Project Specifications

KCATA Paint Booth Improvements

KCATA PROJECT NUMBER: F26-7017-39A

RideKC
Kansas City Area
Transportation Authority

ISSUE DATE: 6/22/2026

BID CLOSE DATE: 07/20/2026 2pm Local Time

OWNER: Kansas City Area Transportation Authority 1200 E. 18th Street Kansas City, Missouri 64108	**PROCUREMENT CONTACT:** Jennifer Webb 1350 E. 17th Street Kansas City, MO 64108 Telephone: 816-346-0368 Email: jwebb@kcata.org
PROJECT MANAGEMENT OFFICE CONTACT: Lesa George Kansas City Area Transportation Authority 1200 E. 18th Street Kansas City, Missouri 64108 Email: lgeorge@kcata.org	**ENGINEER:** Benesch 4551 W 107th Street, Suite 250 Overland Park, KS 66207

Contents

REFERENCED DRAWINGS AND SPECIFICATIONS

The following list of drawings for the project is provided as a reference for the bidder and is part of the bid set:

T-1 Title Sheet

ECA Energy Conservation Analysis

M-1 M-1 Roof Plan – Mechanical & Electrical

M-2 Floor Plan – Mechanical & Electrical

01 GENERAL REQUIREMENTS

05.02 PROJECT

Project Owner: **KANSAS CITY AREA TRANSPORTATION AUTHORITY**

Project Title: **KCATA Paint Booth Improvements**

05.03 PROJECT DESCRIPTION:

The proposed projects generally include:

KCATA Paint Booth Improvements

This work will include the removal and installation of paint booth equipment. The equipment includes exhaust fans, makeup air units located on the roof, controls, and ancillary equipment required to have a fully functional controlled ventilation system. In addition, the scope includes the installation of roof safety rails and parapet crossover stairs on the roof. This scope excludes the installation of door seals.

All work shall conform to these specifications and the specifications issued by the Kansas City Metropolitan Chapter of the American Public Works Association and such modifications as may be required by the KCATA. In case of discrepancy, these specifications shall govern.

This project will be known as: **KCATA Paint Booth Improvements**

The successful bidder shall furnish all necessary labor, materials, equipment, supplies, tools and supervision to accomplish the work called for in the contract in accordance with the plans and documents herein.

The project shall be accomplished under a single Unit Price Contract. Required work is not necessarily limited to the unit price items listed in the bid form. It is the intent of the drawings and specifications that the resulting improvements be fully completed, functional and ready for operation. The cost of work not specifically identified by a bid form unit price shall be included in provided unit price items.

Other than the noted optional switches above, KCATA does not anticipate adding or reducing the scope of work indicated in these bid packages.

05.04 STANDARD SPECIFICATIONS & DRAWINGS

05.04.01 The following standard specifications and drawings are hereby made part of these technical specifications and drawings by reference. All referenced specifications and drawings can be viewed, downloaded and/or ordered through the Kansas City Chapter of the American Public Works Association web site located at kcmetro.apwa.net. Copies of the referenced specifications and drawings can also be made available to any prospective bidder upon request through the KCATA.

05.04.02 Unless otherwise indicated on the plans, the Standard Technical Specifications and Standard Drawings for this Project shall be referenced in the following order. Should a conflict between the Standard Specifications and Standard Drawings arise, the controlling references shall be (in order):

(1) (A) Kansas City Area Transportation Authority Standard Technical Specifications and

Standard Plans and Details shall be the controlling references for all Kansas City Area Transportation Authority owned installations.

(2) (B) Local Jurisdiction's standard construction specifications and standard construction details shall be the controlling references for non-Kansas City Area Transportation Authority owned installations.

(3) The Kansas City Metropolitan Chapter of the American Public Works Association's latest DIVISION III STANDARD DRAWINGS and STANDARD SPECIFICATIONS AND DESIGN CRITERIA unless otherwise indicated on the plans.

(4) The State Department of Transportation's Standard Specifications and Standard Drawings unless otherwise indicated on the plans.

02 PROJECT SPECIAL PROVISIONS

02.01 PROJECT SUMMARY

This Section is included to detail general and special work or programs which may be required. Some of the specifications or statements in this section may also be addressed elsewhere in the Project Manual. Any interpretation of conflicting statements will be adjudicated by the Project Manager.

Bids shall be submitted on the Proposal or Bid Form provided. Each line item shall be bid using the listed units and quantities. It is intended the cost of all work, required to complete the entire project, be included in the Proposal form. All required work not provided a specific bid item shall be included in other bid items.

The Project shall be completed in accordance with the Federal Davis-Bason Act. All field work shall meet current prevailing wage requirement.

02.02 ROLES AND RESPONSIBILITIES

02.02.01 The contractor shall have a minimum of 10 years of experience in the supply and installation of vehicle paint booth equipment, including coordination of this equipment with fire protection systems to assure compliance with NFPA 33.

02.02.03 Any roof modification made as part of this project shall be performed by a professional roofing contractor and in a manner that will not void the existing roof warranty. Schedule work through Delta Innovative Services.

Delta Innovative Services
4141 Fairbanks Ave, Kansas City, KS 66106
(913) 371-7100

02.02.04 The central service facility of KCATA is 24-hour, 7 day a week operation. Bus and other equipment activity are ongoing on the first floor of Building One and around all sides of Building One. The contractor is not allowed to impede or stop operations with coordination and written permission.

Vehicle usage will be limited near the building

The contractor is restricted to limited areas for staging

02.02.05 KCATA reserves the right to retain equipment upon removal. Notify KCATA when equipment has been removed.

02.02.06 The scope related to the DOOR SEALS DETAIL shall be excluded from this project scope. This work has been completed.

02.02.07 KCATA has Facility Maintenance staff that have maintenance duties and responsibilities during construction that will require them to access the second floor throughout construction. Prior to construction

- key personnel will be identified.
- Reason/requirements for access with be discussed and coordinated

- Coordination and typical schedule will be provided
- Noting there will be unexpected entry to the contraction area that may be required coordination at the time of incidence.

02.03 CONSTRUCTION SCHEDULE REQUIREMENTS

02.03.01 Schedule limitations and considerations (if applicable) are identified below.

(1) The construction duration is 170 calendar days.

The contractor is to notify KCATA in writing immediately if any long lead item effects the contracted completion deadline.

02.03.02 Contract completion date shall be adjusted when adverse weather delays exceed the "anticipated adverse weather delay days" as outlined below:

January 10	May 7	September.....5
February..... 8	June 7	October 4
March.....7	July.....5	November.....5
April.....6	August.....5	December.....9

02.03.03 Contractor shall provide monthly schedule and workforce documentation.

(1) Submit certified payroll for all trades including subtractors.

(a) Base wage rate and fringe benefits shall be shown separately.

TECHNICAL SPECIAL PROVISIONS

(1) Technical special provision and technical specifications are provided at the of this section with the following\ title:

KCATA PROJECT #F26-7017-39A
TECHNICAL SPECAL PROVISIONS
Technical Specifications
KCATA Paint Booth Improvements
Benesch Project # 130651.03

02.05 SYSTEM INTEGRATION TESTING PLAN

02.05.01 This section refers to Testing and Balancing, Integration with the fire panel control system and the building management system. Refer to the STANDARD TECHNICAL SPECIFICATIONS for further information if provided.

02.06 EXTENDED WARRANTIES

The Contractor shall be required to secure any extended or special riders to standard warranties that are required to comply with contract documents. See Section 03.10 on Page 32 of the General Provisions for additional Warranty Information.

02.07 ANTICIPATED PERMITS

(1) a. Building Permit
b. Electrical Permit
c. Mechanical Permit

03 GENERAL PROVISIONS

03.01 GENERAL REQUIREMENTS

03.01.01 TRAFFIC CONTROL

(1) Not Applicable

03.01.02 MOBILIZATION/ ADMINISTRATION & MANAGEMENT

(2) Mobilization shall include costs of all work and items necessary to begin the project. These items include but may not be limited to: obtaining KCATA and City required bonds, paying for permits, additional insurance (if required), setting up a construction office, etc. If requested, the Contractor shall submit a breakdown of items included in Mobilization.

(3) Administration & Management shall include costs of all work and items necessary to maintain the project. These items include but may not be limited to: Preparing and updating project schedule, preparation of shop drawing submittals, submittal of weekly payroll records, preparation of monthly payment applications and lien waivers, coordination with other contractors, coordination with utility companies, coordination with the KCATA's Project Management Office, attending progress meetings, etc. If requested, the Contractor shall submit a breakdown of items included in Administration & Management.

03.01.03 USE OF THE SITE AND/OR RIGHT-OF-WAY

(1) The Contractor shall be responsible to directly coordinate their work with KCATA..

(2) Prior to construction, coordinate all streetlighting conflicts with local jurisdiction or utility company.

(3) The Contractor is limited to areas for staging of materials and equipment, parking, temporary office facilities or other purposes as approved by the KCATA or its designated representative.

(4) The Contractor shall:

(a) Coordinate acceptable locations of temporary facilities with the KCATA.

(b) Minimize disturbance of any adjacent KCATA operations. .

(5) Contractor shall restore all temporarily disturbed property, to at least its original condition, following completion of the work.

03.01.04 CONSTRUCTION STAGING

(1) The Contractor shall coordinate all its construction operations with the KCATA. Once initial staging locations have been approved, the Contractor shall not move or otherwise operate outside these limits without first obtaining approval from the KCATA.

(2) Staging areas for loading and unloading of materials also requires pre-approval. Locations of

trash dumpsters and pick-up and drop-off schedules must be coordinated with the KCATA and the City's Traffic Division.

(3) All contractor stockpiling, staging, and employee parking shall be confined to the locations shown on the plans or in the right-of-way. If the Contractor believes that it requires more working room than is provided in the permanent or temporary easement or right-of-way, the Contractor, at their expense, may obtain agreements with property owners for additional temporary access. The Contractor shall be responsible for gaining any temporary access required to complete the work. The Contractor shall provide the property owner and the KCATA with copies of any agreements reached for project access.

END OF SECTION

03.02 CONTRACT CONSIDERATIONS

03.02.01 SCHEDULE OF VALUES

(1) Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor's standard form or electronic media printout will be considered.

(2) Submit Schedule of Values within fifteen (15) calendar days after date of KCATA-Contractor Agreement.

(3) Format: Utilize the Bid Form of this Project Manual. Identify each line item with number and title of the major specification Section. Identify site mobilization including bonds and insurance.

(4) Include in each line item, the amount of Allowances specified in this Section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.

(5) Include separately from within each line item, a direct proportional amount of Contractor's overhead and profit.

(6) Revise schedule to list approved Change Orders, with each Application for Payment.

(7) Include Engineering, material acquisition, and fabrication costs as separate line items if progress payment for these items will be requested.

03.02.02 APPLICATIONS FOR PAYMENT

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

(2) Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

(3) Payment Period: One Month.

(4) When KCATA Project Management Office requires substantiating information, submit data justifying dollar amounts in question within three (3) working days of the request.

(5) Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

(6) Include the following with the application:

(a) Partial Conditional release of liens including all major Subcontractors and vendors. (KCATA Form)

(b) Payroll records for all contractors for previous month. (Contractor standard)

(c) Contractor Subcontractor Utilization Form (KCATA Form)

(d) Affidavits attesting to off-site stored products. (KCATA Form)

1) Requests for payment for material stored off site shall require verification of material be stored in a secure location separate from other projects and other material.

2) Owner verification of the above (at Contractor's expense)

(e) Updated fabrication progress schedules, revised and current.

03.02.03 CHANGE PROCEDURES

(1) The Contractor may submit a Request for Information (RFI) form to request substitutions, clarifications, or changes. The RFI will be reviewed by the KCATA and/or any applicable sub-consultants, and a response will be issued within ten (10) working days.

(2) The KCATA, based upon its needs and preferences, may have established Add or Deduct Alternates for the project. The KCATA reserves the right to add or remove any alternate into or from the original base bid as the case may be.

(3) The KCATA reserves the right to add or delete work from the contract if, in their sole opinion, it is in its best interest. The Contractor agrees to negotiate the desired work in good faith with the KCATA. Upon agreement, Contractor shall complete the work as agreed upon and in accordance with the project specifications.

(4) If the KCATA chooses to remove proposed work items identified by line item in the bid form, the contract shall be deducted by the bid form amount. If field work on that item had begun or materials purchased and delivered, the KCATA and Contractor shall negotiate an appropriate adjustment to the line item cost.

(5) The KCATA or their representative may issue Supplemental Design Instructions (SDI) to request minor changes or provide clarification in the Work not involving an adjustment to Contract Sum/Price or Contract Time

(6) The KCATA may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit a proposal within ten (10) working days.

(7) Construction adjustments requiring time or cost changes to the contract must be processed as follows:

(a) The Contractor may propose changes by submitting a Change Order Request (COR) form to the KCATA, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other Contractors

(b) The KCATA or their representative shall approve the Change Order Request Form (COR) and execute a Construction Change Directive (CCD) form. A complete description of the changes along with backup documentation (if appropriate) shall be

provided. Once the CCD form is signed by authorized KCATA personnel, Contractor may commence with the work. The CCD does not allow for payment of the work.

(c) The CCD's shall be formally incorporated into the contract by preparation and execution of a formal Change Order completed by the KCATA. Once the Change Order is executed, payment will be allowed to the Contractor for the work listed in the CCD.

03.02.03.7.c.1 Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum/Price.

03.02.03.7.c.2 Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

03.02.03.7.c.3 Promptly enter changes in Project Record Documents.

03.02.03.7.c.4 Execution of Change Orders: KCATA will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

03.02.04 DEFECT ASSESSMENT

(1) KCATA or their representative may inspect and evaluate all Work for defect assessment at any time.

(2) Any Work, or portions of the Work, not conforming to specified requirements shall be either repaired or replaced at the discretion of the KCATA or their representative.

(3) If, in the opinion of the KCATA, it is not practical to remove and replace the Work, the KCATA will direct one of the following remedies:

(a) The defective Work may remain, but the unit sum/price will be adjusted to a new sum/price reduced up to 50 percent at the discretion of the KCATA.

(a) The defective Work will be partially repaired according to the instructions of the KCATA, and the unit sum/price will be adjusted to a new sum/price reduced up to 50 percent at the discretion of the KCATA.

(4) The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.

(5) The authority of the KCATA to assess the defect and identify payment adjustment, is final.

03.02.05 ALTERNATES

(1) Submit alternatives identifying the effect on adjacent or related components.

(2) Alternatives quoted on Bid Forms will be reviewed and accepted or rejected at the KCATA or the KCATA designated representative's option. Accepted alternates will be identified in the KCATA-Contractor Agreement.

(3) Coordinate related work and modify surrounding work to integrate the Work of each alternative.

END OF SECTION

03.03 COORDINATION AND MEETINGS

03.03.01 CONTRACTOR'S RESPONSIBILITY

(1) Contractor shall be responsible for coordinating all work with KCATA's representative who will be identified prior to commencement of work.

03.03.02 TIMELY COMPLETION

(1) Contractors shall coordinate the Work with other contractors so that all work once started in a given area will be completed in that area as soon as possible with good workmanship.

03.03.03 COORDINATION AND PROJECT CONDITIONS

(1) Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.

(2) If applicable, coordinate space requirements, supports, and installation of mechanical and electrical Work which are 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.

(3) If applicable, in finished areas, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

(4) Coordinate completion and clean-up of Work for Substantial Completion.

(5) Coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of KCATA's activities and public.

03.03.04 PRECONSTRUCTION MEETING

(1) If requested by the KCATA, KCATA designated representative, or Contractor, a pre-construction conference will be held within fifteen (15) calendar days following receipt of the Notice to Proceed.

(2) Attendance Required: Attendees shall include Contractor, key Subcontractors, KCATA project manager, or their designated representative, and Architect/Engineer.

(3) Agenda will be provided by KCATA Project Management Office (PMO) prior to pre-construction conference. The agenda will include the following items at a minimum:

(a) Designation of personnel representing the parties in Contract, and the KCATA.

(b) Submission of list of Subcontractor's, list of Products, schedule of values, and progress schedule.

(c) Procedures and processing of field decisions, submittals, substitutions, applications

for payments, proposal request, Change Orders, and Contract close-out procedures.

(d) Coordination of Construction Scheduling.

(e) Project special provisions.

(4) The construction layout, construction scheduling as described hereinafter, and other pertinent aspects of the project will be discussed.

(5) Contractor shall record minutes and distribute copies within two (2) working days after meeting to all participants, KCATA PMO, and those affected by decisions made.

03.03.05 SITE MOBILIZATION MEETING

(1) If requested, the KCATA will schedule a meeting at the Project site prior to Contractor occupancy.

(2) Attendance Required: KCATA project manager, Architect/Engineer, Contractor, Contractor's Superintendent, and major Subcontractors.

(3) Agenda:

(a) Use of premises by KCATA and Contractor.

(b) KCATA's requirements.

(c) Construction facilities and controls provided by KCATA.

(d) Temporary utilities provided by KCATA.

(e) Survey and layout.

(f) Safety, security and housekeeping procedures.

(g) Schedules.

(h) Application for payment procedures.

(i) Procedures for testing.

(j) Procedures for maintaining record documents.

(k) Requirements for start-up of equipment.

(l) Inspection and acceptance of equipment put into service during construction period.

(4) Record minutes and distribute copies within two (2) working days after meeting to all participants, KCATA PMO, and those affected by decisions made.

03.03.06 PROGRESS MEETINGS

(1) If the project warrants, and the KCATA or Contractor requests, the Contractor shall

Schedule and administer meetings throughout progress of the Work at intervals acceptable to the KCATA.

(2) Contractor shall make arrangements for meetings, prepare agenda with copies for participants and preside at meetings.

(3) Attendance Required: Job superintendent, major Subcontractors and suppliers, KCATA, Architect/Engineer, as appropriate to agenda topics for each meeting.

(4) Agenda:

(a) Review minutes of previous meetings.

(a) Review of Work progress.

(b) Field observations, problems, and decisions.

(c) Identification of problems which impede planned progress.

(d) Review of submittals schedule and status of submittals.

(e) Review of off-site fabrication and delivery schedules.

(f) Maintenance of progress schedule.

(g) Corrective measures to regain projected schedules.

(h) Planned progress during succeeding work period.

(i) Coordination of projected progress.

(j) Maintenance of quality and work standards.

(k) Effect of proposed changes on progress schedule and coordination.

(l) Other business relating to Work.

(5) Record minutes and distribute copies within two (2) working days after meeting to all participants, KCATA PMO, and those affected by decisions made.

03.03.07 PRE-INSTALLATION MEETING

(1) When required in individual specification sections, convene a pre-installation meeting at the site prior to commencing work of the section.

(2) Require attendance of parties directly affecting, or affected by, work of the specific section.

(3) Notify the KCATA four (4) working days in advance of meeting date.

(4) Prepare agenda and preside at meeting:

(a) Review conditions of installation, preparation and installation procedures.

(b) Review coordination with related work.

(5) Record minutes and distribute copies within two (2) working days after meeting to all participants, KCATA PMO, and those affected by decisions made.

END OF SECTION

03.04 REGULATORY REQUIREMENTS

03.04.01 CODES

(1) In addition to these specifications, the laws, ordinances, and latest amendments thereto at the place of construction shall govern this project and shall include and conform to applicable laws, ordinances, and industry standards including:

ADAAG	Americans With Disabilities Act Accessibility Guidelines
UFAS	Uniform Federal Accessibility Standards
OSHA	Occupational Safety and Health Administration
SMACNA	Sheet Metal and Air-Conditioning Contractors' National Assn.
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers
UL	Underwriters' Laboratories
KCMMB	Kansas City Metro Materials Board
CRSI	Concrete Reinforcing Steel Institute
AISC	American Institute of Steel Construction
NRCA	National Roofing Contractors’ Association.
ASTM	American Society of Testing Materials
AWI	Architectural Woodwork Institute Quality Standards
DWI	Door and Window Institute
ANSI	ANSI/AAMA Industry Standards
FGMA	FGMA Glazing Manual
NFPA	National Fire Protection Association
---	Class "A" Rating for Roofing (unless otherwise noted)
---	Missouri State Health Department
---	Missouri Inspection Bureau
---	National codes adopted by the local jurisdiction with respective local amendments.
1. IBC	International Building Code, Latest Edition.
2. IMC	International Mechanical Code, Latest Edition.
3. IPC	International Plumbing Code, Latest Edition.
4. IEC	International Electrical Code, Latest Edition.
5. IFC	International Fire Code, Latest Edition.
6. NEC	NFPA 70 National Electric Code Latest Edition

(2) Also, any other ordinances, laws, rules, or regulations of the local jurisdiction, or federal, state, or local organizations having jurisdiction over any or all parts of this improvement.

(3) In case of conflict, the KCATA Project Management Office will decide which authority is applicable, and its decision shall be final.

03.04.02 SPECIFICATIONS AND DRAWINGS

(1) These specifications are intended to supplement the contract drawings, and it will not necessarily be the province of these specifications to describe all portions of the project which the drawings are competent to explain. All items and/or work necessary for the completion of the project must be supplied in place even if of such nature that they could have been indicated on the drawing or described in the specification. The decision of the KCATA Project Management Office as to the proper interpretation of the drawings and specifications shall be final.

END OF SECTION

03.05 PROJECT PROCEDURES

03.05.01 SITE VISITATION

(1) Contractor shall visit the site to ensure familiarity with all work to be performed.

(2) Failure of Contractor or their Subcontractors to visit the site shall in no way relieve them of their responsibilities.

03.05.02 AWARD OF CONTRACT AND BEGINNING WORK

(1) Prior to execution of Contract, KCATA and Contractor shall review the following:

(a) Major Subcontractors and materials suppliers

(b) Construction schedule

(c) Unit prices, if any

(d) Clarification of work scope and/or alternates

03.05.03 LAYOUT WORK

(1) Contractor shall verify all grades, lines, levels, and dimensions and establish benchmarks and survey control required for construction.

03.05.04 PROTECTION OF ADJACENT PROPERTY

(1) Contractor shall protect all adjacent property, streets, curbs, fences, and plantings during construction that are not intended to be part of the project.

(2) Any damaged material on adjacent property as mentioned in 02.05.06 shall be replaced or repaired to the KCATA’s satisfaction at the Contractor’s expense.

03.05.05 PROTECTION OF WORK IN PROGRESS

(1) Work in progress shall be properly protected from damage.

(2) Any work in progress that is damaged by other operations shall be repaired or replaced to the KCATA’s satisfaction at the Contractor’s expense.

03.05.06 CONSTRUCTION LIMITS

(1) All construction activities must be limited within the designated construction limits as shown on the plans. If construction limits are not designated in the plans, the Contractor shall limit construction activities to within public right of way.

03.05.07 ALTERATION PROJECT PROCEDURES

(1) Materials: As specified in Product sections; match existing Products and work for patching

and extending work.

(2) Employ skilled and experienced installer to perform alteration work.

END OF SECTION

03.06 SUBMITTALS

03.06.01 REFERENCES

(1) AGC (Associated General Contractors of America) publication "The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry".

03.06.02 SUBMITTAL PROCEDURES

(1) Transmit each submittal from Contractor to the KCATA or the KCATA designated representative. The Contractor shall submit the documents electronically in Portable Document format (PDF) via the Project's ProjectWise account. Coordinate submission of related items.

(2) Hard copy submittals may also be required as directed by the KCATA.

(3) Submittals received from other sources other than Contractor will be returned without action.

(4) Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

(5) Identify Project, Contractor, Subcontractor or supplier, pertinent drawing and detail number, and specification section number, as appropriate.

(6) Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

(7) Schedule submittals to expedite the Project and deliver to the KCATA or the KCATA designated representative at business address identified herein. Coordinate submission of related items.

(8) For each submittal for review, allow fifteen (15) working days excluding delivery time to and from the Contractor.

(9) Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

(10) Provide space for Contractor and Architect/Engineer review stamps.

(11) Revise and resubmit submittals as required; identify all changes made since previous submittal.

(12) When revised for resubmission, identify all changes made since previous submission.

(13) Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

(14) Submittals not required or requested may not be reviewed or processed.

03.06.03 CONSTRUCTION PROGRESS SCHEDULES

(1) Contractor shall prepare construction progress schedule for presentation at preconstruction conference.

(2) Schedule shall be in bar chart format plotting all items of work and material/equipment fabrication/delivery on calendar covering estimated project construction period. Actual progress shall be plotted against estimated progress by solid and dashed lines. Chart shall also indicate estimated and actual per cent of completion at monthly intervals.

(3) Schedule shall account for necessary coordination of the KCATA activities, if applicable.

(4) Submit initial schedule within ten (10) working days after date of KCATA-Contractor Agreement established in Notice to Proceed.

(5) Revise and resubmit the initial schedule as requested by the KCATA within five (5) working days of the request being made.

(6) Submit revised schedules with each Application for Payment, identifying changes since previous version.

(a) Submit a computer-generated horizontal bar chart with separate line for each major portion of Work or operation identifying first workday of each week.

(b) Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.

(c) Indicate estimated percentage of completion for each item of Work at each submission.

(d) Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by KCATA and required by Allowances.

03.06.04 PROPOSED PRODUCTS LIST

(1) Within ten (10) working days after date of KCATA-Contractor Agreement, submit list of major products proposed for shop drawing or catalog cut review, with name of manufacturer, trade name, and model number of each product.

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

03.06.05 PRODUCT DATA

(1) Product Data for Review:

(a) Submitted to the KCATA or the KCATA designated representative for review for the limited purpose of checking for conformance with information given and the design

concept expressed in the contract documents.

(b) After review, provide copies and distribute in accordance with Section 03.06.02 SUBMITTAL PROCEDURES for record documents purposes.

(2) Product Data for Information:

(a) Submitted for the KCATA's and/or Architect/Engineer's knowledge.

(3) Product Data for Project Close-out:

(a) Submitted for the KCATA's benefit during and after project completion.

(4) Submit in accordance with Section 03.06.02 SUBMITTAL PROCEDURES.

(5) Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

(6) Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

(7) After review distribute in accordance with Section 03.06.02 SUBMITTAL PROCEDURES and provide copies for record documents purposes.

03.06.06 SHOP DRAWINGS

(1) Shop Drawings for Review:

(a) Submitted to the KCATA or the KCATA designated representative for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

(b) After review, produce copies and distribute in accordance with Section 03.06.02 SUBMITTAL PROCEDURES article above and for record documents purposes.

(2) Shop Drawings for Information:

(a) Submitted for the KCATA's and/or Architect/Engineer's knowledge.

(3) Shop Drawings for Project Close-out:

(a) Submitted for the KCATA's benefit during and after project completion.

(4) Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

(5) After review, reproduce and distribute in accordance with Article on Procedures above and for Record Documents.

(6) Submit in accordance with Section 03.06.02 SUBMITTAL PROCEDURES.

03.06.07 SAMPLES

(1) Samples for Review:

(a) Submitted to the KCATA or the KCATA designated representative for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

(b) After review, produce duplicates and distribute in accordance with Section 03.06.02 SUBMITTAL PROCEDURES and for record documents purposes.

(2) Samples for Information:

(a) Submitted for the KCATA’s and/or Architect/Engineer's knowledge.

(3) Samples for Selection:

(a) Submitted to the KCATA or the KCATA designated representative for aesthetic, color, or finish selection.

(b) Submit samples of finishes from the full range of manufacturers' standard colors, or in custom colors selected if required per specific product specifications, textures, and patterns for KCATA selection.

(c) After review, produce duplicates and distribute in accordance with Section 03.06.02 SUBMITTAL PROCEDURES and for record documents purposes.

(4) Submit samples where noted in individual Specification Sections to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

(5) Include identification on each sample, with full Project information.

(6) Submit the number of samples specified in individual specification sections; one of which will be retained by the KCATA or the KCATA designated representative.

(7) Reviewed samples which may be used in the Work are indicated in individual specification sections.

(8) Samples will not be used for testing purposes unless specifically stated in the specification section.

03.06.08 DESIGN DATA

(1) Submitted for the KCATA’s and/or Architect/Engineer's knowledge.

(2) Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

03.06.09 TEST REPORTS

(1) Submitted for the KCATA's and/or Architect/Engineer's knowledge.

(2) Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

03.06.10 CERTIFICATES

(1) When specified in individual specification sections, submit certification by the manufacturer, installation/application Subcontractor, or the Contractor to the KCATA or the KCATA designated representative, in quantities specified for Product Data.

(2) Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

(3) Certificates may be recent or previous test results on material or Product but must be acceptable to the KCATA or the KCATA designated representative.

03.06.11 MANUFACTURER'S INSTRUCTIONS

(1) When specified in individual specification sections, submit instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to KCATA in quantities specified for Product Data.

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

(3) Identify conflicts between manufacturers' instructions and Contract Documents.

END OF SECTION

03.07 SAFETY PLAN

03.07.01 GENERAL REQUIREMENTS

(1) The Contractor shall prepare a construction safety plan which shall be present on site at all times. This plan shall identify hazards and what measures will be taken to protect workers and the public. In addition, a safety officer will be designated by the Contractor. This safety officer will be responsible for enforcing the safety plan. The safety officer shall notify the KCATA Project Manager when modifications to the safety plan are made.

END OF SECTION

03.08 QUALITY CONTROL

03.08.01 QUALITY ASSURANCE – CONTROL OF INSTALLATION

(1) Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

(2) Comply with manufacturers' instructions, including each step, in sequence.

(3) Should manufacturers' instructions conflict with Contract Documents, request clarification from the KCATA or the KCATA designated representative before proceeding.

(4) 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.

(5) Perform Work by persons qualified to produce required and specified quality.

(6) Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

(7) Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

03.08.02 TOLERANCES

(1) Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.

(2) Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from the KCATA or the KCATA designated representative before proceeding.

(3) Adjust Products to appropriate dimensions; position before securing Products in place.

03.08.03 REFERENCES AND STANDARDS

(1) For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

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

(3) Obtain copies of standards where required by product specification sections.

(4) Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the KCATA or the KCATA designated representative shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

03.08.04 MOCK-UPS AND FIELD SAMPLES

(1) Tests will be performed under provisions identified in this section and identified in the respective product specification sections.

(2) Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

(3) Acceptable samples represent a quality level for the Work.

(4) Install field samples at the site as required by individual specifications Sections for review.

(5) Where mock-up has been accepted by the KCATA or the KCATA designated representative and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

03.08.05 TESTING SERVICES

(1) Testing and source quality control may occur on or off the project site. Perform off-site testing as required by any applicable building codes and/or manufacturer's recommendations.

03.08.06 INSPECTION SERVICES

(1) Inspections may occur on or off the project site. Perform off-site inspecting as required by any applicable codes and/or manufacturer's recommendations.

03.08.07 MANUFACTURER'S FIELD SERVICES

(1) 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 otherwise applicable, and to initiate instructions when necessary.

(2) Submit qualifications of observer to the KCATA or the KCATA designated representative seven (7) calendar days in advance of required observations. Observer subject to approval of the KCATA or the KCATA designated representative.

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

(4) Submit report in accordance with Section 03.06.02 SUBMITTAL PROCEDURESwithin five (5) calendar days of observation to the KCATA or the KCATA designated representative for review.

03.08.08 EXAMINATION

(1) Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

(2) Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.

(3) Examine and verify specific conditions described in individual specification sections.

(4) Verify that utility services are available, of the correct characteristics, and in the correct locations.

03.08.09 PREPARATION

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

END OF SECTION

03.09 MATERIAL AND EQUIPMENT

03.09.01 PRODUCTS

(1) Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

(2) Provide interchangeable components of the same manufacture for components being replaced.

03.09.02 TRANSPORTATION AND HANDLING

(1) Transport and handle Products in accordance with manufacturer's instructions.

(2) Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.

(3) Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

(4) Protect finished surfaces including jambs and soffits of openings used as passageways through which equipment and materials are handled.

(5) Maintain finished surfaces clean, unmarred, and suitably protected until accepted by KCATA.

(6) Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

03.09.03 STORAGE AND PROTECTION

(1) Store and protect Products in accordance with manufacturers' instructions.

(2) Store with seals and labels intact and legible.

(3) Store sensitive Products in weather tight, climate controlled, enclosures in an environment favorable to Product.

(4) Deliver products to job site in manufacturers' original container with labels intact and legible.

(5) Promptly remove damaged material and unsuitable items from job site and promptly replace with material meeting the specified requirements at no additional cost to KCATA.

(6) Maintain packaged materials with seals unbroken and labels intact until time of use.

(7) The KCATA or the KCATA designated representative may reject as non-complying such material and products that do not bear identification satisfactory to the KCATA or the KCATA designated representative as to manufacturer, grade, quality, and other pertinent information.

(8) For exterior storage of fabricated Products, place on sloped supports above ground.

(9) Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

(10) Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.

(11) Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

(12) Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

(13) Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

(14) In event of damage, promptly make replacements and repairs to the KCATA or the KCATA designated representative's approval at no additional cost to KCATA.

(15) Additional time required to secure replacements and to make repairs will not be considered by KCATA to justify an extension on the Contract Time and Completion.

03.09.04 PRODUCT OPTIONS

(1) Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

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

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

03.09.05 SUBSTITUTIONS

(1) Instructions to Bidders specify time restrictions for submitting requests for Substitutions during the bidding period to requirements specified in this section.

(2) Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

(3) A request constitutes a representation that the Bidder:

(a) Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.

(b) Will provide the same warranty for the Substitution as for the specified Product.

(c) Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to KCATA.

(d) Waives claims for additional costs or time extension which may subsequently become apparent.

(e) Will reimburse the KCATA or the KCATA designated representative for review or redesign services associated with re-approval by authorities.

(4) 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 the Contract Documents.

(5) Substitution Submittal Procedure:

(a) Submit in accordance with Section 03.06.02 SUBMITTAL PROCEDURES a copy of request for Substitution for consideration. Limit each request to one proposed Substitution.

(b) Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.

(c) The KCATA or the KCATA designated representative will notify Contractor in writing of decision to accept or reject request.

END OF SECTION

03.10 PROJECT CLOSEOUT

03.10.01 SUBSTANTIAL COMPLETION AND FINAL PAYMENT

(1) Additional provisions related to Substantial Completion and Final Payment are included in AIA Document A207 Article 9 Payments and Completion, Paragraphs 9.8, 9.9, and 9.10.

(2) All manufacturer's warranties required by the Contract Documents shall commence on the Date of Substantial Completion of Work or designated portions thereof. For work first completed after Substantial Completion, such manufacturing warranties shall commence on the date the Work is accepted unless some other warranty commencement date is specifically referenced elsewhere in the Contract Documents for a specific warranty.

(3) The Contractor and each Subcontractor shall carefully and regularly check their work for conformance as the work is being done. Unsatisfactory work shall be corrected as the work progresses and not be permitted to remain and become a part of the punch list.

(4) Notify the KCATA or the KCATA designated representative in writing when each work element at the site is ready for the punch list inspection. Prepare and submit with the notification a list of items to be corrected or completed.

(a) The KCATA or the KCATA designated representative will make arrangements for their punch list inspection at the earliest possible date.

(5) Transmittal of the punch list to the Contractor shall set the date for reinspection prior to issuance of a Certificate of Substantial Completion. Upon receipt of the punch list, the Contractor shall within seven (7) days advise the KCATA or the KCATA designated representative of any questions that the Contractor or any of their Subcontractors may have concerning the requirements of the punch list.

(6) When advised by the Contractor that the punch list items have been completed, the KCATA or the KCATA designated representative shall conduct a reinspection with the Contractor and any needed Subcontractors where applicable, to determine whether the Certificate of Substantial Completion can be issued.

(a) If, upon the first reinspection, it is found that punch list items are not sufficiently complete that a Certificate of Substantial Completion cannot be issued, the Contractor shall be responsible for the KCATA's costs for additional Professional Services for preparation of a new punch list and any subsequent reinspections and administrative services prior to issuance of the Certificate of Substantial Completion. The KCATA's costs for such additional Professional Services will be charged to the Contractor at the rate of $150.00 per hour, plus applicable reimbursable expenses. Professional Services and expenses will be deducted from project retainage. . If the project does not have retainage, expenses shall be deducted from final payment. Documentation of these expenses will be provided to the Contractor by the KCATA.

(7) When issued, the Certificate of Substantial Completion shall name the date, triggering the beginning of the warranty period, with any items to have a later starting date specifically noted. The Certificate shall also have attached to it the uncompleted punch list items and

shall name the date for their completion.

(8) Acknowledgement of the Date of Substantial Completion by the signature of all parties on the Certificate implies possession of the premises by the KCATA, and completion of incomplete punch list items by the Contractor and the Subcontractors at the KCATA's convenience. The KCATA shall cooperate in permitting the Contractors access to the work for the completion of punch list items.

(9) Upon issue of the Certificate of Substantial Completion, the Contractor may submit the following applications:

(a) Submittal of Final Payment Application. Final Certificate of Payment shall be issued by the KCATA or the KCATA designated representative bringing the total of payments up to the full payment less retainage or less an amount which the KCATA or the KCATA designated representative reasonably estimates would be required to cover more than the cost of any incomplete items of work.

(b) Submittal of Retainage Release Application

(10) Upon written notice by the Contractor that the remaining punch list items are completed, the KCATA or the KCATA designated representative shall verify this by inspection and shall issue to the KCATA a final Certificate of Payment stating that, to the best of their knowledge, information, and belief, the Work has been completed in accordance with the terms and conditions of the Contract Documents, and that the entire balance found to be due the Contractor, and noted in said Final Certificate of Payment, is due and payable. The KCATA shall make payments as stated in the Owner Contractor Agreement.

(11) If, after Substantial Completion, final completion is delayed for more than thirty (30) calendar days through no fault of the KCATA or the KCATA designated representative, the Contractor shall be responsible for the KCATA's costs for additional professional services. During this period, the KCATA or the KCATA designated representative will make only one inspection to verify completion of punch list items. Any additional inspections required, and related administrative services will be considered additional professional services. The KCATA's costs for additional professional services will be charged to the Contractor at the rate of $150.00 per hour, plus applicable reimbursable expenses. Professional Services and expenses will be deducted from project retainage. If the project does not have retainage, expenses shall be deducted from final payment. Documentation of these expenses will be provided to the Contractor by the KCATA.

03.10.02 PROJECT RECORD DOCUMENTS

(1) At least fourteen (14) calendar days prior to the punch list inspection, prepare and submit to the KCATA or the KCATA designated representative one complete set of PDF project drawings, and one PDF complete set of specifications. Documents shall be neatly marked in red to show an accurate "as built" record of construction.

(2) Carefully mark drawings during construction to accurately locate items of construction that will be concealed when the project is completed. Carefully measure and show dimensions of all concealed work including, but not limited to, buried piping, buried or concealed electrical services, utility entrances, cables, conduit and piping.

(a) Accurately show the location of utilities, including capped pipes, by two dimensions, depth below grade, additional valves, drains, cleanouts, changes in conduit routing, changes in wiring, changes in pull or junction boxes, etc., and the changes covered by any Change Orders issued during construction.

(3) Neatly mark specifications to reflect names of manufacturers and products incorporated in the Work.

(4) Final payment will not be made until project record documents are submitted to and approved by the KCATA or the KCATA designated representative.

03.10.03 OPERATIONS AND MAINTENANCE MANUALS

(1) At least fourteen (14) calendar days before the punch list inspection, prepare and submit to the KCATA or the KCATA designated representative two complete sets of information describing the operation and maintenance of all systems, equipment, and finishes provided in this project. Information shall be presented in three ring, loose leaf binders with the words "Operation and Maintenance Manual" and the names and addresses of the Project, Contractor, the KCATA and the KCATA designated representative neatly and permanently marked on the cover.

(2) Information shall be logically organized and subdivided in sections on the basis of operation without regard to construction trades, Subcontractors or specification sections. Each section shall be neatly tabbed and identified for easy reference.

(3) Information required includes, but is not limited to:

(a) Complete list of Subcontractors, noting applicable specification section, item of work, Subcontractor's name, address, telephone number and the name of the person to contact.

(b) Schedule of Values of ongoing maintenance, if required.

(c) Manufacturer's recommendations for operation and maintenance of all equipment and systems including charts, diagrams, performance curves, catalog data and maintenance manuals.

(d) Manufacturer's recommendations for use and maintenance of all finish materials.

(e) Duplicate copies of all warranties, guarantees and bonds.

03.10.04 FINAL CLEANING

(1) General cleaning during construction is required by the General Conditions.

(2) Clean the site of rubbish, litter and other foreign substances caused by construction.

(3) Finished Surfaces: Remove marks, fingerprints and other soil and dirt from painted, glazed, decorated, stained or otherwise finished surfaces, including ceilings. Remove construction dust from horizontal and vertical surfaces. Repaint or refinish as required to restore

surfaces to "as new" quality.

(4) Fixtures and Equipment: Remove stains, paint droppings, spots, dirt, etc., from electrical fixtures, plumbing fixtures, mechanical and electrical equipment, etc.

(5) Concrete and Masonry: Remove paint, stains, dirt and other foreign materials from all exposed surfaces.

(6) Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.

(7) At completion of the work, remove all temporary facilities, trash and debris from the site. Leave the site and building clean, neat, and ready for occupancy.

(8) Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

03.10.05 CONTRACTOR'S AFFIDAVIT AND INDEMNITY

(1) Submit three completed and notarized copies of AIA Form G706 "Contractor's Affidavit of Payment of Debts and Claims" and AIA Form G707 "Consent of Surety Company to Final Payment" with request for Final Payment.

END OF SECTION

03.11 TESTING, INSPECTIONS, PERMITS, & MAINTENANCE BONDS

03.11.01 TESTING

(1) On-site testing shall be provided by the KCATA. KCATA provided testing shall include subgrade & aggregate density tests, concrete sampling and testing, and asphalt compaction testing. Contractor shall be responsible to notify the KCATA, its representative and the designated testing lab when materials are ready for testing, prior to placement of concrete or subsequent materials.

(2) Fabrication-related testing shall be performed by the Contractor. A certified inspector shall perform these tests and shall document the inspection finding daily.

(3) Contractor shall be responsible for all testing necessary to assure concrete and/or asphalt plants, products and materials are in compliance with the specifications, unless specifically identified otherwise.

(4) Contractor shall provide adequate notice when requesting testing. A minimum of 24-hour notice shall be provided. Contractor may request testing services less than 24 hours after notice, however, if the KCATA testing lab is not available, the Contractor shall not proceed with work unless one of the following occurs:

(a) The KCATA project manager determines it is acceptable to proceed without the required testing. In this instance, the KCATA reserves the right to conduct post placement testing and charge the Contractor for any costs in excess of the normal testing charges.

(b) The Contractor obtains another testing lab, acceptable to the KCATA, to conduct testing. In this instance, the Contractor shall be responsible for all costs associated with the testing.

(c) The KCATA shall provide special inspection testing if required.

(5) Subgrade and aggregate base for asphalt and concrete pavement must be proof rolled with a loaded dump truck in addition to density testing as specified. Proof roll truck shall have a minimum rear axle load of 20,000 lbs. for single axel or 40,000 lbs. for tandem axle. Proof rolling must be witnessed by the KCATA, its representative or the designated testing lab. Identified soft spots (areas rutting to a depth of greater than 1” shall be removed, re-compacted and retested prior to Contractor proceeding with pavement placement.

03.11.02 INSPECTIONS

(1) Inspections shall be performed by the KCATA or their representative.

03.11.03 PERMITS

(1) Contractor shall be required to pay for all required permits. All costs (e.g. electrical, excavation, traffic control, etc.) shall be paid for in accordance with Section 05 – Measurement and Payment.

(2) For a list of anticipated permits and special instructions refer to Section 03.07 Anticipated Permits.

03.11.04 MAINTENANCE BOND

(1) Two-year Maintenance Bond required.

03.11.05 SYSTEM INTEGRATION TESTING

(1) The Contractor shall furnish one (1) unit of any specialized test equipment needed to test and/or set up their equipment as required to test the functionality of the installed system and its integration with the KCATA equipment and systems. This equipment shall include all software installed into the equipment and accessories to be delivered complete and ready for operation.

(2) A detailed testing and integration plan is included in Section 03 – "Project Special Provisions". Contractor shall provide all necessary equipment and shall perform the designated tests in accordance with the System Integration Plan.

(3) The Contractor shall notify the KCATA seven (7) calendar days prior to performing the test. The test shall not commence without approval by the KCATA. Contractor shall submit test results to the KCATA. The results submittal shall demonstrate that the functionality of the proposed equipment is directly applicable to the KCATA System.

END OF SECTION

04 TECHNICAL SPECIFICATIONS

04.01 The next page INSERTS the Technical Specifications

04.01.01 Page numbering system will indicate change.

(a) Right footer - specifications name

(b) Left footer - specification number

KCATA Project #F26-7017-39A
Technical Special Provisions

Technical Specifications

KCATA Paint Booth Improvements

Benesch Project # 130651.03

PREPARED FOR

Kansas City Area Transportation Authority
1200 East 18th Street
Kansas City, Missouri 64108

March 31, 2026

Alfred Benesch & Company
4551 W 107th Street, Suite 250
Overland Park, KS 66207
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TECHNICAL SPECIFICATION SECTIONS

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PROJECT SPECIAL CONDITIONS

PSC-1 **ROOF MODIFICATIONS:** All roof modifications made as part of this project shall be performed by a professional roofing contractor and in a manner that will not void any existing warranty on the roof.

PSC-2. -this section is intentially left blank-

PSC-3 **SCOPE OF WORK:** It shall be understood by all parties involved in the project that all requirements in the contract documents shall be considered included in the scope of work, regardless of whether or not they are indicated on the drawings.

PSC-4 **PRIME CONTRACTOR QUALIFICATIONS:** The prime contractor shall select, provide, and oversee installation of all the major new paint booth equipment components included as part of this project, including but not limited to the control panel, make-up air units, and exhaust fans. This contractor shall have a minimum of 10-years of experience in the supply and installation of vehicle paint booth equipment, including coordination of this equipment with fire protection systems to assure compliance with NFPA 33.

END OF PROJECT SPECIAL CONDITIONS

SECTION 02 4119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Demolition and removal of selected portions of building or structure.
   2. Demolition and removal of selected site elements.
   3. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Schedule of selective demolition activities with starting and ending dates for each activity.
B. Predemolition photographs or video.

1.5 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
C. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
D. Hazardous Materials:
   1. If suspected hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Hazardous materials will be removed by Owner under a separate contract.
E. Storage or sale of removed items or materials on-site is not permitted.
F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.
G. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
    a. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    b. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    c. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    d. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain fire watch during and for at least four hours after flame-cutting operations.
5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
6. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.

4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 CLEANING

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
   1. Do not allow demolished materials to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent. **Building elevator is not to be used for transporting equipment, tools, parts, or debris.**

B. Burning: Do not burn demolished materials.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 4119

SECTION 05 5213 – PIPE AND TUBE RAILING SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Permanent roof edge protection.
   1. Deck mount guardrails.

1.2 REFERENCES

A. American Society for Testing of Materials (ASTM):
   1. ASTM A36 - Standard Specification for Carbon Structural Steel.
   2. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
   3. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

B. Occupational Safety and Health Administration (OSHA):
   1. 29 CFR 1910.21 - Scope and Definitions
   2. 29 CFR 1910.28 - Duty to Have Fall Protection
   3. 29 CFR 1910.29 - Walking Working Surfaces
   4. 29 CFR-1910.30 - Training Requirements

1.3 SUBMITTALS

A. Product Data: Manufacturer's data sheets for products and assemblies specified.
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Cleaning methods.

B. Shop Drawings:
   1. Indicate profiles, sizes, connections, size and type of fasteners, accessories.
   2. Show location of rails and guardrails including plans, details of components and anchor details.
   3. Field Verified Measurements: Verify dimensions indicated on Drawings.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards.

B. Store materials in manufacturer's original sealed, labeled packaging until ready for installation and in accordance with manufacturer's instructions. Protect finishes on rails and uprights from damage.

1.5 PROJECT CONDITIONS

A. Maintain environmental conditions, temperature, humidity and ventilation, within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

B. Field Measurements: Where horizontal rails and uprights are indicated to fit to other construction, check actual dimensions or other construction by accurate field measurements prior to ordering and installation; show recorded measurements on final Shop Drawings.

1.6 SEQUENCING AND SCHEDULING

A. Coordinate fabrication and delivery schedule of handrails with construction progress and sequence to avoid delay of railing installation.
   1. Where field measurements cannot be made without delaying the system fabrication and delivery, obtain guaranteed dimensions in writing by the Contractor and proceed with fabrication of products to not delay fabrication, delivery and installation.

1.7 WARRANTY

A. Warranty: Provide manufacturer's standard one year warranty against defects in materials and manufacturing.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   1. Leading Edge Safety, LLC, which is located at: 1345 Taney St.; North Kansas City, MO 64116; Toll Free Tel: 888-990-2990; Fax: 816-472-0822; Email: request info (sales@leadingedgesafety.net); Web: https://leadingedgesafety.net

2.2 DECK MOUNT GUARDRAIL - 20 POUNDS PER FOOT

A. Product: Deck Mount Guardrail as manufactured by Leading Edge Safety.
   1. Permanent fall protection system with a unique design that allows pre-fabricated pipe boots to be used to flash penetrations, unlike traditional deck mount guardrails. Deck Mount uprights allow the use of pre-fabricated pipe flashings that can be installed prior to the horizontal railing. Powder coated steel colors available to match Kynar sheet metal or other building components and RAL colors or hot-dipped galvanized.

B. Components:
   1. Uprights: ASTM A53 schedule 40 steel pipe, 1.25 inch dia, 1.66 inch O.D. x 0.140 inch wall.
   2. Mounting Bracket: ASTM A36 steel plate with pre-punched holes for mounting stud attachment as shown on engineering drawings.
   3. Adjustable Horizontal Sliding Rails: ASTM C1008/1010 steel tube, 1.625 inch dia x 0.065 inch wall, and 1.375 inch dia x 0.065 inch wall.
      a. Spacing: 8 ft on center.
      b. Adjustment: 29 to 42 inches.
   4. Finish: Powder coat.
   5. Colors: Building owner shall approve color choices.
   6. Hardware: 3/8-16 thread x 1 inch long zinc plated steel.
   7. Labels: Applicable safety warnings and manufacturer's contact information.
   8. Sizes: Uprights: Custom designed per project to OSHA Standards and IBC code requirements.
   9. Weight:
      a. Uprights: Approximately 12 lbs.
      b. Horizontal Rails: Approximately 1 lbs per linear ft.
      c. Corners: Approximately 2 lbs.

C. Standards: Meets and exceeds OHSA Standard 29 CFR 1910.29, 29 CFR 1926.501, 29 CFR 1926.502, Cal-OSHA 1620, 1621, 3209, 3210, ICC Building Codes, ANSI/ASSE A1264.1, and USACE EM 381-1-1(21.E.01 a-c)

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Inspect and prepare substrates using the methods recommended by the manufacturer for achieving

best result for the substrates under project conditions. Verify that structural components of the building are securely fastened and capable of withstanding loads applied by the guardrail system.

B. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

C. If preparation is the responsibility of another installer, notify Engineer in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions including the following.

B. Permanent Roof Edge Protection:
1. Set uprights, horizontal rails and corners accurately in location, alignment and elevation, measured from established lines and levels and per installation drawings.
2. Install fasteners as recommended by manufacturer in holes provided on the upright bracket.
3. Inspect final installation and test for capacity in accordance with manufacturer's recommendations.

3.3 PROTECTION

A. Protect installed products until completion of project.

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

END OF SECTION

SECTION 23 0593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Testing, Adjusting, and Balancing of Air Systems:

    a. Constant-volume air systems.
2. Testing, adjusting, and balancing of equipment.
3. HVAC-control system verification.

1.3 DEFINITIONS

A. NEBB: National Environmental Balancing Bureau.

B. TAB: Testing, adjusting, and balancing.

C. TABB: Testing, Adjusting, and Balancing Bureau.

D. TAB Specialist: An independent entity meeting qualifications to perform TAB work.

1.4 PREINSTALLATION MEETINGS

A. TAB Conference: Conduct a TAB conference at Project site after approval of the TAB strategies and procedures plan, to develop a mutual understanding of the details. Provide a minimum of 14 days' advance notice of scheduled meeting time and location.

1. Minimum Agenda Items:

    a. The Contract Documents examination report.
    b. The TAB plan.
    c. Needs for coordination and cooperation of trades and subcontractors.
    d. Proposed procedures for documentation and communication flow.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB specialist and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.

B. Certified TAB reports.

C. Sample report forms.

D. Instrument calibration reports, to include the following:

1. Instrument type and make.
2. Serial number.
3. Application.
4. Dates of use.
5. Dates of calibration.

1.6 QUALITY ASSURANCE

A. TAB Specialists Qualifications, Certified by NEBB:

1. TAB Field Supervisor: Employee of the TAB specialist and certified by NEBB.
2. TAB Technician: Employee of the TAB specialist and certified by NEBB.

B. Instrumentation Type, Quantity, Accuracy, and Calibration: Comply with requirements in ASHRAE 111, Section 4, "Instrumentation."

C. Code and AHJ Compliance: TAB is required to comply with governing codes and requirements of authorities having jurisdiction.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems designs that may preclude proper TAB of systems and equipment.

B. Examine installed systems for balancing devices, such as test ports, gauge cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are applicable for intended purpose and are accessible.

C. Examine the approved submittals for HVAC systems and equipment.

D. Examine equipment performance data, including fan curves.

1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.

E. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.

F. Examine test reports specified in individual system and equipment Sections.

G. Examine HVAC equipment and verify that bearings are greased, belts are aligned and tight, filters are clean, and equipment with functioning controls is ready for operation.

H. Examine operating safety interlocks and controls on HVAC equipment.

I. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

A. Prepare a TAB plan that includes the following:

1. Equipment and systems to be tested.
2. Strategies and step-by-step procedures for balancing the systems.
3. Instrumentation to be used.
4. Sample forms with specific identification for all equipment.

B. Perform system-readiness checks of HVAC systems and equipment to verify system readiness for TAB work. Include, at a minimum, the following:

1. Airside:

a. Verify that leakage and pressure tests on air distribution systems have been satisfactorily completed.
b. Duct systems are complete with terminals installed.
c. Volume, smoke, and fire dampers are open and functional.
d. Clean filters are installed.
e. Fans are operating, free of vibration, and rotating in correct direction.
f. Variable-frequency controllers' startup is complete and safeties are verified.
g. Automatic temperature-control systems are operational.
h. Suitable access to balancing devices and equipment is provided.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system in accordance with the procedures contained in NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and in this Section.

B. Cut insulation, ducts, pipes, and equipment casings for installation of test probes to the minimum extent necessary for TAB procedures.

1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
2. After testing and balancing, patch probe holes in duct or equipment insulation with same material and thickness as used to insulate ducts or equipment.

C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.

D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.4 TESTING, ADJUSTING, AND BALANCING OF HVAC EQUIPMENT

A. Test, adjust, and balance HVAC equipment indicated on Drawings, including, but not limited to, the following:
   1. Fans and ventilators.
   2. Heating-only makeup air units.

3.5 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for fans. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

B. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.

C. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

D. Verify that motor starters are equipped with properly sized thermal protection.

E. Check dampers for proper position to achieve desired airflow path.

F. Check for airflow blockages.

G. Check condensate drains for proper connections and functioning.

H. Check for proper sealing of air-handling-unit components.

3.6 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.

   1. Measure total airflow.

      a. Set outside-air, return-air, and relief-air dampers for proper position that simulates minimum outdoor-air conditions.
      b. Where duct conditions allow, measure airflow by main Pitot-tube traverse. If necessary, perform multiple Pitot-tube traverses close to the fan and prior to any outlets, to obtain total airflow.
      c. Where duct conditions are unsuitable for Pitot-tube traverse measurements, a coil traverse may be acceptable.

   2. Measure fan static pressures as follows:

      a. Measure static pressure directly at the fan outlet or through the flexible connection.
      b. Measure static pressure directly at the fan inlet or through the flexible connection.
      c. Measure static pressure across each component that makes up the air-handling system.
      d. Report artificial loading of filters at the time static pressures are measured.
   3. Obtain approval from Engineer for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in HVAC Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
   4. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors.

B. Verify final system conditions.

1. Re-measure and confirm that total airflow is within design.
2. Re-measure all final fan operating data, speed, volts, amps, and static profile.
3. Mark all final settings.
4. Measure and record all operating data.
5. Record final fan-performance data.

3.7 HVAC CONTROLS VERIFICATION

A. In conjunction with system balancing, perform the following:

1. Verify HVAC control system is operating as intended by operating panel manufacturer.
2. Confirm that the sequences of operation are in compliance with Contract Documents.
3. Verify that controllers are calibrated and function as intended.
4. Verify that controller set points are as indicated.
5. Verify the operation of lockout or interlock systems.
6. Verify the operation of damper actuators.
7. Verify that controlled devices are properly installed and connected to correct controller.
8. Verify that controlled devices travel freely and are in position indicated by controller: open, closed, or modulating.
9. Verify location and installation of sensors to ensure that they sense only intended temperature, humidity, or pressure.

B. Reporting: Include a summary of verifications performed, remaining deficiencies, and variations from indicated conditions.

3.8 TOLERANCES

A. Set HVAC system's airflow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent.

B. Maintaining pressure relationships as designed shall have priority over the tolerances specified above.

3.9 FINAL REPORT

A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.

1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
2. Include a list of instruments used for procedures, along with proof of calibration.
3. Certify validity and accuracy of field data.

B. Final Report Contents: In addition to certified field-report data, include the following:

1. Fan curves.
2. Manufacturers' test data.
3. Field test reports prepared by system and equipment installers.
4. Other information relative to equipment performance; do not include Shop Drawings and Product Data.

C. General Report Data: In addition to form titles and entries, include the following data:

1. Title page.

2. Name and address of the TAB specialist.
3. Project name.
4. Project location.
5. Engineer's name and address.
6. Contractor's name and address.
7. Report date.
8. Signature of TAB supervisor who certifies the report.
9. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
10. Summary of contents, including the following:

    a. Indicated versus final performance.
    b. Notable characteristics of systems.
    c. Description of system operation sequence if it varies from the Contract Documents.

11. Nomenclature sheets for each item of equipment.
12. Notes to explain why certain final data in the body of reports vary from indicated values.
13. Test conditions for fans performance forms, including the following:

    a. Settings for outdoor-, return-, and exhaust-air dampers.
    b. Conditions of filters.
    c. Fan drive settings, including settings and percentage of maximum pitch diameter.
    d. Other system operating conditions that affect performance.

D. System Diagrams: Include schematic layouts of air systems. Present each system with single-line diagram and include the following:

1. Quantities of outdoor, supply, return, and exhaust airflows.
2. Duct, outlet, and inlet sizes.

E. Air-Handling-Unit Test Reports: For air-handling units, include the following:

1. Unit Data:

    a. Unit identification.
    b. Location.
    c. Make and type.
    d. Model number and unit size.
    e. Manufacturer's serial number.
    f. Unit arrangement and class.
    g. Discharge arrangement.
    h. Sheave make, size in inches, and bore.
    i. Center-to-center dimensions of sheave and amount of adjustments in inches.
    j. Number, make, and size of belts.
    k. Number, type, and size of filters.

2. Motor Data:

    a. Motor make, and frame type and size.
    b. Horsepower and speed.
    c. Volts, phase, and hertz.
    d. Full-load amperage and service factor.
    e. Sheave make, size in inches, and bore.
    f. Center-to-center dimensions of sheave and amount of adjustments in inches.

3. Test Data (Indicated and Actual Values):

a. Total airflow rate in cfm.
b. Total system static pressure in inches wg.
c. Fan speed.
d. Inlet and discharge static pressure in inches wg.
e. For each filter bank, filter static-pressure differential in inches wg.
f. Heating-coil static-pressure differential in inches wg.
g. List for each internal component with pressure-drop, static-pressure differential in inches wg.
h. Outdoor airflow in cfm.

F. Fan Test Reports: For supply, return, and exhaust fans, include the following:

1. Fan Data:

a. System identification.
b. Location.
c. Make and type.
d. Model number and size.
e. Manufacturer's serial number.
f. Arrangement and class.
g. Sheave make, size in inches, and bore.
h. Center-to-center dimensions of sheave and amount of adjustments in inches.

2. Motor Data:

a. Motor make, and frame type and size.
b. Horsepower and speed.
c. Volts, phase, and hertz.
d. Full-load amperage and service factor.
e. Sheave make, size in inches, and bore.
f. Center-to-center dimensions of sheave and amount of adjustments in inches.
g. Number, make, and size of belts.

3. Test Data (Indicated and Actual Values):

a. Total airflow rate in cfm.
b. Total system static pressure in inches wg.
c. Fan speed.
d. Discharge static pressure in inches wg.
e. Suction static pressure in inches wg.

G. Instrument Calibration Reports:

1. Report Data:

a. Instrument type and make.
b. Serial number.
c. Application.
d. Dates of use.
e. Dates of calibration.

3.10 VERIFICATION OF TAB REPORT

A. Prepare test and inspection reports.

END OF SECTION 230593

SECTION 23 3413 - AXIAL HVAC FANS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
A. Section Includes:
1. Tubeaxial fans.

1.3 ACTION SUBMITTALS
A. Product Data: For each type of product.
1. Include rated capacities, furnished specialties, and accessories for each fan.
2. Certified fan performance curves with system operating conditions indicated.
3. Motor ratings and electrical characteristics, plus motor and electrical accessories.
4. Fan speed controllers.
B. Shop Drawings:
1. Include plans, elevations, sections, and attachment details.
2. Include diagrams for power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS
A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS
A. Operation and Maintenance Data: For fans, include the following:
1. Operation in normal and emergency modes.
2. Operation and maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS
A. Furnish extra materials that match products installed and that are packaged with protective coverage for storage and identified with labels describing contents.
1. Belts: One set(s) for each belt-driven unit.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
B. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of unit components.

2.2 CAPACITIES AND CHARACTERISTICS
A. See Exhaust Fan Schedule on Engineering Drawings for additional Capacity and Characteristic information.
B. Motor:
1. Motor Enclosure: Open, dripproof.
2. Enclosure Materials: Cast iron or Cast aluminum.
3. Motor Bearings: Double-sealed ball bearings.
4. Efficiency: Premium efficiency.
5. Provide with a variable frequency drive.
C. Spark Resistance:

1. Fan shall feature a continuously welded housing for an airtight seal, and non-sparking cast aluminum propellers.

2.3 TUBEAXIAL FANS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   1. Global Finishing Solutions.
B. Description: Fan wheel and housing, factory-mounted motor with belt drive, an inlet cone section, and accessories.
C. Housings: Steel or Galvanized steel or Aluminum with flanged inlet and outlet connections.
D. Wheel Assemblies: Cast or extruded aluminum with airfoil-shaped blades mounted on cast-iron wheel plate keyed to shaft with solid-steel key.
E. Belt Drives:
   1. Factory mounted, with adjustable alignment and belt tensioning.
   2. Service Factor Based on Fan Motor Size: 1.2.
   3. Fan Shaft: Turned, ground, and polished steel designed to operate at no more than 70 percent of first critical speed at top of fan's speed range.
   4. Fan Pulleys: Cast iron with split, tapered bushing; dynamically balanced at factory.
   5. Belts: Oil resistant, nonsparking, and nonstatic; matched sets for multiple belt drives.
   6. Belt Guards: Fabricate of prime-coated steel to comply with OSHA and SMACNA requirements for motors with exposed drive belt. Include provisions for adjustment of belt tension, lubrication, and use of tachometer with guard in place.
   7. Motor Base: Adjustable rail mount motor base with adjustment screw to set belt tension.
   8. Shaft Bearings: Radial, self-aligning bearings..
      a. Ball-Bearing Rating Life: ABMA 9, L10 of 50,000 hours.
      b. Extend lubrication lines to outside of casing and terminate with grease fittings.

2.4 SOURCE QUALITY CONTROL

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
B. AMCA Compliance:
   1. Comply with AMCA performance requirements and bear the AMCA-Certified Ratings Seal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install axial fans level and plumb.
B. Disassemble and reassemble units, as required for moving to the final location, in accordance with manufacturer's written instructions.
C. Lift and support units with manufacturer's designated lifting or supporting points.
D. Install units with adequate clearances for service and maintenance.

3.2 ELECTRICAL CONNECTIONS

A. Install electrical devices furnished by manufacturer, but not factory mounted, in accordance with NFPA 70 and NECA 1.

3.3 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
B. Perform tests and inspections with the assistance of a factory-authorized service representative.
   1. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.

2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

C. Fans and components will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

3.5 STARTUP SERVICE:

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks in accordance with manufacturer's written instructions.
2. Verify that shipping, blocking, and bracing are removed.
3. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
4. Verify that cleaning and adjusting are complete.
5. For direct-drive fans, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation.
6. For belt-drive fans, disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
7. Adjust belt tension.
8. Adjust damper linkages for proper damper operation.
9. Verify lubrication for bearings and other moving parts.
10. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
11. Disable automatic temperature-control operators, energize motor and confirm proper motor rotation and unit operation, adjust fan to indicated rpm, and measure and record motor voltage and amperage.
12. Shut unit down and reconnect automatic temperature-control operators.
13. Remove and replace malfunctioning units and retest as specified above.

3.6 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Adjust belt tension.

C. Lubricate bearings.

3.7 CLEANING

A. After completing system installation and testing, adjusting, and balancing and after completing startup service, clean fans internally to remove foreign material and construction dirt and dust.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain axial HVAC fans.

END OF SECTION 23 3413

SECTION 23 7423.13 - PACKAGED, DIRECT-FIRED, OUTDOOR, HEATING-ONLY MAKEUP-AIR UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes outdoor, direct, gas-fired heating-only, makeup air units, including the following components:
   1. Casings.
   2. Outdoor-air intake hood.
   3. Fans, drives, and motors.
   4. Air filtration.
   5. Dampers.
   6. Direct, gas-fired burners.
   7. Unit control panel.
   8. Controls.
   9. Accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each outdoor, direct, gas-fired heating-only, makeup air unit.

1.3 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For manufacturer's warranty.
B. Startup service reports.
C. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For direct, gas-fired, heating-only, makeup air units to include in emergency, operation, and maintenance manuals.

1.5 WARRANTY

A. Warranty: Manufacturer agrees to repair or replace components of direct-fired heating and ventilating units that fail in materials or workmanship within specified warranty period.
   1. Warranty Period for Entire Unit: Manufacturer's standard, but not less than one year(s) from date of Substantial Completion.
   2. Warranty Period for Burners: Manufacturer's standard, but not less than five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
B. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of units and components.

2.2 CAPACITIES AND CHARACTERISTICS

A. See Mechanical Schedule for Capacities and Characteristics requirements.

2.3 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. RUPP.

2.4 UNIT CASINGS

A. General Fabrication Requirements for Casings:
   1. Forming: Form walls, roofs, and floors with at least two breaks at each joint.
   2. Casing Joints: Sheet metal screws or pop rivets, factory sealed with water-resistant sealant.
   3. Makeup Air Unit Mounting Frame: Formed galvanized-steel channel or structural channel supports, designed for low deflection, welded with integral lifting lugs.
B. Configuration: Horizontal unit with bottom discharge for roof-mounting installation.
C. Double-Wall Construction:
   1. Outside Casing Wall: Galvanized steel, minimum 18 gauge thick, with manufacturer's standard finish.
   2. Inside Casing Wall:
      a. Inside Casing, Burner Section: Galvanized steel, solid, minimum 16-gauge-thick steel.
      b. Inside Casing, All Other Sections: Galvanized steel solid steel.
   3. Floor Plate: Galvanized steel, minimum 18 gauge thick.
   4. Casing Insulation:
      a. Materials: Glass-fiber blanket or board insulation, Type I or Type II ASTM C1071.
      b. Thermal Break: Provide continuity of insulation with no through-casing metal in casing walls, floors, or roof of unit.
D. Panels and Doors:
   1. Panels:
      a. Fabrication: Formed and reinforced, with same materials and insulation thickness as casing.
      b. Fasteners: Two or more camlock type for panel lift-out operation. Arrangement shall allow panels to be opened against airflow.
      c. Gasket: Neoprene, applied around entire perimeters of panel frames.
      d. Size: Large enough to allow unobstructed access for inspection and maintenance of unit's internal components.
   2. Doors:
      a. Fabrication: Formed and reinforced with same materials and insulation thickness as casing.
      b. Hinges: A minimum of two ball-bearing hinges or stainless steel piano hinge and two wedge-lever-type latches, operable from inside and outside. Arrange doors to be opened against airflow. Provide safety latch retainers on doors so that doors do not open uncontrollably.
      c. Gasket: Neoprene, applied around entire perimeters of panel frames.
      d. Size: Large enough to allow unobstructed access for inspection and maintenance of unit's internal components.
   3. Locations and Applications:
      a. Fan Section: Inspection and access panels.
      b. Access Section: Doors.
      c. Gas-Fired Burner Section: Inspection and access panels.
      d. Damper Section: Inspection and access panels.
      e. Filter Section: Inspection and access panels large enough to allow periodic removal and installation of filters.
      f. Mixing Section: Doors.

2.5 OUTDOOR-AIR INTAKE HOOD

A. Type: Manufacturer's standard hood or louver.
B. Materials: Match cabinet.
C. Provide Bird Screen with Intake Hood.
D. Filter: Aluminum, 2 inches cleanable.
E. Configuration: Designed to inhibit wind-driven rain and snow from entering unit.

2.6 FANS, DRIVES, AND MOTORS

A. Fan and Drive Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum-rated fan speed and motor horsepower.
B. Fans: Centrifugal, rated according to AMCA 210; galvanized steel; mounted on solid-steel shaft.
   1. Shafts: With field-adjustable alignment.
   2. Shaft Bearings: Heavy-duty with a rated life of 100,000 hours according to ABMA 9.

3. Housings: Formed- and reinforced-steel panels to form curved scroll housings with shaped cutoff and spun-metal inlet bell.
4. Mounting: For internal vibration isolation. Factory-mount fans with manufacturer's standard vibration isolation mounting devices having a minimum static deflection of 1 inch.
5. Shaft Lubrication Lines: Extended to a location outside the casing.
6. Flexible Connector: Factory fabricated with a fabric strip minimum 3-1/2 inches wide, attached to two strips of minimum 2-3/4-inch wide by 0.028-inch- thick, galvanized-steel sheet.
    a. Flexible Connector Fabric: Glass fabric, double coated with neoprene. Fabrics, coatings, and adhesives shall comply with UL 181, Class 1.

C. Drives: Factory-mounted V-belt drive, with adjustable alignment and belt tensioning, and with 1.5 service factor based on fan motor.
1. Pulleys: Cast iron or cast steel with split, tapered bushing, dynamically balanced at the factory.
2. Belts: Oil resistant, non-sparking and nonstatic; in matched sets for multiple-belt drives.
3. Belt Guards: Comply with requirements specified by OSHA and fabricate according to SMACNA's "HVAC Duct Construction Standards"; 0.146-inch- thick, 3/4-inch diamond-mesh wire screen, welded to steel angle frame; prime coated.

D. Motors:
1. Motor Sizes: Maximum sizes as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
2. Efficiency: Premium efficient as defined in NEMA MG 1.

2.7 AIR FILTRATION

A. Panel Filters:
1. Disposable 2" filters shall be enclosed in two piece, die cut frame with diagonal supports. Frame shall be constructed of heavy-duty beverage board. Filter media is supported on the air leaving side by a metal grid.

2.8 DAMPERS

A. Balancing Dampers: Balancing dampers shall be installed in the burner profile to maintain a constant velocity across the burner. Dampers shall be type of G-90 galvanized steel mounted on friction-free bearings.

B. Inlet (horizontal units) or Discharge Dampers:
1. Manufacturer shall provide and install on unit, when possible, a two-position, motor operated damper with internal end switch to energize the blower starter circuit when damper is 70% open. Blades shall be a maximum of 6" wide 16 Gauge G-90 galvanized steel to guarantee the absence of noticeable vibration at design air velocities. Damper blades to be mounted on friction free bearings. Jamb seals to be flexible metal, compression type. (Inlet dampers on indoor units; discharge dampers on outdoor units.) Down discharge units (horizontal only) to have Internal Discharge damper and motor mounted in unit.

2.9 DIRECT-FIRED GAS BURNER

A. Description: Factory assembled, piped, and wired; and complying with ANSI Z21.47 and with NFPA 54.

B. CSA Approval: Designed and certified by and bearing label of CSA.

C. Burners: Aluminized steel with stainless-steel inserts or Stainless steel.
1. Rated Minimum Turndown Ratio: 30 to 1.
2. Fuel: Natural gas.
3. Ignition: Electronically controlled electric spark with flame sensor.
4. Gas Control Valve: Modulating.
5. Gas Train: Regulated, redundant, 24-V ac gas valve assembly containing pilot solenoid valve, electronic-modulating temperature control valve, pilot filter, pressure regulator, pilot shutoff, and manual shutoff all in one body.

D. Safety Controls:
1. Gas Manifold: Safety switches and controls complying with ANSI standards.
2. High Limit: Thermal switch or fuse to stop burner.
3. Purge-period timer shall automatically delay burner ignition and bypass low-limit control.

4. Airflow Proving Switch: Differential pressure switch senses correct airflow before energizing pilot.
5. Automatic-Reset, High-Limit Control Device: Stops burner and closes main gas valve if high-limit temperature is exceeded.
6. Safety Lockout Switch: Locks out ignition sequence if burner fails to light after three tries. Controls are reset manually by turning the unit off and on.
7. Control Transformer: 24 V ac.

2.10 CONTROLS

A. Control Requirements:
   1. Unit(s) shall have a Variable Air Volume Control System capable of adjusting the CFM of the make-up air unit down to 50% of the maximum design CFM.
   2. Variable air volume shall be accomplished by use of a variable frequency drive. Unit shall be capable of cfm turndown of 50%, while fast acting automatic damper maintains proper air velocity across the burner. Unit shall include control interface to prevent over firing at lower cfms.
   3. All controls, gas valves, modulating controls and electrical components shall be mounted within the control vestibule. The control vestibule shall be an integral part of the unit and not extend outside the exterior casing of the unit. It shall be complete with hinged access doors and not exposed to the main air stream. The vestibule full size hinged access doors shall have a minimum of two (2) latches. Vestibule doors shall require tooled access and easy access to controls and gas train components.
   4. 401M Discharge Air Temperature Control (Maxitrol Series 14): For building exhaust-air replacement to maintain a constant discharge temperature of supply air. The burner flame modulates to compensate for outdoor temperatures. The manual SUMMER/OFF/WINTER selector switch and exhaust system interlock control the heater blower operation.
   5. Makeup Air Unit's controls shall be capable of interfacing with the Paint Booth Control Panel. At minimum, the Paint Booth Control Panel shall be able to turn the Makeup Air Unit to On/Off, adjust the CFM of the Makeup Air Unit, and set the discharge temperature of the supply air. See Engineer Drawings for additional information about Paint Booth Control Panel.

2.11 MATERIALS

A. Unit Casing shall be 18 Gauge G-90 galvanized steel.
B. Unit floor shall be constructed of 16 Gauge G-90 galvanized steel.
C. The base and floor support channels shall be constructed of 12 Gauge G-90 galvanized steel.
D. Unit doors shall include 20 Gauge G-90 galvanized steel liners.
E. Dampers shall be constructed of G-90 galvanized steel.
F. Blower motor shall have an adjustable mount, made of heavy gauge steel.
G. The burner shall have non-clogging, 4302B stainless steel combustion baffles attached to an aluminum gas supply sections.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine roughing-in for piping, ducts, and electrical systems to verify actual locations of piping and electrical connections before equipment installation.
B. Roof Curb Adapter: Provide new compatible roof curb adapter with Makeup Air Unit. Install Makeup Air Unit on roof curb adapter per manufacturer's specifications.
C. Install gas-fired units according to NFPA 54, "National Fuel Gas Code."
D. Install controls and equipment shipped by manufacturer for field installation with direct-fired heating and ventilating units.

3.2 PIPING CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

1. Gas Piping: Connect gas piping with shutoff valve and union, and with sufficient clearance for burner removal and service. Make final connections of gas piping to unit with corrugated, stainless-steel tubing flexible connectors complying with ANSI LC 1/CSA 6.26 equipment connections.

B. Where installing piping adjacent to heating and ventilating units, allow space for service and maintenance.

3.3 DUCT CONNECTIONS

A. Duct Connections: Connect supply ducts to direct-fired heating and ventilating units with flexible duct connectors.

3.4 ELECTRICAL CONNECTIONS

A. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.

3.5 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections with the assistance of a factory-authorized service representative.
B. Units will be considered defective if they do not pass tests and inspections.
C. Prepare test and inspection reports.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain heating and ventilating units.

END OF SECTION 23 7423.13

END OF TECHNICAL SPECIFICATION SECTION

05 PROJECT MEASUREMENT AND PAYMENT

THE FOLLOWING SCOPE OR BID ITEMS MAY NOT BE INCLUDED IN THE PROPOSAL OR BID FORM. THE ONLY BID ITEMS FOR THIS PROJECT ARE AS INDICATED IN THE BID FORM. THE COST OF ALL WORK NECESSARY TO COMPLETE THE PROJECT AS INDICATED IN THE PLANS AND SPECIFICATIONS SHALL BE INCLUDED IN THE ITEMS LISTED IN THE BID FORM.

05.02 MOBILIZATION

05.02.01 Mobilization shall be considered Lump Sum and paid at the contract unit price as shown on the bid form. Such payment and price shall constitute full compensation for all labor, all bonds, permits, insurance, temporary office, materials, and equipment necessary to complete the item.

05.02.02 Mobilization costs shall be paid as follows: 1st Payment application – 50%, 2nd Payment application – 25%, 3rd Payment application – 25%. If requested, the Contractor shall submit a breakdown of items included in Mobilization.

04.02 ADMINISTRATION AND MANAGEMENT

05.03.01 Administration & Management shall be considered Lump Sum and paid out as a percentage equal to the estimated percent complete of the project. Such payment and price shall constitute full compensation for all labor, materials and equipment necessary to complete the item.

04.03 PROJECT SCOPE OF WORK

05.04.01 All work will be paid as the contract unit price as shown on the bid form. The payment for each item shall be based on percent complete. Such payment and price shall constitute full compensation for all labor, materials and equipment necessary to complete the work scope.