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CONTRACT REQUIREMENTS

PART 1 GENERAL

1.1 SCHEDULE OF VALUES

- A. Submit a printed schedule on Contractor's standard form. Electronic media printout will be considered.
- B. Submit Schedule of Values in duplicate within 20 days after date of Owner-Contractor Agreement.
- C. Revise schedule to list approved Change Orders, with each Application For Payment.

1.2 APPLICATIONS FOR PAYMENT

- A. Submit four copies of each application on Contractor's electronic media driven form.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: 30 days.
- D. Include an updated construction progress schedule.
- E. Certified payroll records.

1.3 CHANGE PROCEDURES

- A. The Architect/Engineer/Designer may issue a Notice of Change that 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.
- B. The Contractor may propose changes by submitting a request for change to the Architect/Engineer/Designer describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, the effect on the Contract Sum/Price and Contract Time, and a statement describing the effect on Work by the MoDOT District or other Contractors.
- C. Stipulated Sum/Price Change Order: Based on Notice of Change and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Architect/Engineer/Designer.
- D. Construction Change Directive: Architect/Engineer/Designer may issue a directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.
- E. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect/Engineer/Designer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
- F. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

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

1.4 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specify requirements.
- B. If, in the opinion of the Architect/Engineer/Designer, it is not practical to remove and replace the Work, the Architect/Engineer/Designer will direct an appropriate remedy or adjust payment.

1.5 ALTERNATIVES

- A. Accepted Alternatives will be identified in Owner-Contractor Agreement.

END OF SECTION

COORDINATION AND MEETING REQUIREMENT

PART 1 GENERAL

1.1 COORDINATION AND PROJECT CONDITIONS

- A. 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.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to and placing in service, such equipment.
- C. 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.
- D. In finished areas, except as otherwise indicated, conceal pipes, ducts and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and clean up of Work of separate sections.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.2 FIELD ENGINEERING

- A. Employ a Land Surveyor registered in the State of Missouri and acceptable to Architect/Engineer/Designer.
- B. Owner will locate and protect survey control and reference points.
- C. Control datum for survey is that established by Owner provided survey.
- D. Verify setbacks and easements; confirm drawing dimensions and elevations.
- E. Provide field engineering services. Establish elevations, lines and levels, utilizing recognized engineering survey practices.

1.3 PRECONSTRUCTION MEETING

- A. Architect/Engineer/Designer will schedule a meeting after Notice of Award.
- B. Attendance Required: District engineer or representative, Architect/Engineer/Designer and Contractor.
- C. Record minutes and distribute copies within 5 days after meeting to participants, with two copies to District Engineer, Architect/Engineer/Designer, participants and those affected by decisions made.

1.4 SITE MOBILIZATION MEETING

- A. Architect/Engineer/Designer will schedule a meeting at the Project site prior to Contractor occupancy.
- B. Architect/Engineer/Designer will record minutes and distributes copies within 5 days after meeting to participants, with two copies to Architect/Engineer/Designer, participants and those affected by decisions made.

1.5 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at when arranged by Architect/Engineer/Designer.
- B. Architect/Engineer/Designer will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, District engineer representative, Architect/Engineer/Designer, as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review of Work progress.
 - 2. Field observations, problems, and decisions.
 - 3. Identification of problems, which impede planned progress.
 - 4. Maintenance of progress schedule.
 - 5. Corrective measures to regain projected schedules.
 - 6. Coordination of projected progress.
 - 7. Effect of proposed changes on progress schedule and coordination.
- E. Record minutes and distributes copies within 5 days after meeting to participants and those affected by decisions made.

1.6 PREINSTALLATION MEETING

- A. When required in individual specification sections, convene a pre-installation meeting at the site prior to commencing work of the section.
- B. Notify Architect/Engineer/Designer seven days in advance of meeting date.
- C. Prepare agenda and preside at meeting:
 - 1. Review conditions of installation, preparation and installation procedures.
 - 2. Review coordination with related work.
- D. Record minutes and distributes copies within 5 days after meeting to participants and those affected by decisions made.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

3.1 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements, which affect:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching to complete Work, and to:
 - 1. Uncover Work to install or correct ill-timed Work.
 - 2. Remove and replace defective and non-conforming Work.
 - 3. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Cut masonry and concrete materials using masonry saw or core drill.

- E. Fit Work tight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- F. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- G. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- H. Identify hazardous substances or conditions exposed during the Work to the Architect/Engineer/Designer for decision or remedy.

3.2 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in Product sections; match existing Products and work for patching and extending work.
- B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- C. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Architect/Engineer/Designer for review.
- D. Patch or replace portions of existing surfaces that are damaged, lifted, discolored or showing other imperfections.
- E. Finish surfaces as specified in individual Product sections.

END OF SECTION

SUBMITTAL REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

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

1.2 SUBMITTAL PROCEDURES

- A. Submit five (5) hard copies of each submittal with Architect/Engineer/Designer accepted form.
- B. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number and specification section number, as appropriate.
- C. 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.
- D. Schedule submittals to expedite the Project, and deliver to Architect/Engineer/Designer at business address. Coordinate submission of related items.
- E. For each submittal for review, allow 15 days excluding delivery time to and from the contractor.
- F. Identify variations from Contract Documents and Product or system limitations, which may be detrimental to successful performance of the completed Work.
- G. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedule in duplicate within 15 days after date established in Notice to Proceed.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a horizontal bar chart with separate line for each major portion of Work or operation, identifying first workday of each week.

1.4 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation and reference standards.

1.5 PRODUCT DATA

- A. Product Data for Review:
 - 1. Submitted to Architect/Engineer/Designer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.
- B. Product Data for Information:
 - 1. Submitted for the Architect/Engineer/Designer's knowledge as contract administrator or for the Owner.

- C. Product Data for Project Closeout:
 - 1. Submitted for the Owner's benefit during and after project completion.
- D. Submit the number of copies, which the Contractor requires, plus two copies that will be retained by the Architect/Engineer/Designer.
- E. Mark each copy to identify applicable products, models, options and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- F. After review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 - CONTRACT CLOSEOUT.

1.6 SHOP DRAWINGS

- A. Shop Drawings for Review:
 - 1. Submit five (5) hard copies to Architect/Engineer/Designer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 2. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.
- B. Shop Drawings for Information:
 - 1. Submitted for the Architect/Engineer/Designer's knowledge as contract administrator or for the Owner.
- C. Shop Drawings For Project Closeout:
 - 1. Submitted for the Owner's benefit during and after project completion.
- D. Indicate special utility and electrical characteristics, utility connection requirements and location of utility outlets for service for functional equipment and appliances.
- E. Submit in the form of one reproducible transparency and one opaque reproduction.

1.7 SAMPLES

- A. Samples for Review:
 - 1. Submitted to Architect/Engineer/Designer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 2. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.
- B. Samples for Information:
 - 1. Submitted for the Architect/Engineer/Designer's knowledge as contract administrator or for the Owner.
- C. Samples for Selection:
 - 1. Submitted to Architect/Engineer/Designer for aesthetic, color, or finish selection.
 - 2. Submit samples of finishes for Architect/Engineer/Designer selection.
 - 3. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.

1.8 DESIGN DATA

- A. Submit for the Architect/Engineer/Designer's knowledge as contract administrator or for the Owner.
- B. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.9 TEST REPORTS

- A. Submit for the Architect/Engineer/Designer's knowledge as contract administrator or for the Owner.
- B. Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.10 CERTIFICATES

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Architect/Engineer/Designer, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product but must be acceptable to Architect/Engineer/Designer.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, and start-up, adjusting and finishing, to Architect/Engineer/Designer for delivery to owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention and special environmental criteria required for application or installation.
- C. Refer to Section 01400 - Quality Control, Manufacturers' Field Services article.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for the Architect/Engineer/Designer's benefit as contract administrator or for the Owner.
- B. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.13 ERECTION DRAWINGS

- A. Submit drawings for the Architect/Engineer/Designer's benefit as contract administrator or for the Owner.
- B. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by the Architect/Engineer/Designer or Owner.

END OF SECTION

QUALITY CONTROL REQUIREMENTS

PART 1 GENERAL

1.1 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer/Designer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.2 TOLERANCES

- A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer/Designer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.3 REFERENCES AND STANDARDS

- A. 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.
- B. Conform to reference standard by date of issue current on date for receiving bids or date specified in the individual specification sections, except where a specific date is established by code.
- C. Neither the contractual relationships, duties or responsibilities of the parties in Contract nor those of the Architect/Engineer/Designer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.4 TESTING SERVICES

- A. Contractor to provide all testing services as called out in these specifications.
- B. Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the Architect/Engineer/Designer or the Owner.
- C. Testing does not relieve Contractor to perform Work to contract requirements.
- D. Re-testing required because of non-conformance to specified requirements shall be performed by the same MoDOT personnel on instructions by the Architect/Engineer/Designer.

1.5 INSPECTION SERVICES

- A. Owner will employ MoDOT Personnel to perform inspection.
- B. Inspecting may occur on or off the project site. Perform off-site inspecting as required by the Architect/Engineer/Designer or the Owner.
- C. Inspecting does not relieve Contractor to perform Work to contract requirements.

1.6 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and the balancing of equipment as applicable and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Refer to Section 01300 - SUBMITTALS, MANUFACTURERS' FIELD REPORTS article.

PART 2 EXECUTION

2.7 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.

2.8 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

CONSTRUCTION FACILITIES AND TEMPORARY CONTROL REQUIREMENTS

PART 1 GENERAL

1.1 TEMPORARY ELECTRICITY

- A. Cost: By Contractor; pay for temporary power service furnished by MoDOT.

1.2 TELEPHONE SERVICE

- A. Provide, maintain, and pay for telephone service to field office and Architect/Engineer/Designer's field office at time of project mobilization.

1.3 FACSIMILE SERVICE

- A. Provide, maintain and pay for facsimile service and a dedicated telephone line to field office and Architect/Engineer/Designer's field office at time of project mobilization.

1.4 TEMPORARY WATER SERVICE

- A. Connect to existing water source as directed for construction operations at time of project mobilization.
- B. Contractor will reimburse Owner for water used in construction as agreed upon at time of project mobilization.

1.5 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

1.6 FENCING

- A. Construction: Use plastic mesh safety fencing or better.
- B. Provide 48" high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.7 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.8 EXTERIOR ENCLOSURES

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

1.9 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.

- C. Provide protective coverings at walls, projections, jambs, sills and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.10 SECURITY

- A. Provide security and facilities to protect Work and existing facilities and Owner's operations from unauthorized entry, vandalism or theft.
- B. Coordinate with Owner's security program.

1.11 ACCESS ROADS

- A. Provide and maintain access to fire hydrants, free of obstructions.
- B. Provide means of removing mud from vehicle wheels before entering streets.
- C. Designated existing on-site roads may be used for construction traffic.

1.12 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris and rubbish from site periodically and dispose off-site.
- E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.13 FIELD OFFICES AND SHEDS

- A. Office: Weather tight, with lighting, electrical outlets, heating and ventilating equipment and equipped with drawing rack and drawing display table.
- B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities and materials prior to Final Application for Payment inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

MATERIAL AND EQUIPMENT REQUIREMENT

PART 1 GENERAL

1.1 PRODUCTS

- A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- B. Provide interchangeable components of the same manufacture for components being replaced.

1.2 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct and products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement or damage.

1.3 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.
- C. Store sensitive Products in weather tight, climate controlled, enclosures in an environment favorable to Product.
- D. For exterior storage of fabricated Products, place on sloped supports above ground.
- E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- F. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.
- G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement or damage.
- I. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

1.4 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description is acceptable.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. 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.

1.5 SUBSTITUTIONS

- A. Architect/Engineer/Designer will consider requests for Substitutions only within 15 days after date established in Notice to Proceed.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the Substitution as for the specified Product.
 - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 - 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.
- E. 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.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 - 2. Submit shop drawings, product data and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
 - 3. The Architect/Engineer/Designer will notify Contractor in writing of decision to accept or reject request.

PART 2

PRODUCTS

Not Used.

PART 3

EXECUTION

Not Used.

END OF SECTION

CONTRACT CLOSEOUT REQUIREMENT

PART 1 GENERAL

1.1 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer/Designer's review.
- B. Provide submittals to Owner that is required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments and sum remaining due.
- D. Owner will occupy portions of the building as specified in Section 01010.
- E. Projects shall not be accepted by MoDOT until the vendor has completed all punch list items. The vendor will then have 30 days to submit all required paperwork necessary to close the project. Failure to submit the required paperwork within 30 days could result in the debarment or suspension of the contractor from future projects.

1.2 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- B. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- C. Clean or replace filters of operating equipment used during construction and/or adjustment.
- D. Clean debris from roofs, gutters, downspouts and drainage systems.
- E. Clean site; sweep paved areas, rake clean landscaped surfaces.
- F. Remove waste and surplus materials, rubbish and construction facilities from the site.

1.3 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.4 PROJECT RECORD DOCUMENTS

- A. Store record documents separate from documents used for construction.
- B. Record information concurrent with construction progress.
- C. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- D. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish main floor datum.

2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 4. Field changes of dimension and detail.
 5. Details not on original Contract drawings.
- E. Submit documents to Architect/Engineer/Designer's with claim for final Application for Payment.
- 1.5 OPERATION AND MAINTENANCE DATA
- A. Submit data bound in 8-1/2 x 11 inch (A4) text pages, three D side ring binders with durable plastic covers.
 - B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project and subject matter of binder when multiple binders are required.
 - C. Internally subdivide the binder contents with permanent page dividers, logically organized; with tab titling clearly printed under reinforced laminated plastic tabs.
 - D. Submit 1 draft copy of completed volumes 15 days prior to final inspection. This copy will be reviewed and returned with Architect/Engineer/Designer comments. Revise content of all document sets as required prior to final submission.
 - E. Submit two sets of revised final volumes, within 10 days after final inspection.
- 1.6 SPARE PARTS AND MAINTENANCE PRODUCTS
- A. Provide spare parts, maintenance, and extra Products in quantities specified individual specification sections.
 - B. Deliver to Project site; obtain receipt prior to final payment.
 - C. Examine system components at a frequency consistent with reliable operation. Clean, adjust and lubricate as required.
 - D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
 - E. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.
- 1.7 WARRANTIES
- A. Execute and assemble transferable warranty documents from Subcontractors, suppliers and manufacturers.
 - B. Submit prior to final Application for Payment.
 - C. For items of Work delayed beyond date of Final Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of the warranty period.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

ALUMINUM SOFFIT PANELS

PART 1 GENERAL

1.1 SUMMARY

- A. Preformed aluminum soffit panels, trim, and accessories for enclosing exterior roof overhangs.

1.2 REFERENCES

- A. AAMA 1402-86 – Aluminum Siding, Soffit, and Fascia.
- B. ASTM B 209 – Aluminum and Aluminum-Alloy Sheet and Plate.
- C. ASTM D 226 – Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
- D. ASTM E 84 – Surface Burning Characteristics of Building Materials.

1.3 PERFORMANCE REQUIREMENTS

- A. Soffits shall be fabricated and installed to withstand positive and negative wind pressure loads in accordance with applicable codes.
- B. Soffit system to accommodate without damage to components or failure of weather barrier movement caused by seasonal temperature cycling and deflection of structural support framing.
- C. Moisture entering or condensation occurring within soffit system shall drain to exterior.

1.4 SUBMITTALS

- A. Provide in accordance with Section 01300:
 - 1. Product data including material descriptions, dimensions, and profiles.
 - 2. Shop drawings showing layout, location of vents, dimensions, penetrations, trim, and installation methods.
 - 3. 4 inch long minimum samples of soffit panel and trim in color selected.
 - 4. Certificates documenting soffit system complies with requirements specified.
 - 5. Manufacturer's installation instructions.
 - 6. Copy of warranty for review by Architect.

1.5 QUALITY ASSURANCE

- A. Manufacturer: Company with a minimum 5 years' successful experience manufacturing aluminum soffit.
- B. Single Source Responsibility: To ensure functional and appearance compatibility, soffit panels and all trim pieces shall be products of single manufacturer.
- C. Aluminum soffit system shall be fabricated and installed to comply with:
 - 1. AAMA 1402-86.
 - 2. International Code Council-ES Legacy – Report No. 97-64.
 - 3. International Conference of Building Officials (ICBO): Report No. 2027.

1.6 PRODUCT HANDLING

- A. Deliver components in manufacturer's protective cartons clearly labeled as to specific products contained.
- B. During delivery and storage keep cartons flat and supported along entire length.
- C. Store material off ground, out of weather, in dry place. Provide ventilation. Protect from falling objects and construction activities.

- D. Handling: Avoid gouging, scratching, and denting.

1.7 WARRANTY

- A. Provide under provisions of section 01700 – Closeout Submittals: Fifty (50) year lifetime limited, non-prorated, transferable warranty.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Fabricate soffit panels and trim from sheet aluminum complying with ASTM B 209, AA3000 Alloy:
- B. Minimum Aluminum Properties:
 - 1. Ultimate Strength: 25 KSI.
 - 2. Yield Strength: 22 KSI.
 - 3. Modulus of Elasticity: 10,000 KSI.
 - 4. Coefficient of Linear Thermal Expansion: 1.31×10^{-5} inch/inch/degree F.
 - 5. Melting Range: 1175 to 1210 degrees F.

2.2 SOFFIT PANELS

- A. Type: Fully vented, hi-tensile, double V-groove soffit panel with installation flanges along both edges.
 - 1. Dimensions: 12 inches exposed width by 144 inches long.
 - 2. Thickness: 0.016 inches.
 - 3. Profile: V-grooves forming three (3) 4-inch wide panels with all panels vented.
 - 4. Net Free Open Area: 11.6 square inches per linear foot.
 - 5. Surface: Smooth.
 - 6. Finish Color: Colors pick by District Facilities Manager.

2.3 TRIM

- A. Provide trim pieces as detailed on manufacturer's installation manual and as required for complete, weathertight, functional installation.
- B. Aluminum Trim: Fabricate from same material as soffit to shape, dimensions, and profile required to accommodate soffit panel and project conditions. Provide with channels to receive panels, flanges for concealed weathertight attachment, and slotted attachment holes. Color shall match or coordinate with soffit color. In order to eliminate or minimize visible joints, form in longest possible lengths with 10 feet being minimum.
 - 1. J-channel: $\frac{1}{2}$ inch wide channel to receive soffit panels with $\frac{1}{2}$ inch attachment flange.
 - 2. Reverse Frieze Molding: F-shaped piece with $\frac{1}{2}$ inch wide channel to receive aluminum soffit panels.
 - 3. Soffit T-Bar: Double channel to receive two soffit panels with exposed face.

2.4 ACCESSORIES

- A. Fasteners: Weather and corrosion resistant nails of type, size, and spacing as recommended by soffit manufacturer.
 - 1. Plain Shank Nails: Use for wood studs, furring, and other framing with minimum lengths of 1-1/2 inches. Allow $\frac{3}{4}$ inch minimum penetration into wood framing.
 - 2. Screw Shank Nails: Use for plywood sheathing.
 - 3. Exposed Nails: Trim nails that match soffit and trim.
- B. Sealants: Silicone type as recommended by soffit manufacturer.

PART 3 EXECUTION

3.1 GENERAL

- A. Prepare substrate and install soffit in accordance with manufacturer's instructions, approved shop drawings, and manufacturer's soffit installation manual.
- B. Coordinate work with provisions and installation of exterior insulation finish system to ensure compatibility and weathertight, neat transition from vertical surface to horizontal soffit panels.

3.2 PREPARATION

- A. Inspection: Verify that soffit support framing is rigid, level, and spacing does not exceed 24 inches. Do not proceed until deficiencies are addressed.

3.3 INSTALLATION

- A. Field Cutting: Accurately measure and cut soffit panels and trim. Use power circular saw with 10-point aluminum cutting blade, duckbill sheet metal snips, or hacksaw as recommended by manufacturer for specific cutting operation.
- B. Trim: Prior to installing soffit panels, locate and anchor perimeter to receive channels.
- C. Soffit Panels:
 - 1. Layout panels as detailed on approved shop drawings. Provide vented panels to provide sufficient ventilation of space above soffit.
 - 2. Insert panel into receiver channel, flex panel, and insert other end into opposing receiver channel. Ensure panels are perpendicular to perimeter and aligned. Fasten panel to supports by nailing through attachment flanges.
 - 3. Overlap, engage, and lock subsequent panels over preceding ones.
 - 4. At corners, miter cut soffit panels and install with soffit T-bar. Align joints and grooves of intersecting panels.
- D. Expansion Joints: Where soffit panel engages receiver channel and where aluminum components butt or adjoin other materials, leave expansion gap:
 - 1. Hot weather with aluminum components partially expanded: 1/16 inch.
 - 2. Cold weather with aluminum components partially contracted: 1/8 inch.
- E. Fastening: Install panels and trim with nails. Where exposed, use trim nails with color to match aluminum components.
 - 1. Drive fasteners straight and level. Do not slant fasteners.
 - 2. Do not drive head of fastener tightly against attachment flange. Allow 1/32 inch clearance between fastener head and aluminum surface.
 - 3. Do not place fastener through face of soffit panel.
 - 4. Spacing: Fasten soffit panels at 24 inches maximum.
- E. Sealants: Apply sealants where indicated on manufacturer's approved shop drawings and as required to provide weathertight installation. Depth of sealant bead shall be ¼ inch minimum.

3.4 CLEANING AND PROTECTION

- A. Clean aluminum soffits and trim. Use detergent as required. Do not use solvents, abrasive, wire brushes, or steel scrapers.
- B. Remove Excess materials and debris from site.
- C. Protect soffit from subsequent construction operations. If damage occurs, remove and replace damaged components to provide installation in original, undamaged condition.

END OF SECTION

GUTTERS AND DOWNSPOUTS

PART 1 GENERAL

1.1 REFERENCES

- A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

1.2 DESIGN REQUIREMENTS

- A. Conform to SMACNA Manual CDA Handbook for sizing components for rainfall intensity determined by a storm occurrence of 1 in 5 years.

1.3 SUBMITTALS FOR REVIEW

- A. Section 01300 - Submittals: Procedures for submittals.
- B. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations and installation details.
- C. Samples: Submit two samples, 12 inches long illustrating component design, finish, color and configuration.

1.4 DELIVERY, STORAGE, AND PROTECTION

- A. Section 01600 - Material and Equipment: Transport, handle, store and protect.
- B. Stack material to prevent twisting, bending or abrasion and to provide ventilation. Slope to drain.
- C. Prevent contact with materials during storage that may cause discoloration, staining or damage.

1.5 PROJECT CONDITIONS

- A. Coordinate the work with downspout discharge pipe inlet.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Pre-Finished Aluminum Sheet: ASTM B209; 0.032 inch thick; plain finish shop pre-coated with acrylic coating; color as selected from manufacturer's standard.

2.2 COMPONENTS

- A. Gutters: SMACNA Square style profile.
- B. Connectors: Furnish required connector pieces for PVC (Polyvinyl Chloride) components.
- C. Anchors and Supports: Profiled to suit gutters and downspouts.
 - 1. Anchoring Devices: Type recommended by fabricator.
 - 2. Gutter Supports: Straps. Spikes and ferrules.
 - 3. Downspout Supports: Straps.
- D. Fasteners: Aluminum. Same material and finish as gutters and downspouts, with soft neoprene washers.

2.3 ACCESSORIES

- A. Splash Pads: Precast concrete type, size and profiles indicated; minimum 3,000 p.s.i. at 28 days, with minimum 5 percent air entrainment.
- B. Downspout Boots: Plastic.

2.4 FABRICATION

- A. Form gutters and downspouts of profiles and size indicated.
- B. Fabricate with required connection pieces.
- C. Form sections square, true and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- D. Hem exposed edges of metal.
- E. Fabricate gutter and downspout accessories; seal watertight.

2.5 FACTORY FINISHING

- A. Modified silicone polyester coating: Baked enamel system conforming to AAMA 603.8.
- B. Primer Coat: Finish concealed side of metal sheets with primer compatible with finish system, as recommended by finish system manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that contact surfaces are ready to receive work.

3.2 PREPARATION

- A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

3.3 INSTALLATION

- A. Install gutters, downspouts and accessories in accordance with manufacturer's instructions.
- B. Slope gutters 1/8 inch per foot .
- C. Connect downspouts to downspout boots or shoes at 8 inches above grade or into storm sewer system. Seal connection watertight.
- D. Set splash pads under downspouts.

END OF SECTION

PRE-ENGINEERED POLE STRUCTURES**PART 1 GENERAL**

The following Pre-Engineered Post Frame Structure specifications are based on requirements of Stockade Buildings other manufacturer's meeting these specifications will be accepted.

Manufacturer Qualifications:

Company specializing in manufacturing and supplying Pre-Engineered Post Frame Buildings specified in this section with three years documented experience.

Design structural components, develop shop drawings, and perform shop work under direct Supervision of a professional Structural Engineer experienced in design of this work and licensed in the State of Missouri.

Laminated Foundation Columns and Footings:

The structural nail laminated foundation columns shall be three members No. 1 or better Southern Pine, Kiln dried to 19% moisture content. Foundation columns shall be pressure treated with a wood preservative to a retention of 0.8 pounds per cubic foot and kiln dried after treating to 19% maximum moisture content. The wood preservative shall be Chromated Copper Arsenate Type III, Oxide type; or equal as listed in Federal Specification TT-W-571J. The preservative shall penetrate 100% of the sapwood. A letter of certification from the wood preserver shall be furnished with certifies the 0.8 pcf preservative retention for a 0 to 0.75" assay zone.

The foundation columns shall be accurately placed and shall extend 4'-0" minimum below grade. The foundation column shall have a ½" diameter x 10" long steel rod, located 3-1/2" up from the base, and extending through all (3) members. Base of column shall be set in a footing of 28 day test verified 3,000 psi compressive strength dry concrete mix, half under and half around to permanently attach the footing and foundation column. The footing shall bear on undisturbed soil. Footing size shall be determined from applied structural loads and 4,000 #/S.F. presumptive soil bearing capacity. After accurate placement of foundation column and specified footing, hole shall be backfilled with dry, debris-free dirt compacted in 8" lifts.

Laminated Upper Columns:

No. 1 or better Southern Pine nail and glue laminated repetitive S4S members of 19% maximum moisture content shall be sized according to dimensions of structure and required structural loads.

Foundation Column to Upper Column Connection:

Structural design shall show, by test or calculation, the foundation column to upper column connection to be adequate for all imposed bending and axial forces.

Splash Boards:

Splashboards are No. 2 or better Southern Pine nominal 2x8 S4S pressure treated to a net retention of 0.4 pounds per cubic foot with MCQ in accordance with American Wood Preservers Association Specification C2.

Eave board:

Sidewall eave boards shall be 2x6 No. 2 Spruce-Pine-Fir or better, and shall be beveled on the top edge at the same degree as the roof slope.

Framing Lumber:

Wall girts shall be 2x6 No. 2 Southern Pine, 19% maximum moisture content spaced approximately 30" o.c., with all ends bearing into wide face of column. Roof purlins shall be recessed between trusses, on edge, and attached to trusses with adequate fasteners. Continuous 2x4 lateral bracing shall be provided as required in truss specification. All other framing lumber shall be standard grade or better unless specified differently on plans. All lumber shall be free of warping, twisting, or splitting.

Specification for Metal Plate Connected Wood Trusses:

1. All lumber used in the design of wood trusses must be cured and graded in accordance with the current grading rules. Design stresses allowed are those listed in the current editions of respective lumber association's grading rules.
2. The design of wood members must be in accordance with the formulas published in the latest edition of the National Design Specification for Wood Construction as revised to current date.
3. Metal connector plates and joint design must conform to specifications as set forth in the 1995 edition of the recommended design practice of the Truss Plate Institute, Inc. Entitled Design Specification for Metal Plate Connected Wood Trusses (TPI-95) as Revised to current date.
4. Truss members and joints must be designed in accordance with TPI-95. All trusses Designs must be accompanied by complete and accurate shop drawings bearing the seal of a Professional or Structural Engineer, registered in the project State, and contains the following information:
 - (a) Slope of depth, span and spacing of the truss.
 - (b) Location of all joints.
 - (c) Bearing width.
 - (d) Design loading to include, as applicable:
 - (1) Top chord live load.
 - (2) Top chord dead load.
 - (3) Bottom chord live load.
 - (4) Bottom chord dead load.
 - (5) Concentrated loads and their points of application.
 - (e) Adjustments to lumber and plate design values to include modification for, as Applicable:
 - (1) Moisture service conditions.
 - (2) Temperature.
 - (3) Preservative treatment.
 - (4) Fire retardant treated wood.
 - (5) Duration of load.
 - (6) Flexure.
 - (7) Shear.
 - (f) Each reaction force.
 - (g) Each axial force (Heel panel axial forces shall not exceed 25,000#)
 - (h) Lateral bracing requirements:
 - (1) Top chord brace (roof purlins) spacing.
 - (2) Bottom chord brace spacing.
 - (3) Web bracing, as applicable.
 - (i) Plate type, thickness or gauge, size; basic plate design value (specifying gross or Net value); and the dimensioned location of each plate except where symmetrically located relative to the joint interface.
 - (j) Lumber size, species, and grade for each member.
5. Design calculations for bending moments shall be available from the designer.

Roofing and Siding Panels:

Central States Manufacturing, Panel-Loc Plus panels or McElroy Metal, Max-Rib/Mesa panels or equal that meets the requirements for strength, paint composition, exterior paint thickness, substrate composition and warranty. The panels shall have a minimum yield strength of 80,000 psi. The paint process is 40-year siliconized polyester or Kynar based (PVDF) finish with a combined primer and topcoat exterior paint finish of at least 1 mil. Substrate shall be Galvalume. Panels shall be fastened with screws, which are compatible to the panels in both life expectancy and environmental stability. All panels will be one piece unless lengths greater than 40 feet are required or the panels must be shortened to accommodate certain building features.

Steel Panel Attachment:

Screw Fastener:

The steel panels shall be fastened to building framing by plated steel sharp point screws with zinc/aluminum/cast nonferrous alloy hex washer heads pre-assembled with aluminum bond seal washers, which cannot red rust and are compatible with steel panel. Woodzac by Construction Fasteners, Inc., or equal are acceptable.

Nail Fasteners – Framing:

9 gauge x 3-1/2" length 16d oil quench hardened lock ring shank framing nails – galvanized when in contact with pressure treated lumber.

Closure Strips:

1" wide closed-cell linked expanded polyurethane, to match panel corrugation.

Openings:

All openings shall be framed to proper size and trimmed to cover all exterior edges with pre-painted flashings.

Trim:

0.0158-inch min. thickness steel on gables, ridge, corners, base, windows, and doors with same paint finish as roofing and siding panels.

Soffit, Gutters and Downspouts:

See Specifications 07465 and 07631. Paint finish as roofing and siding panels and to be selected by owner.

Design Requirements:

Design members to withstand the following.

Roof Live Load: 25 PSF.

Roof Dead Load: 4 PSF.

Bottom Cord Dead Load: 5 PSF.

Earthquake Zone: 1 under latest Edition IBC.

Wind: 90 MPH, exposure B.

Deflection L/360.

Design shall conform to 2003 International Building Code.

SNOGUARD (roof snow retention)

- A. Design Requirements: Continuous linear roof snow retention system along front and rear of building should have a minimum performance of 500# per lineal foot of bar without deflection. Connection must be used at every standing/corrugated seam.
- B. Bar: 26 ga. double-crimped with 40-year siliconized polyester or Kynar based (PVDF) finish with a combined primer and topcoat exterior paint finish of at least 1 mil. Bar color to match metal roof or as selected by Architect.
- C. Connection: prefinished steel clamp with gasketed stainless steel screws.
- D. Quality Assurance: 5-years.

Warranty:

- 1. Treated Wood Columns: Minimum 40 Years against Decay and Insect Damage when in Contact with Soil.
- 2. Steel Panels:
 - a. 30 Years against Crack, Peel, Blister or Flake of Paint Coating.
 - b. 40 Years against Chalk in Excess of 8 Per ASTM D-4214 Method D659.
 - c. 40 Years against Change of Color in Excess of 5 per ASTM D-2244.

Bird Netting:

- 1. Install Bird-X (Phone:1-800-662-5021) Standard netting, NET-STD-100-14 with ¾" mesh to bottom of trusses.

END OF SECTION

