing leaks, or condensation from HVAC system are susceptible to microbial contamination and shall be replaced at no additional cost to the Owner. Contractor shall conduct activities with a high pollution potential during off hours. For example, if roofing emissions cannot be excluded from the building, the work shall be performed on an evening shift. Similarly, any work which disrupts the HVAC system or introduces odor into the system shall be done during unoccupied hours when possible. Where off-gassing odors are a major concern, work may have to be completed at the beginning of a weekend in order to allow new products time to air out sufficiently. Where occupants cannot be relocated, starting time may need to be delayed until late morning in order to accommodate clean-up of late night construction work.

The above measures assume that construction work is being rescheduled in order to avoid potentially harmful exposure to the general population.

F. At the end of the construction and prior to Owner occupancy, conduct air quality testing in full compliance with the requirements of LEED credit EQ3.2 (option 2).

3.4 FIELD QUALITY CONTROL

A. Indoor Air Quality Testing Conditions: Facility has achieved Substantial Completion except for indoor air quality testing.
   1. Final Cleaning: Completed.
   2. HVAC Systems: Started, tested, balanced, Commissioned, cleaned, construction filters replaced and systems operating normally as specified.
   3. Facility: Not occupied and Owner provided furnishings and equipment not yet installed.

B. BASELINE IAQ TESTING:
   1. HVAC System Verification: To assure compliance with recognized standards for indoor air quality including ASHRAE Standard 62-1999 or latest version, the Owner's independent testing and balancing agency shall verify the performance of each HVAC system including but not limited to space temperature and space humidity uniformity, outside air quantity, filter installation, drain pan operation, and any obvious contamination sources.
   2. Indoor Air Quality Testing: Upon verification of HVAC system operation, the independent Air Quality Testing Consultant shall test levels of indoor air contaminants for compliance with specified requirements.
      a. A Test plan shall be submitted for the approval of the Owner's representative. The plan shall specify procedures, times, instrumentation, and sampling methods that will be employed.
      b. The number of sampling locations will vary depending upon the size of the building. Contaminant levels are to be measured in an area agreed upon by the Contractor and the Owner's Representative.
      c. Collect air samples on three consecutive days during normal school hours (between the hours of 8:00 am and 3:00 pm) with building operating at normal HVAC rates. Average the results of each three-day tests cycle to determine compliance or non-compliance of indoor air quality for each air-handling zone tested.
      d. Sample and record outside air levels of formaldehyde and contaminants at outside air intake of each respective air handling unit simultaneously with indoor tests to establish basis of comparison for these contaminant levels. Indoor testing will be done in the breathing zone; between 4' and 7' from the floor.
      e. Acceptance of respective portions of buildings by the Owner is subject to compliance with specified limits of indoor air quality contaminant levels.

C. Passive Indoor Air Quality Testing: Provide and install Passive Indoor Air Quality Testing Equipment in space to be occupied as directed by Owner's Representative and in accordance with testing equipment manufacturer's recommendations.
   1. Conduct passive test for 7 days with facility operating at specified HVAC rates and conditions.
   2. Include analysis and written report of tested air by testing equipment provider.
   3. If initial test results do not indicate compliance with specified indoor air quality standards, provide additional ventilation and take additional measures as required and accepted by Owner to achieve compliance.
   4. Cost of Subsequent Passive Testing required because of failure to comply with specified standards shall be the responsibility of the Contractor.

D. Active Indoor Air Quality Testing: After results of passive testing have been submitted, Owner retains the right to require active indoor air quality testing by Air Quality Testing Consultant.
   1. Testing: As determined by Owner based on recommendations of Air Quality Testing Consultant.
   2. Cost of Initial Active Testing: By Owner
   3. If initial test results do not indicate compliance with specified indoor air quality standards, provide additional ventilation and take additional measures as required and accepted by Air Quality Testing Consultant to achieve compliance.
   4. Cost of Subsequent Active Testing Required Because of Failure to Comply with Specified Standards: By Contractor.

E. Compliance: Indoor air quality shall conform to paragraph 1.06 above.

F. Test Reports: Prepare test reports showing the results and location of each test, a summary of the HVAC operating conditions, a listing of any discrepancies and recommendations for corrective actions, if required.
   1. Include certification of test equipment calibration with each test report.

G. If any test fails the standard, the Contractor is responsible to ventilate the building with 100% outside air until the building passes both air quality tests and duct inspections. Retesting shall be performed at no additional expense to the Owner.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Products.

B. Product delivery requirements.

C. Product storage and handling requirements.

D. Product options.

E. Product substitution procedures.

F. Equipment electrical characteristics and components.

1.2 PRODUCTS

A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.

C. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect products in accordance with manufacturers' instructions.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

D. For exterior storage of fabricated products, place on sloped supports above ground.

E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.

1.6 PRODUCT SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for Substitutions during bidding period to requirements specified in this section.

B. Architect/Engineer will consider requests for Substitutions only within 15 prior to the Bid Date.

C. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.

D. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

E. A request constitutes a representation that Bidder:
1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
2. Will provide same warranty for Substitution as for specified product.
3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension which may subsequently become apparent.
5. Will reimburse Owner and Architect/Engineer for review or redesign services associated with re-approval by authorities having jurisdiction.

F. Substitutions will **NOT** be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to Contract Documents.

G. Substitution Submittal Procedure:
1. Submit three (3) copies of request for Substitution for consideration. Limit each request to one proposed Substitution. Utilize form attached to the end of this Section.
2. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
3. Architect/Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

2.1 EQUIPMENT ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Include lugs for terminal box.

B. Cord and Plug: Furnish minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

PART 3 EXECUTION

NOT USED

REQUEST FOR SUBSTITUTION

DATE OF REQUEST: _____

PROJECT: **Washington County Administration Complex – First Floor Renovations**
BFM Project No. 14028

CONTRACTOR _____

TELEPHONE NO: _____

FACSIMILE NO: _____

CONTACT: _____

CONTRACT PACKAGE: _____

1. Item for which substitution is being requested:

   _____

2. Reference Specification Section: _____

3. Reference Drawing:_____

4. Reason for Substitution Request:_____

   _____

5. Product Comparison:

   Submit three copies of shop drawing, product data, color samples, utility requirements and certified test results attesting to the proposed product equivalence.

   a. _____ Data substantiating compliance of proposed substitution with contract documents.

   b. _____ Product identification, manufacturer=s name, address and telephone number.

   c. _____ Manufacturer=s literature, warranty.

   d. _____ Full color selection, showing colors Architect may select without additional cost.

   e. _____ Samples

   f. _____ Warranty

   g. _____ References of product use.

   h. _____ Itemized comparison of proposed substitution with product or method specified. Highlight all differences from specified item.

   i. _____ All items listed Section 01600-1.6.

   j. _____ Cover letter stating benefits or equality of substitution and reason for substitution request.

6. If request is being submitted after the receipt of bids, attach price quotations of specified product and substituted products.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures.

B. Final cleaning.

C. Starting of systems.

D. Demonstration and instructions.

E. Testing, adjusting and balancing.

F. Protecting installed construction.

G. Project record documents.

H. Operation and maintenance data.

I. Manual for materials and finishes.

J. Manual for equipment and systems.

K. Spare parts and maintenance products.

L. Product warranties and product bonds.

M. Maintenance service.

1.2 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer's review.

B. Provide submittals to Architect/Engineer required by authorities having jurisdiction.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.

D. Replace filters of operating equipment.

E. Clean debris from roofs, gutters, downspouts, and drainage systems.

F. Clean site; sweep paved areas, rake clean landscaped surfaces.

G. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 STARTING OF SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Owner and Architect/Engineer fourteen (14) calendar days prior to start-up of each item.

C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable manufacturer's representative, Contractors' personnel in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report in accordance with Section 01330 - Submittal Procedures that equipment or system has been properly installed and is functioning correctly.

1.5 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of products to Owner's personnel two (2) weeks prior to date of Substantial Completion.

B. Demonstrate Project equipment by qualified manufacturer's representative who is knowledgeable about the Project.

C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six (6) months.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

E. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

G. Required instruction time for each item of equipment and system is specified in individual sections.

1.6 TESTING, ADJUSTING AND BALANCING

A. Independent firm will perform services specified in Division 15.

B. Reports will be submitted by independent firm to Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with requirements of Contract Documents.

1.7 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

F. Prohibit traffic from landscaped areas.

1.8 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed Shop Drawings, Product Data, and Samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress, not less than weekly.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finish first floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   4. Field changes of dimension and detail.

5. Details not on original Contract drawings.

G. Submit documents to Architect/Engineer with claim for final Application for Payment.

1.9 OPERATION AND MAINTENANCE DATA

A. Submit data bound in 8-1/2 x 11 inch (A4) text pages, three D side ring equal to Avery white “Clear Vue” heavy duty 3” binders with durable plastic covers.

B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, project contract number, name and address of Contractor and Architect and subject matter of binder when multiple binders are required.

C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers on all volumes.
2. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
   a. Significant design criteria.
   b. List of equipment.
   c. Parts list for each component.
   d. Operating instructions.
   e. Maintenance instructions for equipment and systems.
   f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
3. Part 3: Project documents and certificates, including the following:
   a. Shop drawings and product data.
   b. Air and water balance reports and calculations (fire protection, etc.).
   c. Certificates.
   d. Originals of warranties and bonds.

F. Submit one (1) of completed volumes **at mid-point of construction** for Architect/ Engineer review.

G. Submit three (3) sets of revised manuals in final form thirty (30) days prior to Substantial Completion.

1.10 MANUAL FOR MATERIALS AND FINISHES

A. Submit two (2) copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.

B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

C. Submit one copy of completed volumes at mid point of construction days prior to final inspection. Draft copy be reviewed and returned, with Architect/Engineer comments. Revise content of document sets as required prior to final submission.

D. Submit three (3) sets of revised final volumes in final form within thirty (30) days of Substantial Completion.

E. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Include information for re-ordering custom manufactured products.

F. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

G. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.

H. Additional Requirements: As specified in individual product specification sections.

I. Include listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.11 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit two (2) copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.

B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

C. Submit one copy of completed volumes **at mid-point of construction**. Draft copy will be reviewed and returned, with Architect/Engineer comments. Revise content of document sets as required prior to final submission.

D. Submit three (3) sets of revised final volumes in final form within thirty (30) days of Substantial Completion.

E. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.

F. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

G. Include color coded wiring diagrams as installed.

H. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and special operating instructions.

I. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

J. Include servicing and lubrication schedule, and list of lubricants required.

K. Include manufacturer's printed operation and maintenance instructions.

L. Include sequence of operation by controls manufacturer.

M. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

N. Include control diagrams by controls manufacturer as installed.

O. Include Contractor's coordination drawings, with color coded piping diagrams as installed.

P. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

Q. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

R. Include test and balancing reports as specified in Section 01400 - Quality Requirements.

S. Additional Requirements: As specified in individual product specification sections.

T. Include listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

1.12 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.

B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

1.13 PRODUCT WARRANTIES AND PRODUCT BONDS

A. Obtain warranties and bonds executed in triplicate by responsible subcontractors, suppliers, and manufacturers, within ten (10) days after completion of applicable item of work.

B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.

C. Verify documents are in proper form, contain full information, and are notarized.

D. Co-execute submittals when required.

E. Include Table of Contents, directory as described above and assemble in three D side ring binders equal to Avery white “Clear Vue” heavy duty binders with durable plastic cover.

F. Submit prior to final Application for Payment.

G. Time Of Submittals:
1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten (10) days after acceptance.

2. Make other submittals within ten (10) days after Date of Substantial Completion, prior to final Application for Payment.
3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten (10) days after acceptance, listing date of acceptance as beginning of warranty or bond period.

1.14 MAINTENANCE SERVICE

A. Furnish service and maintenance of components indicated in specification sections from date of Substantial Completion.

B. Examine system components at frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.

D. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Owner.

E. Schedule of Maintenance Service
1. Section 14240 – Hydraulic Elevators

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION