WSU HENRION HALL FIRE ALARM UPGRADE – A-013714a
1845 Fairmount Street, Wichita, KS 67260

PROJECT MANUAL
Bid / Permit Set

July 9, 2019
1. Definitions

The following terms as used in this contract are respectively defined as follows:

A. The term Project Architect/Engineer refers to the Project Architect/Engineer employed or designated by Wichita State University for professional services in accordance with K.S.A. 75-1253, 75-1254, 75-1256 or employed by the Owner pursuant to K.S.A. 75-5801 et seq., as amended or any designee of the Secretary of Administration who is vested with the authority and responsibility to act as Project Architect/Engineer for this project.

B. As directed, rejected, approved, and other words of similar meaning which authorize any exercise of judgment, shall be distinctly understood to mean that such power to direct, reject, and approve shall be vested only in the Project Architect/Engineer, Owner, and the Office of Facilities and Property Management.

C. The construction representative or inspector is appointed by and responsible to the Office of Facilities and Property Management. He inspects capital improvement projects ensuring construction is in accordance with approved codes and accessibility laws.

D. Contract: The agreement between the Contractor and the Owner covering the work to be done.

E. CONTRACT DOCUMENTS

1. The Contract Documents, enumerated in the table of contents of this project manual shall form a part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were fully set forth.

2. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. The intention of the documents is to include all labor, materials and equipment necessary for
the proper execution of the Work.

3. **Contract Documents** consist of the Notice to Bidders, Instructions to Bidders, Form of Bid, Contractor's Performance Bond, Contractor's Public Works Bond to the State, the Contract, General Conditions, Supplemental General Conditions, Specifications, Drawings, Maps, Plats, etc., prepared or furnished by the Project Architect/Engineer, and Addenda, including additions and/or modifications therein incorporated before the execution of the Contract. Contract Documents shall also include written clarifications, Change Orders and written interpretations by the Project Architect/Engineer which are made after execution of the Contract which are not included in Change Orders.

F. The **Contractor** is a person, firm or corporation with whom the Contract is made by the Owner.

G. The **Contractor's superintendent** is the Contractor's chief representative at the Project site or related work area.

H. The **Office of Facilities and Property Management** is a unit of the Department of Administration of the State of Kansas authorized to administer, enforce or interpret laws relating to construction on state property.

I. **Final Project Completion** is the date upon which the Contractor shall be completed with all punch list items to the satisfaction of the Owner, Project Architect/Engineer and Office of Facilities and Property Management and all systems are fully tested, balanced, corrected and functional. Final completion is to occur on or before the adjusted contract completion date. It is at this point that the Contractor may apply for final payment on of the contract sum at which point a Certification of Project Completion shall be written.

J. The **Owner** is the State agency, representing the State of Kansas, with whom the agreement with the contractor is executed.

K. The **Owner's Representative** is the person(s) appointed by and responsible to the Owner. He acts on behalf of the Owner in matters relating to the execution of the contract.

L. **Partial Occupancy** (for phased projects only) is the date that a separate wing or portion of the building receives final completion as designated above.

M. Whenever the work “Plan” is used, the word “Drawing” may be substituted, and vice versa.

N. The **Prime Contractor** is that Contractor identified in the Contract to serve as coordinator and director of all work when separate contracts are awarded for different portions of the project.

O. The term “**provide**” shall be interpreted to mean, “furnish and install in place.”

P. A **Subcontractor** is a person or organization who has a contract with the Contractor to perform any of the Work at the site. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative. A lower-tier Subcontractor is a person or organization who has a contract with a Subcontractor or another lower-tier Subcontractor to perform any of the Work at the site. Nothing contained in the Contract Documents shall create contractual relationships between the Owner or the Project Architect/Engineer and any Subcontractor or lower-tier Subcontractor, of any tier.

Q. **Substantial completion** is the point at which the Owner, Office of Facilities and Property Management, and the Project Architect/Engineer agree the work, or a designated portion thereof, is sufficiently complete so that the Owner may occupy or use the premises for its intended purpose. Substantial completion will not occur until all items relating to fire exiting, notification, detection, separation or suppression on the fire code footprint of record are completed.
R. The term “supplier” also is applicable to those furnishing materials, equipment or supplies to be incorporated in the project whether work performed is at the site or in the factory, or both.

S. A suitable warehouse shall be approved by the Project Architect/Engineer, and Owner's Representative and must comply with the following:

1. The facility shall be an independent, commercial warehouse not owned by the Contractor or Supplier.
2. The facility must have established material warehousing procedures.
3. The warehouse shall be located within an acceptable distance of the project site, as established by the Project Architect/Engineer, and Owners Representative.
4. The Project Architect/Engineer and Owner's Representative shall be provided with all documentation required by Article 30 – Payments to Contractor.
5. All Materials for the Owner’s project must be stored in the name of Owner.

T. Surety: Approved surety bound with and for the Contractor to insure his acceptable performance of the Contract and for his payment of all obligations under the Contract.

U. The term “Work” includes all labor necessary to complete the construction required by the Contract Documents for this Contract, and all materials, equipment and supplies incorporated or to be incorporated in such construction.

V. Written notice will be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, if delivered at or sent by mail to the last business address shown to the party giving notice, or if transmitted via e-mail or facsimile to the e-mail address or facsimile number provided by the firm or entity.

2. SPECIFICATIONS AND DRAWINGS

A. These Specifications are of an abbreviated form and contain incomplete sentences. Omissions of words or phrases such as “the Contractor shall,” "shall be," “as noted in the Drawings,” "according to the Drawings," “a,” “an,” “the” and “all” are intentional. Omitted words and phrases shall be supplied by inference in the same manner as when “note” occurs on the Drawings.

B. Owner, Contractor, Project Architect/Engineer, are those mentioned as such in the Contract Documents. They are treated throughout the Contract Documents as if each were of singular number and masculine gender.

C. Specifications are separated into titled divisions for convenience of reference, and to facilitate letting of contracts and subcontracts. Such separations will not, however, operate to make the Project Architect/Engineer an arbiter to establish limits of subcontracts or to establish jurisdiction.

D. The drawings, herein referred to consist of drawings prepared by the Project Architect/Engineer and are identified and incorporated in these Contract Documents.

E. Drawings are intended to show general arrangements, design, and extent of work and are partly diagrammatic. As such, they shall not be scaled.

F. Details take precedence over smaller scale general drawings.
G. In case of conflict between drawings and specifications, or between drawings and other drawings, the project architect is to be contacted for clarifications.

H. Any specific provision in any of the Contract Documents which may be in conflict or inconsistent with any of the articles in these General Conditions or the Supplementary General Conditions shall be controlling for that specific project.

I. Should conflicts in Contract Documents occur, either in quality or quantity of work required, the Contractor shall, unless clarification has been issued by addenda prior to receipt of bids, furnish, and install work in accordance with either of the conflicting provisions of the documents as the Project Architect/Engineer may direct.

J. If the Contractor observes that drawings and specifications are at variance with any laws, ordinance, rule, regulations, or codes applying to the Work, he shall promptly notify the Architect Owner, and Office of Facilities and Property Management in writing, and any necessary changes will be adjusted as provided in Contract Documents. However, it is not the responsibility of the Contractor to make certain that the Contract Documents are in accordance with applicable laws, statutes, building codes, and regulations.

K. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complimentary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

L. Drawings consist of sheets enumerated in these Contract Documents and of such detailed drawings and instructions as will be provided during the progress of the Work, to fully explain and carry out the requirements of these specifications and the drawings.

M. Drawings, specifications, and copies thereof furnished by the Owner are and shall remain its property. They are not to be used on another project and, with the exception of one contract set for each party to the Contract, shall be returned to the Owner’s Representative on request, at the completion of the Work.

3. ADDITIONAL INSTRUCTIONS

A. The Contractor may be furnished additional instructions, clarifications, and/or detail drawings by the Project Architect/Engineer as necessary to carry out the intent of the Work included in the Contract. The additional Drawings and/or instructions thus supplied will coordinate with the Contract Documents and will be so prepared that they can be reasonably interpreted as part thereof. The Contractor shall carry out the Work in accordance with the additional detail drawings and/or instructions.

4. REFERENCE STANDARDS

A. For products or workmanship specified by association, trade or Federal standards, comply with requirements of the standard, except when more rigid requirements are specified.

B. Obtain copy of standards when required by Contract Documents.

C. Should specific reference standards conflict with Contract Documents, request clarification from the Project Architect/Engineer before proceeding.

D. References to known Standard Specifications mean and intend the latest edition of said Specifications adopted and published as of the date of invitation to submit Bids. References to technical society, organization, or body are made in the Specifications.
E. Codes, industry standards and guidelines referenced in the Contract Documents include but are not limited to the following acronyms:

ADAAG          Americans with Disabilities Act Accessibility Guidelines
ACI            American Concrete Institute
AIA            American Institute of Architects
AISC           American Institute of Steel Construction
ANSI           American National Standards Institute (all publications)
ARI            American Refrigeration Institute
ASME           American Society of Mechanical Engineers
ASTM           American Society for Testing Materials
AWI            Architectural Woodwork Industry
AWSC           American Welding Society Code
CBM            Certified Ballast Manufacture
FM/IRI          Factory Mutual/Insurance Rating Institute
GCEHMF         Guidelines for Construction and Equipment of Hospital and Medical Facilities
IBC            International Building Code
ICEA           Insulated Cable Engineers Association
IEEE           Institute of Electrical and Electronics Engineers
IFC            International Fire Code
IFGC           International Fuel Gas Code
IMC            International Mechanical Code
IPC            International Plumbing Code
JCAHO          Joint Commission on Accreditation of Healthcare Organizations
               Kansas Boiler Safety Act Rules and Regulations
LSC            Life Safety Code
MRCA           Midwest Roofing Contractors Association
NEC            National Electrical Code
NEMA           National Electrical Manufacturers Association
NESC           National Electrical Safety Code
NFPA           National Fire Protection Association
NIST           National Institute of Standards & Technology
NRCA           National Roofing Contractors Association
OSHA           Occupational Safety and Health Act
SIGMA          Sealed Insulating Glass Manufacturers Association
SMACNA         Sheet Metal Air Conditioning National Association
UL             Underwriters Laboratories, Inc.

5. SURVEYS, PERMITS AND REGULATIONS

A. If additional site information is required beyond that shown in the Contract Documents, the Contractor shall be responsible for all site, topography and property surveys not provided.

B. The Contractor shall pay all fees and shall procure all applications, permits, licenses and approvals necessary for the execution of his Contract. See K.S.A. 75-3741c.

C. The Contractor shall give all notices and comply with all State and Federal Laws, codes, rules and regulations relating to the performance of the Work, the protection of adjacent property, and the maintenance of passageways, guard fences or other protective facilities.

D. If charges for water, sewer and other utility connections made by municipalities are costs which the State is obligated to pay, the Contractor shall pay these charges where required by the Specifications.
6. SHOP DRAWINGS AND SAMPLES

A. Shop drawings shall consist of drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or any Subcontractor, manufacturer, supplier, or distributor, and which illustrate some portion of the work.

1. All shop drawing submittals shall be accompanied by a transmittal letter identifying the project and listing each item being submitted. Each item submitted shall be identified by reference to the Project identification number, Specifications number and/or Drawing sheet numbers.

2. Contractor shall submit to the Project Architect/Engineer a list of shop drawings and a tentative submittal schedule prior to the first partial payment. Submittal schedule must be updated if requested.

3. All subcontractors, material or equipment suppliers shall submit through the Contractor-shop drawing items comprising brochures, manufacturer’s catalog sheets and data specifications. After the Project Architect/Engineer’s approval, one (1) copy shall remain on file with the Project Architect/Engineer, one (1) copy shall be sent to the Owner, one (1) copy shall be kept on file in the Contractor’s job. In addition to the distribution listed above, the contractor shall determine the number of additional copies required for construction use, including subcontractors and suppliers. Additional copies that may be required for the project shall be identified at the pre-construction conference. Contractor shall distribute the construction copies as required.

B. Samples shall consist of physical examples furnished by the Contractor in sufficient size and quantity to illustrate materials, equipment or workmanship, and to establish standards by which the work will be judged. Samples shall be submitted on items called for in the Specifications or as requested by the Project Architect/Engineer.

1. Submit samples in sufficient quantity to permit Project Architect/Engineer to make all necessary tests and of adequate size to show quality, type, color range, finish, and texture. Label each sample stating materials, type, color thickness, size, project name, identification number, and Contractor’s name.

2. Submit transmittal letter requesting approval, and prepay transportation charges to Architect/Engineer’s office on samples forwarded.

3. Materials installed shall match approved samples

C. The Contractor shall review shop drawings and samples and shall place his stamp and/or signature thereon as evidence that he has checked each item, and shall submit same with reasonable promptness and in orderly sequence so as to cause no delay in the Work or in the work of any other Contractor. The Contractor shall inform the Project Architect/Engineer in writing of any deviation in the shop drawings or samples from the requirements of the Contract Documents. Contractor shall be responsible for all corresponding changes due to deviations in details, dimensions, and costs involved with other trades.

D. By stamping and submitting shop drawings and samples, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers, and similar data, and that he has checked and coordinated each shop drawing and sample with the requirements of the work and of the Contract Documents. Drawings not so noted will be returned without being examined by the Project Architect/Engineer.

E. The Project Architect/Engineer will review and approve shop drawings and samples with reasonable promptness so as to cause no delay, but only for conformance with the design concept of the project and compliance with the information given in the Contract Documents. The Project Architect/Engineer’s approval of a separate item shall not indicate approval of an assembly in which the item functions, nor shall the Project Architect/Engineer’s approval relieve the Contractor from responsibility for errors or omissions in shop drawings or samples.
F. The Contractor shall make any corrections required by the Project Architect/Engineer and shall resubmit the required number of corrected copies of shop drawings or new samples until approved. Resubmitted items shall be identified as such on the terms and the transmittal letter.

G. The Contractor shall direct specific attention in writing or resubmitted shop drawings to revisions other than the corrections requested by the Project Architect/Engineer on previous submissions. Corrections or changes indicated on shop drawings shall not be considered an extra work order.

H. No work requiring a shop drawing or sample submission shall be commenced until the submission has been approved by the Project Architect/Engineer. All such work shall be in accordance with approved shop drawings and samples.

I. The Contractor shall keep on the site of the Work, an approved or confirmed copy of the shop drawings, Drawings and Specifications, and shall at all times give the Owner access thereto.

J. All drawings for any one Contract should be numbered consecutively and shall bear the name, project identification number, and location of the project, the name of the Contractor, the date of the drawing, and the date of each correction or revision.

K. The Contractor, submitting late, inadequate or incorrect shop drawings shall be responsible for damages and delays should submittals be rejected by the Project Architect/Engineer.

7. MATERIALS AND WORKMANSHIP

A. Materials and fixtures shall be new and of latest design and current manufacture unless otherwise specified as approved by the Project Architect/Engineer. All Work shall be performed by competent workers and shall be of best quality.

B. The Contractor shall carefully examine the plans and specifications and shall be responsible for the proper fitting of his material, equipment, and apparatus into the building.

C. The Contractor shall base his bid only on the Contract Documents. Contractor may make a written proposal to the Project Architect/Engineer to use alternate materials or fixtures, but the Project Architect/Engineer’s decision shall be final. Refer to Article 10 – “Or Approved Substitute” Clause.

D. Should the Contract Documents fail to adequately describe materials or goods to be used, it shall be the duty of the Contractor to inquire of the Project Architect/Engineer what is to be used and to supply it at the Contractor’s expense or else thereafter replace it to the Project Architect/Engineer’s satisfaction. As a minimum, the Contractor shall provide the quality of materials as generally specified throughout the Contract Documents.

E. Materials and workmanship shall be subject to inspection, examination, and test by the Project Architect/Engineer, the Construction Representative and the Owner’s Representative at any and all times during manufacture, installation, and construction of any of them, at places where such manufacture, installation, or construction is carried on. The Project Architect/Engineer shall have the authority and right to reject defective materials and workmanship or to require correction.

F. Materials prohibited by governmental authority or regulation from being used in construction shall not be used on this project.

G. The Contractor shall promptly remove, at his expense, all rejected materials from work site.

H. When a material has been approved, no change in brand or make will be permitted unless:
1. Manufacturer cannot make satisfactory deliver, or

2. Material delivered fails to comply with contract requirements.

3. No change can be made without the Project Architect/Engineer’s approval.

I. In order that ready availability of materials, parts, or components for repair, replacement, or expansion may be assured, all such materials, parts and components shall be obtained where feasible from sources which maintain a regular, domestic stock.

J. Reference to “standard” specifications of any association or manufacturer, or codes of State authorities, refers to the most recent printed edition or catalog in effect on the date which corresponds with date of the Contract Documents.

K. Whenever reference is made in the Specifications that work shall be “performed,” “applied,” “installed,” “finished,” “tested,” or “connected,” in accordance with the “manufacturer’s directions or instructions,” the Contractor to whom those instructions are directed shall furnish printed copies of such instructions when requested by the Project Architect/Engineer before execution of the work.

8. ALLOWANCES

A. The Contractor shall include in the contract sum all allowances stated in the Contract Documents. Items covered by these allowances shall be supplied for such amounts and by such persons as the Owner may direct, but the Contractor will not be required to employ persons against whom he makes a reasonable objection.

B. Unless otherwise provided in the Contract Documents:

1. These allowances shall cover the cost to the Contractor, less any applicable trade discount, of the materials and equipment required by the allowance delivered at the site, and all applicable taxes;

2. The Contractor’s costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the contract sum and not in the allowance;

3. Whenever the cost is more than or less than the allowance, the contract sum shall be adjusted accordingly by Change Order, the amount of which will recognize changes, if any, in handling costs on the site, labor, installation costs, overhead, profit and other expenses.

9. INSPECTION AND TESTING OF MATERIALS

A. All work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records shall be made available by the Contractor to authorized representatives and agents of State government.

B. If a portion of the Work is covered contrary to the Project Architect/Engineer’s request or to requirements specifically expressed in the Contract Documents, it shall, if required in writing by the Project Architect/Engineer or the Owner’s Representative, be uncovered for the Architect’s observation and be replaced and recovered at the Contractor’s expense with the proper personnel in a timely manner as approved by the Owner, without change in the Contract Time.

C. If a portion of the Work has been covered which the Architect or the Owner’s Representative has not specifically requested to observe, prior to its being covered, the Project Architect/Engineer or the Owner’s Representative may request to see such Work, and it shall be uncovered by the Contractor who will furnish the necessary facilities, labor and materials. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work is not in
accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor in which event the Owner will be responsible for payment of such costs.

D. Unless otherwise provided, Contractor shall provide all testing as outlined in the Contract Documents by approved independent testing agencies. Copies of test reports shall be sent to the Owner, the Project Architect/Engineer, and the Contractor by the testing agency.

E. If any work is required to be specially tested or approved, the Contractor shall give the Project Architect/Engineer, Construction Representative and the Owner’s Representative a minimum of five working days notice of date for such inspection. Such materials and equipment requiring testing, shall be tested in accordance with accepted or specified standards, as applicable. Unless otherwise called for in the Specifications, the laboratory or inspection agency shall be accepted by the Project Architect/Engineer and the Contractor will pay all costs incurred by the specified testing and laboratory procedures. Should retesting be required, due to failure of initial testing, the cost of such retesting shall be borne by the Contractor.

F. The cost of any testing performed by manufacturers or contractors for the purpose of substantiating acceptability of proposed substitution of materials and equipment, or the necessary conformance testing in conjunction with manufacturing processes or factory assemblage, shall be borne by the Contractor or manufacturer responsible.

G. On the basis of the test results, materials, equipment, or accessories may be rejected even though general approval has been given. If items have been incorporated in the Work, the Project Architect/Engineer will have the right to cause their removal and replacement, without cost to the Owner, by items meeting contract requirements or to demand and secure such reparation to the Owner from the Contractor as is equitable.

H. The Project Architect/Engineer reserves the right to require the Contractor to furnish a certificate guaranteeing that material or equipment as submitted complies with contract requirements. If statement originates with manufacturer, the Contractor shall endorse all claims and submit statement in his own name.

10. "OR APPROVED SUBSTITUTE" CLAUSE

A. Whenever in the Contract Documents any article, appliance, device, or material is designated by the name of a manufacturer, vendor, or by any proprietary or trade name, the words “or approved substitute”, shall automatically follow and shall be implied unless specifically indicated otherwise. The standard products of manufacturers other than those specified will be accepted when, it is proven in writing via product literature to the satisfaction of the Project Architect/Engineer they are equal in design, spare parts availability, strength, durability, usefulness, serviceability, operation cost, maintenance cost, and convenience for the purpose intended. The written product literature shall include information to allow a complete comparison of the proposed product. Any changes required in the details and dimensions indicated in the Contract Documents for the substitution of standard products other than those called for shall be properly made and approved by the Project Architect/Engineer at the expense of the Contractor requesting the substitution or change. No substitutions will be permitted for components of extensions to existing systems when, in the opinion of the Project Architect/Engineer, the named manufacturer must be provided in order to insure compatibility with the existing systems, including, but not limited to, fire alarms, smoke detectors, controls, etc.

B. No substitutions shall be purchased or installed by the Contractor without the Project Architect/Engineer’s written approval. Requests for approval of substitutions must be made in a timely manner. (See applicable section of the “Instructions to Bidders”).

C. It shall be understood that the use of materials or equipment other than those specified, or approved substitute by the Project Architect/Engineer, shall constitute a violation of Contract, and that the Project Architect/Engineer shall have the right to require the removal of such materials or equipment and their replacement with the specified materials or equipment at the Contractor’s expense.
11. SUBSURFACE AND LATENT CONDITIONS FOUND DIFFERENT

A. Should the Contractor encounter subsurface or latent conditions at the site materially differing from those indicated in the Contract Documents, he shall immediately stop work in the area where differing conditions are found and give notice to the Project Architect/Engineer and Owner of such conditions before they are further disturbed. The Project Architect/Engineer will thereupon promptly investigate the conditions, and if he finds that they materially differ from those indicated in the Contract Documents, he will at once make such changes as he may find necessary, any increase or decrease of cost resulting from such changes to be adjusted in the manner provided in Article 12- Changes in Work, of the General Conditions.

12. CHANGES IN WORK

A. No changes in the work covered by the Contract Documents shall be made without having such changes executed in writing by Contract Change Order and approved by the Project Architect/Engineer and Owner. Any changes in the work performed by the Contractor without signed approval shall be done at the Contractor's expense.

B. In cases of emergency, or as needed to expedite the work in a timely manner, the Project Architect/Engineer may authorize, in writing, changes in, or additions to, Work to be performed or material to be furnished pursuant to the provisions of the Contract. These field orders shall be incorporated into formal Contract Change Orders at a later date.

C. Changes in the work covered by Contract Change Order include, but are not limited to: extension or reduction in project completion time, charges or credits resulting from changes in construction. A Change Order is the sole remedy for the contractor. No request may reserve the right to additional compensation or remedies related to work in the request regardless of any language to the contrary. Charges or credits to the contract sum for work covered by the approved change order shall be determined by one or more, or a combination of the following methods:

1. By an acceptable unit price or lump sum proposal from the Contractor and the Subcontractors of any tier. Proposals shall include all take-off sheets of each Contractor and Subcontractor of any tier. Breakdowns shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor cost per hour shall identify the base labor rate and applicable fringe benefits plus associated expenses for social security, worker’s compensation, and federal and state unemployment.

2. By a cost-plus-fixed-fee (percentage) basis with maximum price, total cost not to exceed maximum specified.

3. By unit prices contained in the Contractor’s original proposal and incorporated in the Construction Contract. Unit prices contained in the Contractor’s original proposal are understood to include the Contractor’s overhead and profit. If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order that application of such unit prices to quantities of the Work proposed will cause substantial inequity to the Owner or to the Contractor, the applicable unit prices shall be equitably adjusted.

D. Overhead and profit on Change Orders shall be applied as follows:

1. The overhead and profit charged by the Contractor shall be considered to include, but not limited to, performance bond, builder’s risk and public liability insurance, job site office expense, incidental job supervision, field supervision, company benefits, general office overhead, and cost associated with the preparation of design documents, layout drawings, or shop drawings. The percentages for overhead and profit charged on Change Orders shall be negotiated and may vary according to the nature, extent, and complexity of the Work involved but in no case shall exceed the following.

OVERHEAD AND PROFIT FOR ADD CHANGE ORDERS

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<tr>
<th>Overhead</th>
<th>Profit</th>
<th>Fee</th>
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010000 - 10
To Contractor on work performed by other than his own forces: 0% 0% 10%

To First level subcontractor on work performed by his subcontractors: 0% 0% 10%

To Contractor and/or his subcontractors for that portion of work performed with their respective forces: 10% 0% 0%

2. On proposals covering both increases and decreases in the amount of the Contract, the application of overhead and profit shall be on the net change indirect cost for the Contractor or Subcontractor of any tier performing the Work.

3. The percentage for overhead and profit credit to the Owner on Change Orders that are strictly decreases in the Quantity of work or material shall be negotiated and may vary according to the nature, extent, and complexity of the Work involved.

E. No claim for an addition to the Contract sum will be valid unless authorized as aforesaid in writing by the Project Architect/Engineer. In the event that none of the foregoing methods are agreed upon, the Project Architect/Engineer may require the contractor to complete the work by force account. The cost of such Work will be determined by the Contractor’s actual labor and material cost to perform the work plus applicable overhead and profit as outlined above recorded on a daily basis. The Owner’s Representative and the Project Architect/Engineer will verify daily the Contractor’s time and material for the Work.

F. Any work completed by the Contractor outside the original project scope without written approval from the Project Architect/Engineer will be deemed as a waiver by the Contractor for additional compensation for said work.

G. The Owner will either accept or reject a change order within (14) calendar days after receipt of complete change order pricing and documentation from the Contractor as outlined in this Article.

13. SEPARATE CONTRACTS

A. When separate Contracts are awarded for different portions of the Project or other work at the site, the term Contractor in the Contract Documents in each case shall mean the contractor who executes each separate Contract with the Owner. The term Prime Contractor shall mean that specific contractor established by the Contract to serve as coordinator and director of all work, and all contractors placed under the contractual authority of the prime contractor shall provide work for the project in accordance with the direction of the prime contractor. Failure to abide by this provision shall constitute a breach of Contract.

B. The owner reserves the right to perform work related to the project with his own forces, and to award separate contracts in connection with other portions of the Project or other work on the site under these or similar conditions of the Contract. All contractors shall fully cooperate with each other and carefully fit the work to that provided under other contracts as may be directed by the Owner. It shall be the duty of each Contractor to whom Work may be awarded, as well as all Subcontractors of any tier employed by them, to communicate immediately with each other in order to schedule Work, locate storage facilities, etc., in a manner that will permit all Contractors to work in harmony in order that Work may be completed in the manner and within the time specified in the Contract Documents.

C. No Contractor shall delay another Contractor by neglecting to perform his work in the proper sequence. Each Contractor shall be required to coordinate his work with other Contractors so as to afford others reasonable opportunity for execution of their work. Any costs caused by defective or ill-timed work, including actual damages, if applicable, shall be borne by the Contractor responsible therefore.

D. The Contractor shall not claim from the Owner money damages or extra compensation under this Contract when delayed in initiating or completing his performance hereunder, when the delay is caused by labor disputes, acts of
God, or the failure of any other Contractor to complete his performance under any Contract with the Owner, where any such cause is beyond the Owner’s reasonable control.

E. Progress schedule of the Contractor for the Work shall be submitted to other Contractors as necessary to permit coordinating their progress schedules.

14. SUBCONTRACTS

A. The Contractor may utilize the services of specialty subcontractors on those parts of the Work, under normal contracting practices, as performed by such contractors.

B. Unless otherwise required by these Contract Documents or the Bidding Documents, the Contractor, within ten (10) days after the award of the Contract, shall furnish to the Project Architect/Engineer and Owner in writing the names of the persons or entities proposed for each of the principal subcontracted portions of the work. The Contractor shall not award any work to any subcontractor found unqualified by the Project Architect/Engineer or Owner.

C. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of person directly employed by him.

D. Nothing contained in Contract Documents shall create any contractual relation between any subcontractor and the Owner.

E. The Contractor, by written agreement, shall require each subcontractor, to the extent of the work to be performed by the subcontractor, to be bound to the Contractor by the terms of these Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these documents, assumes toward the Owner and the Project Architect/Engineer. Said agreement shall preserve and protect the rights of the Owner under the Contract Documents. Where appropriate, the Contractor shall require each subcontractor to enter into similar agreements with his sub-subcontractors.

15. MUTUAL RESPONSIBILITY OF CONTRACTORS

A. If, through acts of neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage on the Work, the Contractor agrees to promptly settle with such other contractor or subcontractor by agreement or otherwise to resolve the dispute. If such other contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor, who shall indemnify and hold harmless the Owner against any such claim.

16. PROJECT ARCHITECT/ENGINEER’S AUTHORITY

A. The Project Architect/Engineer is retained or employed by and is responsible to Wichita State University.

B. The Project Architect/Engineer shall determine the amount, quality, acceptability and fitness of the several kinds of work and materials which are provided under this Contract and shall decide all questions which may arise in relation to said Work and the construction thereof. In case any question shall arise between the parties hereto relative to said Contract or Specifications, the determination or decision of the Project Architect/Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this Contract affected in any manner or to any extent by such question.

C. The Project Architect/Engineer shall decide the meaning and intent of any portion of the Contract Documents where the same may be found obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Contractor under this Contract and other contractors performing work on this Project for the Owner shall be adjusted and determined by the Project Architect/Engineer.
D. The Project Architect/Engineer shall provide responsible Construction Administration. After consultation with the Owner, he has authority to stop the Work whenever such stoppage may be necessary to insure proper execution of the Contract.

E. The Project Architect/Engineer is the interpreter of the conditions of the Contract and the judge of its performance; as such, he shall side neither with the Owner nor with the Contractor, but shall use his powers under the Contract to enforce its faithful performance by both.

F. He shall, within a reasonable time, act on submittals and make decisions on all matters relating to the progress of the Work or the interpretation of the Contract Documents.

17. DUTIES OF THE CONTRACTOR

A. The Contractor shall provide and pay for all materials, labor, tools, equipment, transportation, and superintendence, and coordination of subcontractors necessary to execute, complete, and deliver the work within the specified time. Whenever the Contract Documents indicate work to be performed by the Contractor, it shall mean at the Contractor’s expense.

B. Properly prepare all Work to receive subsequent Work or finish. Notify the Project Architect/Engineer if any work is unsatisfactory to receive such subsequent Work or finish and receive his instructions before proceeding.

C. The Contractor shall supply sufficient and competent supervision and personnel, and sufficient material, plant, and equipment to prosecute the Work with diligence to insure completion thereof within the time specified in the Contract Documents, and shall pay when due any laborer, Subcontractor of any tier, or supplier.

D. The Contractor, if an individual, shall give the Work an adequate amount of personal supervision, and if a partnership or corporation, or joint venture the Work shall be given an adequate amount of personal supervision by a partner or executive officer, as determined by the Owner’s Representative.

E. The Project Architect/Engineer, Office of Facilities and Property Management, and the Owner’s Representative shall, at all times, have access to the Work; and Contractors shall provide proper facilities for such access.

F. The Contractor and each of his Subcontractors of any tier shall submit to the Owner such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records, and other data as the Owner may request concerning work performed or to be performed under the Contract.

G. The Contractor shall be represented at the site by a competent superintendent or foreman from the beginning of the Work until its final acceptance, unless otherwise permitted by the Owner’s Representative. The superintendent or foreman for the Contractor for the general building Work shall exercise general supervision over all Subcontractors of any tier engaged on the Work with decision making authority of the Contractor. It is understood that such representative shall be acceptable to the Project Architect/Engineer and Owner, and shall not be replaced without written permission before the project is completed unless he ceases to be on the Contractor’s payroll. The superintendent shall be replaced upon request of the Owner.

H. The Contractor shall attend preconstruction conference with all of his appropriate subcontractors.

I. The Contractor shall attend all project meetings with all of his appropriate subcontractors.

J. The superintendent or foreman shall establish and maintain a permanent benchmark to which access may be had during the progress of the Work, shall give all lines and levels, and shall be responsible for the correctness of...
such. The contractor shall retain the services of a registered land surveyor for the project construction staking and layout if referenced in the Supplemental General Conditions.

K. No pleas to act, orders or supervision of the Architect, the Owner, or any other person shall be admitted in justification of any errors in construction or departure from terms of the Contract, except for duly executed change orders, additional instructions or additional supplemental contracts, in writing, signed by the Owner.

L. The Contractor shall be responsible for layout of his own work and for any damage which may occur to work of any other Contractor or subcontractors of any tier, because of errors or inaccuracies on the part of this Contractor and his Subcontractor of any tier as well as be responsible for unloading, uncrating, and handling of all materials and equipment to be erected or placed by him, whether furnished by the Contractor or others. The Contractor is further responsible that the layout of work by Subcontractors of any tier which shall be coordinated with layouts of all general construction Work and all other subcontract work. Unless otherwise directed by the Owner’s Representative, salvage materials, waste, and scrap resulting from such work shall be promptly removed from the site by the Contractor, at his expense.

M. The Contractor shall limit operations and storage of materials to the area with the project limit lines shown on drawings, except as necessary to connect to existing utilities, shall not encroach on neighboring property, and shall exercise caution to prevent damage to existing structures.

N. The contractor shall follow procedures outlined below for all utility outages/tie-ins:

1. All shutting of valves, switches, etc. shall be in conjunction with or by the Owner’s personnel.

2. The Contractor shall request an outage/tie-in meeting at least two weeks before the outage/tie-in is required.

3. The Owner’s Representative will schedule an outage/tie-in meeting at least one week prior to the outage/tie-in.

4. The following individuals shall attend this meeting:

   (a) Owner’s Representative

   (b) Contractor’s Superintendent

   (c) Subcontractors of any tier performing the work

5. The Contractor shall be prepared to discuss the following at the meeting:

   (a) Date and time of proposed outage/tie-in.

   (b) Detailed work plan to be followed during the outage and the total time required to complete all work.

   (c) Work force to be employed during the outage.

   (d) Owner and/or utility responsibilities during the outage.

   (e) Contingency plan in case of complications (i.e., the availability of additional personnel and materials) during the outage.

6. The Contractor shall be aware that the outage/tie-in time and date is subject to approval by the Owner’s Representative.
O. The Contractor shall coordinate all Work so there shall be no prolonged interruption of existing equipment and services. Any existing plumbing, heating, ventilation, air conditioning, or electrical disconnection necessary, which affect portions of this construction or building or any other building, must be scheduled with the Owner’s Representative to avoid any disruption of operation within the building under construction or other buildings or utilities. In no case shall utilities be left disconnected at the end of a work day or over a weekend. Any interruption of utilities, either intentionally or accidentally, shall not relieve the Contractor from repairing and restoring the utility to normal service. Repairs and restoration shall be made before the workers responsible for the repair and restoration leave the job.

P. The Contractor shall promptly remedy damage and loss to property referred to in this Article caused in whole or in part by the Contractor, a Subcontractor of any tier, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable, and for which the Contractor is responsible under this Article.

Q. The Contractor shall be responsible for protection, including weather protection, and proper maintenance of all equipment and materials installed, or to be installed by them.

R. The Contractor shall be responsible for care of his finished Work and must protect same from damage or defacement until acceptance by Owner. All damaged or defaced work shall be repaired or replace to the Owner’s satisfaction, without cost to the Owner.

S. The Contractor shall comply with all applicable ordinances and regulations. The Contractor shall save the Owner and Project Architect/Engineer harmless as a result of any failure to do so.

T. Required Code Inspections necessary for Occupancy

It is the responsibility of the Contractor to coordinate with the OFPM inspectors to schedule required code inspections. The agency and the project architect/engineer are to be informed of all scheduled required code inspections. Code inspections (if component is included in the project) are required to be performed by OFPM prior to covering work. These inspections are not limited to:

1. Footings and Foundations
2. Underfloor/Underslab
3. MEP Underground (not associated with underfloor/underslab)
4. Framing
5. In-Wall
6. Fire-resistance assemblies and fire-resistant penetrations
7. Above ceiling
8. Fire Alarm
9. Sprinkler and Standpipe
10. Emergency Lighting
11. Back-up Power Sources
12. Fire Pump
13. Elevator
14. Roof inspections (including tear-off, insulation, membrane placement, flashing)
15. Emergency Power
16. Smoke Control Systems
17. Pressure testing of all piping
18. Locking systems
19. Final Inspections (including exit path and ADAAG verifications)

(This information is also outlined on the occupancy Checklist form located on the website at http://www.admin.ks.gov/offices/ofpm/dcc).

The required code inspections shall be coordinated with OFPM inspector via individual cell telephones. Telephone contact is to be a minimum of 3 work days prior to anticipated inspection. Inspection confirmation may occur via e-mail after telephone coordination. Failure to coordinate a scheduled inspection with a minimum of 3 work days may result in no inspection and subsequent denial of a Certificate of Occupancy.

An Inspection Record will be issued by OFPM inspectors for each required inspection. The Inspection Record will indicate when the inspection is approved. If a deficiency is noted, it will be the responsibility of the contractor to coordinate solution of the deficiency with the Project Architect/Engineer and to correct all noted deficiencies as directed by the Project Architect/Engineer. Issuance of the Certificate of (Partial) Occupancy is dependent on resolution of all deficiencies.

(Please note: The inspector, noted in Item 1 above, is to be notified of each required inspection. The inspector, at his discretion, may defer this inspection. The inspector will inform the Contractor and Agency Representative regarding who will be performing the inspection.)

U. When requested by the Project Architect/Engineer, Construction Representative, and the Owner's Representative, the Contractor, at no extra charge, shall provide a safe means for examination of work in progress or completed.

V. No project signs shall be erected without the approval of the Owner's Representative.

W. The Contractor shall verify all measurements. No extra charges or compensation will be allowed as a result of the failure to verify dimensions before ordering materials or fabricating items.

X. The Contractor shall provide, at the proper time, such material as required for support of the Work. If openings or chases are required, whether shown on drawings or not, the Contractor shall see they are properly constructed. If required openings or chases are omitted by the Contractor, the Contractor shall provide them at the Contractor's own expense, but only as directed by the Project Architect/Engineer.

Y. The Contractor shall maintain at his own cost and expense, adequate, safe and sufficient walkways, platforms, scaffolds, ladders, hoists, and all necessary, proper, and adequate equipment, apparatus, and appliances useful in carrying on the Work and to make the place of work safe and free from avoidable danger, and as may be required by safety provisions of applicable laws, ordinances, rules, regulations, and building and construction codes.

Z. The Contractor shall be responsible for removal of all rubbish, debris, and dirt resulting from the Work and shall clean up as requested by the Project Architect/Engineer, Construction Representative, and the Owner's Representative. The Contractor shall be responsible for the cost of cleanup and removal from premises. All debris resulting from said removal shall be disposed of off State owned property at an authorized dump site. The building and premises shall be kept clean, safe, in a workmanlike manner, and in compliance with OSHA standards at all times. At completion of Work, all dirt, stains, and smudges shall be removed from every part of the building, all glass in doors and windows shall be washed, and entire Work shall be left broom clean in a finished state ready for occupancy. The Contractor shall advise his Subcontractors of any tier of the provision,
and the Contractor shall be fully responsible for leaving the premises in a finished state ready for use to the satisfaction of the Owner’s Representative.

AA. The Contractor shall accurately record on blue line prints all changes to the original plans made during the installation of the work. The Contractor shall also record all changes to the original specifications made during the installation of the work. The Contractor shall maintain an updated set of Record Documents (both drawings and specifications) at the job site throughout construction (if there is an on-site office). The set of Record Documents shall include all addenda, change orders, field revisions, changes, and alterations that occur during construction and shall be furnished, in good condition, to the Project Architect/Engineer prior to completion of the project.

BB. The Contractor shall establish and be responsible for wall and partition locations. Other Contractors and Subcontractors of any tier shall observe these locations and be responsible for setting their sleeves, openings, or chases.

CC. The Contractor for construction work shall pump, bail, or otherwise keep general excavations free of water. Subcontractors of any tier shall keep their individual excavations free of water in an approved manner. The Contractor shall keep all areas free of water before, during, and after concrete placement.

DD. The Contractor shall be responsible for cutting, fitting or patching required to complete the work or to make its parts fit together properly.

EE. The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching, or otherwise altering such construction or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and such separate contractor, such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or separate contractor the Contractor’s consent to cutting or otherwise altering the Work.

FF. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the Contract Documents, and shall complete the entire Work to the extent of quality and workmanship implied by the Contract Documents and in a manner which will warrant acceptance by the Project Architect/Engineer, the Owner, and the Office of Facilities and Property Management.

GG. Contractors and Subcontractors employed upon Work shall be required to conform to labor and employment laws of the State of Kansas and various acts amendatory and supplementary thereto and to other laws, ordinances and legal requirements applicable thereto.

HH. The Contractor shall be responsible for the conduct of Contractor’s employees and the employees of subcontractors and suppliers on the work site. The Contractor shall take immediate steps to remedy any activity which may be construed as discriminatory or which creates a hostile work environment. Activities covered by this provision include, but shall not be limited to, signs or language that are vulgar, profane or racially or sexually derogatory.

II. The contractor shall inspect the building and complete deficiencies before the Project Architect/Engineer’s final inspection in order to avoid long and multiple punch lists. The building shall be cleaned before the final inspection to allow all defects to be noticed at the final inspection and reduce late additions to the punch list.

18. PROTECTION OF WORK AND PROPERTY
A. In the event of temporary suspension of work, or during inclement weather, or whenever the Project Architect/Engineer shall direct, the Contractor shall, and shall cause his subcontractors to carefully protect his and their work and materials against damage from the weather. If, in the opinion of the Project Architect/Engineer, any work or materials that have been damaged by reason of failure on the part of the Contractor or any of his subcontractors to protect the work, such materials shall be removed and replaced at the expense of the Contractor.

B. The Contractor shall at all times safely guard the Owner’s property from damage or loss in connection with his contract. He shall at all times safely guard and protect his own work, and that of adjacent property, from damage. The Contractor shall replace or make good any such damage or loss unless such be caused directly by errors contained in the Contract Documents, or by the Owner, or his duly authorized representative.

C. In case of an emergency which threatens loss or damage of property, or safety of life, the Contractor will be allowed to act, without previous instructions from the Project Architect/Engineer, in a diligent manner. He shall notify the Project Architect/Engineer promptly thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Project Architect/Engineer for approval as provided for in Article 12 – Changes in Work, herein.

D. The Contractor shall be responsible for and shall pay for all damage to building, walks, pavement, steps, plantings, lawns and any other property which is caused by construction activity. Any such damage shall be corrected by repair or replacement as directed by the Project Architect/Engineer and in a manner acceptable to the Owner.

E. Transport, handle, store and erect materials in a manner to keep them free from damage.

F. Support no runways, ramps or construction equipment on or transport over any items or assemblies subject to displacement, disfiguration or other damage.

G. Protect Work in place which requires job-finishing until said finishing has been completed.

H. Protect previously placed Work with suitable coverings or other protections during installation of subsequent Work. Remove any foreign materials from surfaces, and then clean same immediately with materials that will not damage finished Work (brick, aluminum, etc.) to the satisfaction of the Project Architect/Engineer.

19. RECEIVING AND STORING MATERIALS AND EQUIPMENT

A. Upon receipt of materials and equipment at the job site or another authorized point of delivery, Contractor shall have an authorized person present to check all items for in-transit damage and to make arrangements to replace any damaged materials or equipment in ample time to prevent delay to its scheduled installation.

B. At the point of receipt of materials and equipment, the Contractor shall have sufficient experienced personnel present to unload all items and prepare and locate them for proper storage prior to their installation.

C. Wherever possible, deliver materials and equipment in manufacturers’ original crates, boxes or packages, keeping identifying labels intact until installation and final acceptance and cleaning. Where items are to be job-assembled, label, tag, mark or otherwise properly identify each component part until incorporated in the Work.

D. Provide waterproof, well-ventilated enclosures for storage of materials and equipment subject to damage by dampness, frost, freezing, etc. Location for said enclosures shall be where approved by the Owner.

E. Storage of materials and equipment outside on pallets which any type of covering material over them will not be allowed, unless permission to do so has been document in writing by the Architect or Engineer.
F. Remove from the premises and replace with new, any materials and equipment determined, in writing, by the Project Architect/Engineer to be in any condition not acceptable for use in the Project.

20. SAFETY

A. The Contractor shall designate a responsible member of the Contractor’s organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor’s superintendent unless otherwise designated by the Contractor in writing to the Owner’s Representative and Architect.

B. Precaution shall be exercised at all times for the protection of persons (including employees) and property. The safety provisions of applicable laws and building and construction codes shall be observed. Machinery, equipment and hazardous conditions shall be guarded, including warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent site and utilities or eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America; and Occupational Safety and Health Standards, published by Occupational Safety and Health Administration, U.S. Department of Labor, or their successor publications, latest and best edition, amendments or addenda.

C. All contractors/suppliers hereby agree to comply with all applicable occupational safety, health and environmental laws, regulations, standards, codes and/or ordinances at all times from inception through completion of this Contract. This includes, but is not limited to, the Hazard Communication Standard under the Occupational Safety and Health Act (for information and free assistance, contact the Kansas Department of Labor, Division of Industrial Safety and Health, 512 S.W. 6th Street, Topeka, Kansas 66603-3150, telephone 913-296-4386), and the Emergency Planning and Community Right-to-Know Act (for information and free assistance, contact the Kansas Department of Health and Environment Right-to-Know Program, 109 S.W. 9th Street, Suite 501, Topeka, Kansas 66612-1290, telephone (785-296-1690).

D. The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of authorities having jurisdiction bearing on safety of persons or property or their protection from damage, injury, or loss.

E. When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

F. The Contractor shall be responsible for the safety of all persons while on the construction site. The Contractor shall maintain construction area safety which may include providing and maintaining warning signs, lights, signal devices, barricades, guard rails, fences, and other devices appropriately located on site which shall give proper and understandable warning to all persons of danger, entry onto land, structure, or equipment as required by code and all other regulatory requirements.

G. If the Contractor encounters on the site, material believed to be hazardous which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Architect and Owner’s Representative in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of the Architect and Contractor if in fact the material is hazardous and has not been rendered harmless. Hazardous materials are those as defined by Kansas Department of Health and Environment’s response list.

H. The Contractor shall promptly take precautions which are necessary and adequate against conditions created during the progress of the Contractor’s activities hereunder which involve a risk of bodily harm to persons or a risk of damage to property. The Contractor shall continuously inspect Work, materials, and equipment to discover any such hazardous conditions and shall be solely responsible for correction of any such conditions.
I. It shall be the sole responsibility of the Contractor to enforce or direct safety rules or procedures. It shall not be the responsibility of the Owner or Project Architect/Engineer to enforce or direct safety rules or procedures.

J. Contractor shall hold harmless and indemnify the Owner and Project Architect/Engineer from damages and expenses from any and all claims related to this Article for bodily injury or property damage or expenses incurred by any person or firm.

K. The Contractor shall properly execute the work before proceeding to the next step in sequence so as not to endanger the safety of all persons while on the construction site.

21. CORRECTION OF THE WORK

A. The Contractor shall promptly correct Work rejected by the Project Architect/Engineer for failing to conform to the requirements of the Contract Documents, whether observed before or after final completion. The Contractor shall bear costs of correcting such rejected Work, including additional testing and inspections and compensation for the Project Architect/Engineer’s services and expenses made necessary thereby.

B. The Contractor shall remove from the site, at his expense portions of the Work which are not in accordance with the requirements of the Contract Documents and not accepted by the Project Architect/Engineer.

C. If the Contractor defaults or neglects to carry out the work in accordance with the Contract Documents or fails to perform any provision of the Contract, the Owner may, after ten (10) days written notice from the Project Architect/Engineer to the Contractor and without prejudice to any other remedy he may have, make good such deficiencies. In such case, an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including the cost of the Project Architect/Engineer’s additional services made necessary by such default, neglect or failure. Such Change Order shall not require the approval of the Contractor.

D. The Contractor and his surety shall be and remain liable to the Owner for any excess cost or damages occasioned to the Owner as the result of the actions set forth in this Article.

E. If the Project Architect/Engineer accepts Work which is not in accordance with the Contract Documents, he may do so instead of requiring its removal and correction, in which case the Contract Sum will be adjusted as appropriate and equitable. Such adjustment shall be made whether or not final payment has been made.

22. CONSTRUCTION SCHEDULE AND REPORTS

A. At the Pre-construction conference, the Contractor shall present to the Project Architect/Engineer a construction schedule and a Schedule of Values. The Contractor (or designated prime contractor) shall coordinate each contractor’s or subcontractor’s schedule and establish a mutually acceptable schedule for the entire progress of the Work and shall deliver the schedule to the Project Architect/Engineer in a form satisfactory to the Owner. Schedule shall be coordinated with and approved by the Project Architect/Engineer and the Owner.

B. The construction progress schedule shall include as a minimum the following detail:

1. The proposed schedule for tasks identified in the Schedule of Values in bar chart form.

2. Important milestones which may impact the construction progress schedule shall be identified by a critical path schedule using either bar chart or the Critical Path Method.
3. Weekly breakdown of work and activities for each major component of work. Define special items as directed by the Project Architect/Engineer.

4. Intended time for starting and completing each activity including indication of float time.

C. There will be no payment of any periodic estimate until the Contractor's list of Material Suppliers, Construction Progress Schedule, and Schedule of Values have been approved by the Project Architect/Engineer.

D. The construction progress schedule shall be maintained current at all times by the Contractor (or the designated prime contractor). Revisions shall be made in the same detail as the original and shall be accompanied by written explanation of the reasons for the revision and shall be subject to the approval of the Project Architect/Engineer. Copies of the revised construction progress schedule shall be delivered to the Project Architect/Engineer and Owner monthly during the course of the work.

E. The Contractor (or designated prime contractor) shall submit monthly to the Project Architect/Engineer progress reports showing actual percentage of each activity completed, estimated future progress and anticipated completion time of such activity.

F. Should the Contractor fail to meet completion dates required by the progress schedule, the Owner's representative may issue a written notice to the Contractor requiring the Contractor to submit a written plan for expediting the Work to comply with the progress schedule. The plan shall be submitted to the owner's representative within ten (10) days after the Contractor's receipt of such notice. The Contractor's plan shall specify the dates and means by which the Contractor will bring the work back on schedule. Means may include, but are not limited to, hiring additional workers, working additional hours, utilizing additional equipment, or expediting delivery of materials. If the Contractor fails to submit a written plan or fails to comply with dates specified in the plan for bringing the Work back on schedule, the owner's representative may, by written notice, require that additional workers, plant and equipment be placed on the Work or require that hours, in addition to regular hours, be worked until progress is as scheduled, with no additional cost to the Owner. The Contractor shall immediately implement requirements of the notice.

23. TIME FOR COMPLETION

A. Time limits stated in the Contract Documents are of the essence of the Contract. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the Work, described in the Contract is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industry conditions prevailing in this locality. Unless otherwise provided in the Contract, the time for completion is measured by calendar days, not work days.

B. If the Contractor's schedule provides for an earlier completion date than the established contract completion date, and the agency desires to change the contract completion date to the earlier date, this may be done through a change order to the contract. This change order does not require the approval of the Contractor.

C. Except in cases of emergency or by agreement or instruction of the Project Architect/Engineer in writing, the Contractor shall no knowingly, prematurely commence operations on the site or elsewhere prior to the effective date of insurance as required to be furnished by the Contractor, and by the effective date of the Notice to Proceed.
D. The Contractor shall proceed expeditiously with adequate forces and shall achieve Final Completion within the time specified on Contract Documents. A delay in the delivery to the site of any materials or equipment will not be considered as a valid reason for a time extension to the Contract.

E. At the end of the time for completion, all equipment and systems shall be fully operational and functioning as required by the specifications. Testing shall be completed and all defects discovered as a result of this testing shall be corrected before the completion date.

F. It is further agreed that time is of the essence of each and every portion of this Contract wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract. These are not compensable delays. Time extensions, only if they impact the progress of the Work in a negative manner, may be granted if the delay is due:

1. To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including, but not limited to, acts of God, or of the public enemy, fires, floods, epidemics, quarantine restrictions, strikes or embargoes. For weather delays, see (G) below.

2. To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsection 1) of this article.

3. The Contractor shall, within ten (10) days from the beginning of such delay, notify the Project Architect/Engineer, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of his decision in the matter.

G. Claims for delay due to “unusually severe weather” affecting the completion time shall only be considered when meeting the following criteria:

1. Definitions:

   (a) “Adverse weather” – weather conditions during a definite time and place that are unfavorable to construction activities.

   (b) “Unusually severe weather” – weather that is more severe than the “adverse weather” anticipated for the season at the location of the construction project.

2. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe that the adverse weather to be anticipated for the project location during any given month.

3. The delay must be related to the unusually severe weather and not due to the Contractor’s fault, negligence, or his failure to maintain the approved construction schedule.

4. The unusually severe weather must cause actual delay to the completion time of the project. A claim for unusually severe weather delay must document actual delay to a scheduled critical path construction activity for at least 50% or more of the Contractor’s scheduled workday. On projects without critical path scheduling, the Owner may withhold final determination of the delay claim until the Contractor submits an updated construction schedule for approval.
5. Anticipated “adverse weather” days. The contract includes and anticipates that adverse weather conditions, including rain, snow, wind and extreme temperatures, will occur during the period of the Contract and will delay the Work. The schedule of monthly anticipated “adverse weather” delay days shall be incorporated in the “Time of Completion” for the project.

6. To meet the criteria for an unusually adverse weather delay day, one of more or the following requirements must be met within the work day and cause and delay a scheduled critical path construction activity, and noted in G4 above.

(a) Rainfall equal to or greater than 0.10 inches.

(b) Average temperatures less than 20 degrees Fahrenheit.

(c) Snowfall in excess of 1.0 inches.

(d) Sustained wind speed in excess of 25 mph.

7. Evaluation of a claim for delay caused by unusually severe weather shall be as follows:

(a) Claims for delay shall be submitted no later than ten (10) days after the end of the month to be evaluated.

(b) The Contractor shall submit documentation indicating cause, affect and delay including the weather criteria on each adverse weather delay day that occurred during the month to be evaluated. Any day that is submitted that does not meet the criteria shall be deemed not to qualify as an adverse weather delay day.

(c) Documentation of adverse weather criteria shall be submitted in their original form from a recognized weather recording station, newspaper, computer information service, or other Owner approved source. In the event there is no weather recording source at or near the project location, the contractor shall record the daily weather information in a format meeting the criteria in G6 above. The weather documentation source will be determined at the pre-construction meeting.

(d) In order to calculate the delay from the supplied tables, deduct the number of anticipated adverse weather delay days listed for the month being evaluated.

(e) If the monthly total of qualifying adverse weather delay days exceeds the number of anticipated adverse weather delay days, the net difference in qualifying delay days will constitute unusually severe weather. The number of qualifying delay days will be added to the Contract as an adjustment to the “Time Completion”. There shall be no change in the Contract amount for this type of claim.

H. Acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, that will cause delay to this Contractor, shall be brought to the attention of the Project Architect/Engineer in writing with ten (10) calendar days. Failure to notify the Project Architect/Engineer immediately will cause the Contractor to waive his right to extra days or damages therefrom.
I. Permitting the Work or any part of it to continue after the time fixed for its completion, or after the date to which the time for completion may have been extended, shall in no way operate as a waiver on the part of the Owner of any of his rights under the Contract.

J. Liquidated damages are hereby agreed to by all parties.

K. The Contractor, and any of its subcontractors, suppliers, material men or any other such party, shall have no claim for monetary compensation, monetary claims, or damages, of whatever kind or nature, for delay, hindrance, or inefficiency. The Contractor’s only claim and the Contractor’s only remedy for such delay, hindrance or inefficiency shall be for an extension of time provided in Article 23 unless the claim is the results of (a) a negligent act, error or omission of the Project Architect/Engineer; (b) an unforeseeable site condition materially differing from that shown in the construction documents; or, (c) a negligent act or omission or breach of contract by the Owner. In these cases the Contractor shall receive compensation as provided in Article 12 – Changes in the Work.

L. At such time as the Contractor believes the project to be substantially complete, the Contractor shall notify the Project Architect/Engineer and request an inspection. The Project Architect/Engineer shall conduct an inspection and prepare a list of all items that have not been completed (if the Project Architect/Engineer determines that the construction is not complete and ready for the inspection, he shall so inform the Contractor). The Contractor shall complete all the items listed by the Project Architect/Engineer before the adjusted completion date in the contract (contract completion date with change orders adjustments). Upon completion of all such items, the Contractor shall request a final inspection which shall be conducted by the Project Architect/Engineer.

M. If the Project Architect/Engineer determines that any of the items listed have not been completed by the adjusted completion date of the contract, the Contractor shall be responsible for the cost of the additional Project Architect/Engineer’s services beyond the adjusted completion date of the contract. The Contractor shall not be responsible for the cost of any additional inspections if the failure to complete listed items is caused by the Project Architect/Engineer or Owner. Such costs shall be covered by a change order and shall be paid to the Project Architect/Engineer. Such change order shall not require the approval of the Contractor.

24. RIGHT OF OWNER TO SUSPEND CONTRACT

A. The Owner may, without cause, order the Contractor in writing to suspend, delay, or interrupt the Work in whole or in part for such period of time as the Owner may determine.

B. An adjustment will be made for increases in the cost of performance of the Contract caused by suspension, delay or interruption. No adjustment will be made to the extent.

1. That performance is, was, or would have been so suspended, delayed or interrupted by another cause for which the Contractor in whole or in part is responsible, or

2. That and equitable adjustment is made or denied under another provision of this Contract.

C. Should the Owner be prevented or enjoined from proceeding with the work either before or after the start of construction by reason of any litigation, act of God, or other reason beyond the control of the Owner, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay; but time for completion of work will be extended to such reasonable time as the Owner may determine will compensate for time lost by such delay; such determination to be set forth in writing. The Contractor will not be required to hold
his bid price for longer than three months. The Owner may either negotiate a Change Order with the Contractor for any additional costs, or terminate the Contract following the three-month period. Should the Contract be terminated, the Contractor will be compensated for all work performed to date on the Contract.

25. RIGHT OF OWNER TO TERMINATE CONTRACT – CAUSE AND CONVENIENCE

A. In the event that any of the provisions of this Contract are violated by the Contractor, or by any of his subcontractors, Wichita State University may serve written notice upon the Contractor and the surety of their intention to terminate the Contract for cause. Such notice shall contain the reasons for such intention, and unless within ten (10) days after the serving of such notice upon the Contractor, such violation or delay shall cease and satisfactory arrangement or correction be made the Contract shall upon expiration of said ten (10) days, cease and terminate.

B. In the event of any such termination for cause Wichita State University shall immediately serve notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the Contract, provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such surety of notice of termination, the Owner may take over the Work and prosecute the same to completion by the Contractor at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any excess cost above the original Contract amount occasioned the Owner thereby. In such event, the Owner may take possession of and utilize in completing the Work, such materials, appliances and plant as may be on the site of the Work and necessary therefore.

C. At any time, terminate the contract for convenience and without cause. Upon service of written notice the Contractor shall:

1. Cease operations as directed in the notice,

2. Take actions necessary or directed in the notice for the protection and preservation of the Work, and

3. Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontract and purchase orders and enter into no further subcontracts or purchase orders.

D. All materials previously paid for by the Owner shall be delivered to or remain on the construction site.

E. In case of termination for convenience the contractor shall be entitled to payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed, not to exceed 10% for each.

26. QUANTITIES OF ESTIMATES

A. Whenever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents including the proposal, they are given for use in comparing bids and the right is especially reserved to increase or diminish them as they may be deemed reasonably necessary or desirable to complete the Work contemplated by this Contract, and such increase or diminution shall no way vitiate this Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

27. PAYMENTS TO CONTRACTORS
A. The owner will make partial payments to the Contractor for the value, proportionate to the amount of the Contract, all of labor and material incorporated in the work during the preceding calendar month upon receipt of certification from the Project Architect/Engineer and approval of the Owner.

B. The Contractor shall submit to the Project Architect/Engineer a request for certification for each payment, on current AIA documents G702 and G703. Contractors shall be responsible for securing their own AIA forms. Each item identified on the Schedule of Values shall be broken down into material and labor as separate items on the G703. This request for certification shall be submitted in the number of copies directed, and shall include the Contractor’s detailed estimate of all items and activities of work to be performed, in the space provided on the form. If requested, the statement shall be supported by such evidence as may be required, showing the Contractor’s right to the payment claimed.

1. Project Architect/Engineer will review, approve and forward undisputed requests to the Owner within seven (7) days of receipt.

C. Periodic estimates of Work completed shall be correlated with the schedule of values and furnished to the Project Architect/Engineer with requests for partial payment.

D. Request for payment for preparatory work and materials delivered and suitably stored at the site to be incorporated into the work at some future period, will be given due consideration. The Project Architect/Engineer may, under certain circumstances, approve payment up to ninety percent (90%) of the value of manufactured products delivered to a suitable warehouse at or near the locale of the project. Stored products shall be insured to one hundred percent (100%) of their value. Proof of said insurance shall be given to the Project Architect/Engineer. A bill of sale and their costs, including an itemized inventory of all stored products, shall be obtained and provided the Project Architect/Engineer. Approval of all surety company of the Contractor shall also be obtained and provided to the Project Architect/Engineer before these items are stored. Insurance for stored materials shall include transportation from the warehouse to the job site.

E. Payments by the Owner will be due within thirty (30) days after receipt of certified request for payment from the Project Architect/Engineer.

F. Ten percent (10%) of the Work Completed to Date will be retained on each payment request until final completion and acceptance of all Work covered by the Contract.

1. Upon 50% completer, the Owner and Project Architect/Engineer may reduce retainage to a minimum of 5% of the total project cost upon the following conditions:

   (a) Reduction of retainage is not automatic. Any reduction must be requested. Approval may be withheld for a variety of reasons, to include progress not on schedule, concerns about quality of work, etc. Applications for payment that assume a reduction before it is approved will be returned for correction, thus delaying payment.

   (b) Retainage of 10% is mandatory if the critical path progress of the work is not on schedule, including previously agreed upon change order days. If retainage had been reduced on previous applications for payment, and work falls behind the critical path schedule, retainage will revert back to the full 10% of the total invoiced cost to date on all applications until the work is back on schedule.
2. Retainage will be released on any undisputed payment within thirty (30) days after Substantial Completion of the project. When a subcontractor continues to work on the project after Substantial Completion; the Owner may withhold that portion of the retainage attributed to the subcontractor until thirty (30) days after the work is completed.

G. All material and work covered by partial payments shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and adequate protection from weather, damage, vandalism, theft, and fire of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Owner to require the fulfillment of all of the terms of the Contract.

H. If overpayment occurs, the Owner has to right to stop payment applications until the actual Work completed is equal to the payment applications and certified by the Project Architect/Engineer to be in compliance with the contract documents.

I. Final payment will be made within thirty (30) days after final completion of the work.

J. Prior to the issuance of final payment, the Contractor shall submit a certification that all debts and claims against this project have either been paid in full or otherwise satisfied in the form of an Affidavit of Contractor.

K. No recourse shall be had against any individual employee or agents of the State of Kansas, or officer thereof, for any payment under the contract or any claim based thereon.

28. PAYMENTS BY CONTRACTOR

A. The Contractor shall pay with seven (7) days of receipt of payment from the Owner, each subcontractor out of the amount paid to the Contractor on account of each subcontractor’s work, the amount to which said subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of each subcontractor’s work. The Contractor shall, by an appropriate agreement with each subcontractor, require each subcontractor to make payments to his sub-subcontractors in similar manner.

29. SUBCONTRACTOR PAYMENT INDEMNIFICATION

A. The Contractor agrees that he will indemnify and save the Owner harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, material suppliers, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, incurred in the furtherance of the performance of this Contract.

30. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

A. The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:

   1. Unsettled liens

   2. Faulty or defective work appearing after Final Project Completion

   3. Failure of the Work to comply with the requirements of the Contract Documents, or

   4. Terms of any special guarantees or warranties required by the Contract Documents.
B. The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and still unsettled.

31. USE AND OCCUPANCY PRIOR TO ACCEPTANCE

A. If the construction schedule is current, the Contractor agrees to the Owner’s use and occupancy of a portion or unit of the Project before the date of final completion, provided:

1. The Owner assumes all costs for maintenance of heat, electricity and water, and provides custodial care and maintenance of the occupied portions.

2. The Owner accepts all work as fully complete within that portion or unit of the Project to be occupied, at time of occupancy.

B. If the construction schedule is not current, the Contractor agrees to the Owner’s use and occupancy of all or a portion of the project:

1. Contractor is responsible for completing scheduled Work as noted on inspection report listing any incomplete work and Work as defined in the Contract Documents.

2. Contractor is responsible for cleaning up dust and debris caused by work completed in the occupied areas.

3. Contractor is responsible for a final clean-up in all areas where occupancy has occurred prior to final completions.

32. GENERAL GUARANTEE

A. The Contractor shall remedy and make good all defective workmanship and materials and pay for any damage to other work or property resulting therefrom, which appear within a period of one year from the date of final project completion, providing such defects are not clearly due to abuse or misuse by Owner. The Owner will give notice of observed defects with reasonable promptness. The one (1) year period will not apply to defective workmanship and materials not discovered within the one year period.

B. Neither the final certificate for payment nor any provision in the Contract Documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any expressed warranties or responsibility for faulty materials or workmanship.

C. The guarantee on all work covered under this contract shall begin on the date of Final Project Completion or substantial completion if applicable. If the building is partially occupied, the date of partial occupancy shall establish the beginning date for the guarantee period for that section of the building and for all equipment in place, operable and used for this area. Any additional work in this area shall be considered warranty work by the Contractor.

D. When guarantees or warranties are required in sections of specifications for periods in excess of one year, such longer terms shall apply.

E. Within nine months after official acceptance of a Project, the Owner, the Contractor and the Project Architect/Engineer shall conduct a full inspection of the completed project and the Contractor shall promptly correct all items noted.

F. If, within one year after the date of Final Completion of the Work or designated portion thereof, or after the date for commencement of warranties, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found not to be in accordance with the requirements of the Contract Documents,
the Contractor shall correct it promptly after receipt of written notice from the Project Architect/Engineer to do so unless the Project Architect/Engineer has previously given the Contractor a written acceptance of such condition.

G. Nothing contained in this Article shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of time period of one year as described in this Article relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time with which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the his obligations other than specifically to correct the Work.

33. ARBITRATION, DAMAGES AND WARRANTIES

A. Notwithstanding any language to the contrary, no interpretation of this Contract shall be allowed to find the State or any agency thereof has agreed to binding arbitration, the payment of damages or penalties upon the occurrence of a contingency, or to permit disclaimer of any or all warranties.

34. PATENTS AND ROYALTIES

A. The Contractor shall pay all royalty and license fees. The Contractor shall defend suits or claims for infringement of patent or copyright rights and shall hold the Owner, its officers, agents and employees and the Project Architect/Engineer harmless from all loss and expense on account thereof.

B. If the Contractor uses any item covered by a patent or trademark, he shall reach an agreement with the holder of the patent or copyrights.

35. INDEMNIFICATION

A. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and the Project Architect/Engineer and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense 1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, and 2) is caused in whole or in part by any negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in party by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which could otherwise exist as to any party or person described in the paragraph.

B. In any and all claims against the Owner or the Project Architect/Engineer or any of their agents or employees by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

C. The obligations of the Contractor shall not extend to the liability of the Project Architect/Engineer, his agents or employees, arising out of 1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications, or 2) the giving of or the failure to give directions or instructions by the Project Architect/Engineer his agents or employees provided such giving or failure to give is the primary cause of the injury or damage.

36. ASSIGNMENTS

A. The Contractor shall not assign the whole or any part of this Contract or any moneys due or to become due hereunder without written consent of the Owner. In case the Contractor assigns all or any part of any moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the
effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to prior claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the work called for in this Contract.

B. Such assignment shall not be made without the consent of the surety unless the surety has waived its right to notice of assignment.

37. REQUIRED PROVISIONS DEEMED INSERTED

A. Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

38. KANSAS ACTS AGAINST DISCRIMINATION

A. The Contractor hereby agrees and covenants as a condition of the Contract that he will comply with the Kansas Act Against Discrimination, (K.S.A. 44-1001 et seq.) and the Kansas Age Discrimination in Employment Act (K.S.A. 44-1111 et seq.) and the Americans with Disabilities Act (42 U.S.C. 12101 et seq.), and that his failure to do so may be deemed to be a breach of Contract and may subject the Contract to be termination.

39. ANTITRUST

A. For good cause, and as consideration for executing this Contract, the Contractor, acting herein by and through its authorized agent, hereby conveys, sells, assigns and transfers to the State of Kansas all right, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of Kansas pursuant to this Contract.

40. DRUG TESTING

A. Bidders are advised that in some circumstances federal regulations require drug testing of employees who install or maintain pipelines. Bidders should determine if drug testing is required on this project and include in its bid the complete cost for all such testing. Questions concerning these requirements should be directed to the Kansas Corporation Commission, Natural Gas Operations, 1500 S.W. Arrowhead Road, Topeka, Kansas 66604-4027, (785) 271-3100.

41. LICENSURE

A. All plumbing, electrical and heating, ventilation and air conditioning work on the job site shall be performed or supervised by a journeyman, with a current license in that particular trade. Licenses shall be available for inspection at the work site, and if a license is not available, work of that particular trade shall cease. Licenses from any state or political subdivision will be recognized. Licenses that require passage of Block/Experion tests are preferable.

END OF DOCUMENT
Specifications for Henrion Hall Remodel – Fire Alarm Upgrade

Building No. 71500-00025

Prepared for:
Wichita State University
Office of Facilities Planning
1845 Fairmount Street
Wichita, Kansas  67260-0047

PH: 316 978-3030
FAX: 316 978-3151

On Call Architect:
PAGE 000105 - CERTIFICATION

I, Mark Chrisman, PE, hereby certify that the documents to be authenticated by my seal are limited to:

GENERAL DRAWINGS

ENGINEERING DRAWINGS

SPECIFICATIONS

DIVISION 28 - ELECTRONIC SAFETY & SECURITY SPECIFICATION

Section 284600 FIRE DETECTION AND ALARM

and I hereby disclaim any responsibility for all other plans, specifications, reports or other documents or instruments relating to or intended to be used for any part or parts of the Wichita State University Henrion Hall Remodel Phase I, in Wichita, KS.

By: ________________________________

Mark Chrisman, PE

Jul 5 2019
SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Others
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and Drawing conventions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner’s facilities.

1.2 PROJECT INFORMATION

A. Project Identification: WSU Henrion Hall Renovation Phase I.

1. Project Location: 1845 Fairmount Street, Wichita, KS 67260.

B. Owner: Wichita State University.

1. Owner’s Representative: Kevin Young, Kevin.young@wichita.edu

C. Architect: Amy Slattery, aslattery@odimo.us

D. Web-Based Project Software: Project software administered by Contractor will be used for purposes of managing communication and documents during the construction stage.

1. See Section 013100 "Project Management and Coordination." for requirements for administering and using web-based Project software.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Type II-B: University classroom/shops and vocational areas. Existing building, non-conforming (to 2018 IBC)

2. The extent of this project is as follows:
   a. Update of all fire alarm safety features.

B. Type of Contract:

1. Project will be constructed under a single prime contract.
1.4 WORK BY OTHER CONTRACTS

A. A separate project will be under construction concurrent with this project, Henrion Hall - Phase I Remodel, Project A-013714.

1. The extent of this project is as follows:
   a. Updates to the HVAC, Plumbing, Electrical and all Life Safety features for the areas within the scope of work in the building.
   b. The project includes general finish upgrades for 35,651SF as indicated on the plans.

1.5 Occupant load in the area of work remains the same in this project, but does not exceed the exit capacity of the building.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

   1. Limits: Limit site disturbance, including earthwork and clearing of vegetation, to 40 feet (12.2 m) beyond building perimeter; 10 feet (3 m) beyond surface walkways, patios, surface parking, and utilities less than 12 inches (300 mm) in diameter; 15 feet (4.5 m) beyond primary roadway curbs and main utility branch trenches; and 25 feet (7.6 m) beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities, and playing fields) that require additional staging areas in order to limit compaction in the constructed area.

   2. Driveways, Walkways, and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1.8 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

   1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 6 a.m. to 5 p.m., Monday through Friday, unless otherwise indicated.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Restricted Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000
SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

   a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
   b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
   c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
   d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
   e. Samples, where applicable or requested.
   f. Certificates and qualification data, where applicable or requested.
   g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
   h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
   i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.


b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.5 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.6 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.

b. Substitution request is fully documented and properly submitted.

c. Requested substitution will not adversely affect Contractor's construction schedule.

d. Requested substitution has received necessary approvals of authorities having jurisdiction.

e. Requested substitution is compatible with other portions of the Work.

f. Requested substitution has been coordinated with other portions of the Work.

g. Requested substitution provides specified warranty.

h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

   a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

   b. Requested substitution does not require extensive revisions to the Contract Documents.

   c. Requested substitution is consistent with the Contract Documents and will produce indicated results.

   d. Substitution request is fully documented and properly submitted.

   e. Requested substitution will not adversely affect Contractor's construction schedule.

   f. Requested substitution has received necessary approvals of authorities having jurisdiction.

   g. Requested substitution is compatible with other portions of the Work.

   h. Requested substitution has been coordinated with other portions of the Work.

   i. Requested substitution provides specified warranty.

   j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500
PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710 or similar form.

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.

2. Within time specified in Proposal Request or 15 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include costs of labor and supervision directly attributable to the change.

d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include costs of labor and supervision directly attributable to the change.

5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 or similar form.

1.5 CONSTRUCTION CHANGE DIRECTIVE


1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
SECION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Arrange schedule of values consistent with format of AIA Document G703.
2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
   a. Differentiate between items stored on-site and items stored off-site.
4. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
5. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
6. Overhead Costs: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
7. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
8. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Submittal schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
10. Initial progress report.
12. Certificates of insurance and insurance policies.
13. Performance and payment bonds.
14. Data needed to acquire Owner's insurance.

H. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706A.
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900
SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. RFIs.
4. Digital project management procedures.
5. Project meetings.

B. Related Requirements:

1. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.3 DEFINITIONS

A. BIM: Building Information Modeling.

B. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Submittal Format: Submit or post coordination drawing files using PDF format.
   a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
   b. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

1.7 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: AIA Document G716 or software-generated form with substantially the same content as indicated above, acceptable to Architect.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for approval of Contractor's means and methods.
   d. Requests for coordination information already indicated in the Contract Documents.
   e. Requests for adjustments in the Contract Time or the Contract Sum.
   f. Requests for interpretation of Architect's actions on submittals.
   g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
   a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use software log that is part of web-based Project software. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Use of Architect's Digital Data Files: Digital data files of Architect's BIM model will be provided by Architect for Contractor's use during construction.

1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.
2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
3. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

   a. Subcontractors, and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of Agreement acceptable to Owner and Architect.

B. Web-Based Project Software: Provide, administer, and use web-based Project software site for purposes of hosting and managing Project communication and documentation until Final Completion.

   1. Web-based Project software site includes, at a minimum, the following features:

      a. Compilation of Project data, including Contractor, subcontractors, Architect, architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
      b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
      c. Document workflow planning, allowing customization of workflow between project entities.
      d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
      e. Track status of each Project communication in real time, and log time and date when responses are provided.
      f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
      g. Processing and tracking of payment applications.
      h. Processing and tracking of contract modifications.
      i. Creating and distributing meeting minutes.
      j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
      k. Management of construction progress photographs.

   2. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.

C. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:

   1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
   2. Name file with submittal number or other unique identifier, including revision identifier.
   3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.
1.9 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Responsibilities and personnel assignments.
   b. Tentative construction schedule.
   c. Critical work sequencing and long lead items.
   d. Designation of key personnel and their duties.
   e. Lines of communications.
   f. Use of web-based Project software.
   g. Procedures for processing field decisions and Change Orders.
   h. Procedures for RFIs.
   i. Procedures for testing and inspecting.
   j. Procedures for processing Applications for Payment.
   k. Distribution of the Contract Documents.
   l. Submittal procedures.
   m. Preparation of Record Documents.
   n. Use of the premises and existing building.
   o. Work restrictions.
   p. Working hours.
   q. Owner’s occupancy requirements.
   r. Responsibility for temporary facilities and controls.
   s. Procedures for moisture and mold control.
   t. Procedures for disruptions and shutdowns.
   u. Construction waste management and recycling.
   v. Parking availability.
   w. Office, work, and storage areas.
   x. Equipment deliveries and priorities.
   y. First aid.
   z. Security.
   aa. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
   b. Options.
   c. Related RFIs.
   d. Related Change Orders.
   e. Purchases.
   f. Deliveries.
   g. Submittals.
h. Review of mockups.
   i. Possible conflicts.
   j. Compatibility requirements.
   k. Time schedules.
   l. Weather limitations.
   m. Manufacturer's written instructions.
   n. Warranty requirements.
   o. Compatibility of materials.
   p. Acceptability of substrates.
   q. Temporary facilities and controls.
   r. Space and access limitations.
   s. Regulations of authorities having jurisdiction.
   t. Testing and inspecting requirements.
   u. Installation procedures.
   v. Coordination with other work.
   w. Required performance results.
   x. Protection of adjacent work.
   y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

   a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      1) Review schedule for next period.

   b. Review present and future needs of each entity present, including the following:
      1) Interface requirements.
      2) Sequence of operations.
      3) Resolution of BIM component conflicts.
      4) Status of submittals.
      5) Status of sustainable design documentation.
      6) Deliveries.
      7) Off-site fabrication.
      8) Access.
      9) Site use.
     10) Temporary facilities and controls.
     11) Progress cleaning.
12) Quality and work standards.
13) Status of correction of deficient items.
14) Field observations.
15) Status of RFIs.
16) Status of Proposal Requests.
17) Pending changes.
18) Status of Change Orders.
19) Pending claims and disputes.
20) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

   a. Schedule Updating: Revise Contractor’s construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100
PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Construction schedule updating reports.
3. Daily construction reports.
4. Site condition reports.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF file.

B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.

E. Construction Schedule Updating Reports: Submit with Applications for Payment.

F. Site Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
6. Punch List and Final Completion: Include not more than 15 days for completion of punch list items and final completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
3. Work Restrictions: Show the effect of the following items on the schedule:
   a. Coordination with existing construction.
   b. Limitations of continued occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use-of-premises restrictions.
   g. Seasonal variations.
   h. Environmental control.
4. Other Constraints: Relocation of Owner's existing furniture and equipment as construction progresses within Work Area.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
   1. Unresolved issues.
   2. Unanswered Requests for Information.
   3. Rejected or unreturned submittals.
   4. Notations on returned submittals.
   5. Pending modifications affecting the Work and the Contract Time.

F. Contractor's Construction Schedule Updating: At weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one day before each regularly scheduled progress meeting.
   1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
   2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
   3. As the Work progresses, indicate final completion percentage for each activity.

G. Recovery Schedule: When periodic update indicates the Work is 15 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

H. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
   1. Post copies in Project meeting rooms and temporary field offices.
   2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200
SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.3 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
4. Name of Construction Manager.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractor, manufacturer, and supplier.
8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
9. Category and type of submittal.
10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.
15. Other necessary identification.
17. Signature of transmitter.
B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

E. Submittals for Web-Based Project Software: Prepare submittals as PDF files, or other format indicated by Project software website.

1.5 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect’s receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect’s action stamp.

1.6 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:
   a. Manufacturer's catalog cuts.
   b. Manufacturer's product specifications.
   c. Standard color charts.
   d. Statement of compliance with specified referenced standards.
   e. Testing by recognized testing agency.
   f. Application of testing agency labels and seals.
   g. Notation of coordination requirements.
   h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:
   a. Wiring diagrams that show factory-installed wiring.
   b. Printed performance curves.
   c. Operational range diagrams.
   d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data unless submittal based on Architect's digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Identification of products.
   b. Schedules.
   c. Compliance with specified standards.
   d. Notation of coordination requirements.
   e. Notation of dimensions established by field measurement.
   f. Relationship and attachment to adjoining construction clearly indicated.
   g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
   2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
      a. Project name and submittal number.
      b. Generic description of Sample.
      c. Product name and name of manufacturer.
      d. Sample source.
      e. Number and title of applicable Specification Section.
      f. Specification paragraph number and generic name of each item.

3. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.

4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
   a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample sets; remainder will be returned.
      1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:
   1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
   2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
   3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
   4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
   5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

   a. Name of evaluation organization.
   b. Date of evaluation.
   c. Time period when report is in effect.
   d. Product and manufacturers' names.
   e. Description of product.
   f. Test procedures and results.
   g. Limitations of use.

1.7 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.8 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with indication in web-based Project software. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.
1.9 ARCHITECT’S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required.
   1. Submittals by Web-Based Project Software: Architect will indicate, on Project software website, the appropriate action.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect will discard submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300
SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.

2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size physical assemblies constructed and tested at testing facility to verify performance characteristics.

2. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements or as part of permanent construction, consisting of multiple products, assemblies, and subassemblies.

3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes; doors; windows; millwork; casework; specialties; furnishings and equipment; and lighting.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National
Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.3 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

A. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.6 INFORMATIONAL SUBMITTALS

A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

C. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

2. Statement that products at Project site comply with requirements.
3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
5. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Statement that equipment complies with requirements.
2. Results of operational and other tests and a statement of whether observed performance complies with requirements.
3. Other required items indicated in individual Specification Sections.

1.8 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:
   a. Provide test specimens representative of proposed products and construction.
   b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
   c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
   d. When testing is complete, remove test specimens and test assemblies, mockups, and laboratory mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Architect.
3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Architect's approval of mockups before starting corresponding work, fabrication, or construction.
   a. Allow seven days for initial review and each re-review of each mockup.
7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
8. Demolish and remove mockups when directed unless otherwise indicated.

L. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Specification Sections.

1.9 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
   1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
   2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
   1. Engage a qualified testing agency to perform quality-control services.
      a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
   2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
   3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
   4. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
   5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

   1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
   2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000
PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:
   1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typetstyles, graphic elements, and message content.

C. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

E. Moisture-and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.

F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:
   1. Locations of dust-control partitions at each phase of work.
   2. HVAC system isolation schematic drawing.
   3. Location of proposed air-filtration system discharge.
TEMPORARY FACILITIES AND CONTROLS

5. Other dust-control measures.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in ICC/ANSI A117.1.

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack and marker boards.
3. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 017700 "Closeout Procedures."

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.
PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner’s property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

C. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.4 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

C. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
   1. Identification Signs: Provide Project identification signs as indicated on Drawings.
   2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
      a. Provide temporary, directional signs for construction personnel and visitors.
   3. Maintain and touch up signs so they are legible at all times.

D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
   1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."

D. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
   1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
   2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

E. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

F. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

G. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

I. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
3. Provide walk-off mats at each entrance through temporary partition.

J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.
5. Do not install material that is wet.
6. Discard and replace stored or installed material that begins to grow mold.
7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000
SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers’ standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for requests for substitutions.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.

2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.

3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 ACTION SUBMITTALS

A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Architect's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 “Submittal Procedures.” Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
   a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
   a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
   a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."

6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
   a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
   a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
   1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
   1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
   2. Evidence that proposed product provides specified warranty.
   3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
   4. Samples, if requested.
SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

2. Installation of the Work.
3. Cutting and patching.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

1.2 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.
1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."
3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral
anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Remove and replace damaged, defective, or non-conforming Work.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 “Summary.”

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer’s written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.

6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
   2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
      a. Use containers intended for holding waste materials of type to be stored.
   4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300
SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
3. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at final completion.

1.3 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
CLOSEOUT PROCEDURES

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.

3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number.

5. Submit testing, adjusting, and balancing records.

6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.

2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.

3. Complete startup and testing of systems and equipment.

4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."

6. Advise Owner of changeover in utility services.

7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.

8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

9. Complete final cleaning requirements.

10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1.5 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."

2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will
prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Submit list of incomplete items in the following format:

1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

   1. Submit by uploading to web-based project software site.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Clean exposed exterior and interior hard-surftaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   c. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   d. Sweep concrete floors broom clean in unoccupied spaces.
   e. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
   f. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
   g. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
   h. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
   i. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations, before requesting inspection for determination of Substantial Completion.

B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory manuals.
2. Emergency manuals.
3. Systems and equipment operation manuals.
4. Systems and equipment maintenance manuals.
5. Product maintenance manuals.

1.2 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:

1. Submit by uploading to web-based project software site. Enable reviewer comments on draft submittals.

C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.

1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

D. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.3 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the
system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

1.4 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.5 EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
5. Power failure.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

1.6 SYSTEMS AND EQUIPMENT OPERATION MANUALS

A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.

B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.7 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds, as described below.

C. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
   a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.

3. Identification and nomenclature of parts and components.

4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

H. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1.8 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017823
SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. Related Requirements:

1. Section 017300 "Execution" for final property survey.
2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of record Drawings as follows:
   a. Initial Submittal:
      1) Submit PDF electronic files of scanned record prints and one of file prints.
      2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
   b. Final Submittal:
      1) Submit PDF electronic files of scanned record prints and three set(s) of prints.
      2) Print each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.3 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity
is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Annotated PDF electronic file with comment function enabled.
2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
3. Refer instances of uncertainty to Architect for resolution.
   a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
   b. Architect will provide data file layer information. Record markups in separate layers.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of Architect.
   e. Name of Contractor.

1.4 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
   3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
   4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
   5. Note related Change Orders and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file.

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
   1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
   3. Note related Change Orders, record Specifications, and record Drawings where applicable.

C. Format: Submit record Product Data as annotated PDF electronic file.
   1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.6 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.
PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017839
SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:

1. Instruction in operation and maintenance of systems, subsystems, and equipment.
2. Demonstration and training video recordings.

1.2 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

1.3 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.4 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.5 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

   a. System, subsystem, and equipment descriptions.
   b. Performance and design criteria if Contractor is delegated design responsibility.
   c. Operating standards.
   d. Regulatory requirements.
   e. Equipment function.
   f. Operating characteristics.
   g. Limiting conditions.
   h. Performance curves.

2. Documentation: Review the following items in detail:

   a. Emergency manuals.
   b. Systems and equipment operation manuals.
   c. Systems and equipment maintenance manuals.
   d. Product maintenance manuals.
   e. Project Record Documents.
   f. Identification systems.
   g. Warranties and bonds.
   h. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

   a. Instructions on meaning of warnings, trouble indications, and error messages.
   b. Instructions on stopping.
   c. Shutdown instructions for each type of emergency.
   d. Operating instructions for conditions outside of normal operating limits.
   e. Sequences for electric or electronic systems.
   f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

   a. Startup procedures.
   b. Equipment or system break-in procedures.
   c. Routine and normal operating instructions.
   d. Regulation and control procedures.
   e. Control sequences.
   f. Safety procedures.
   g. Instructions on stopping.
   h. Normal shutdown instructions.
   i. Operating procedures for emergencies.
   j. Operating procedures for system, subsystem, or equipment failure.
   k. Seasonal and weekend operating instructions.
   l. Required sequences for electric or electronic systems.
   m. Special operating instructions and procedures.

5. Adjustments: Include the following:

   a. Alignments.
   b. Checking adjustments.
   c. Noise and vibration adjustments.
   d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:
a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:
   a. Inspection procedures.
   b. Types of cleaning agents to be used and methods of cleaning.
   c. List of cleaning agents and methods of cleaning detrimental to product.
   d. Procedures for routine cleaning.
   e. Procedures for preventive maintenance.
   f. Procedures for routine maintenance.
   g. Instruction on use of special tools.

8. Repairs: Include the following:
   a. Diagnosis instructions.
   b. Repair instructions.
   c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   d. Instructions for identifying parts and components.
   e. Review of spare parts needed for operation and maintenance.

1.6 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

1.7 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner’s personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner with at least seven days’ advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.
PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017900
SECTION 024119 - 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.

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. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control, and for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of selective demolition activities with starting and ending dates for each activity.

C. Predemolition photographs or video.

1.5 CLOSEOUT SUBMITTALS

A. Inventory of items that have been removed and salvaged.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.7 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.

1. Before selective demolition, Owner will remove the following items:
a. All existing equipment and casework that will be reused in the scope or in other locations in the building.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect 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.

1.8 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.

C. Inventory and record the condition of items to be removed and salvaged.

3.2 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.
3.3 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. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. 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.
4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

   a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
   b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
   c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
   d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
   e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
   f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
   g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 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.

3.5 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 one hour 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 Salvaged Items:
1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

D. 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.

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

3.6 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.

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 024119
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DIVISION 28 - ELECTRONIC SAFETY & SECURITY SPECIFICATION

Fire Alarm:
284600     FIRE DETECTION AND ALARM

END OF DIVISION 28 TABLE OF CONTENTS
SECTION 284600

FIRE DETECTION AND ALARM

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.
   B. Related Sections: The following sections contain requirements that relate to this Section:
      1. Division 7 Section “Penetration Firestopping” for material and methods for firestopping
         systems.
      2. Division 26 Section "Common Work Results for Electrical," for materials and methods for
         coordination, sleeves and common installation requirements.

1.2 DESCRIPTION OF WORK
   A. This Section requires the Contractor to furnish all materials required to install the fire alarm
      system. The Contractor shall be responsible for installing, testing, and start-up of a complete
      functioning fire alarm system, and each element thereof, as specified or indicated on the Drawings
      or reasonably inferred, including every article, device or accessory (whether or not specifically
      called for by item) necessary to facilitate each system's function as indicated by the design and
      the equipment specified. Elements of the work include materials, labor, supervision, supplies,
      equipment, transportation and utilities.
   B. Division 28 of the Specifications and Drawings numbered with prefixes FP generally describe
      these systems, but the scope of the Fire Alarm work includes all such work indicated in the
      Contract Documents: Instructions to Bidders; Proposal Form; General Conditions;
      Supplementary General Conditions; Architectural, Structural, Fire Suppression, Mechanical,
      Plumbing, Fire Alarm and Electrical Drawings and Specifications; and Addenda.
   C. The Drawings have been prepared diagrammatically and are intended to convey the scope of
      work, indicating the general location and arrangement of the major equipment, devices,
      appliances, etc. without showing all the exact details as to elevations, circuits, routing, and other
      installation requirements. Use the Drawings as a guide when laying out the system and verify
      that materials and equipment will fit into the designated spaces, and which, when installed per
      manufacturers’ requirements, will ensure a complete, coordinated, satisfactory and properly
      operating system.
   D. The scope of work in this section includes:
      1. Fire alarm control unit
      2. Remote annunciator
      3. Manual fire alarm pull stations
      4. System smoke detectors
      5. Heat detectors
      6. Notification appliances
      7. Sprinkler system waterflow and valve tamper alarms
      8. Air handling unit shutdown
      9. Battery stand-by power

1.3 QUALITY ASSURANCE
   A. All work under this division shall be executed in a thorough professional manner by competent
      and experienced workmen licensed to perform the Work specified.
B. All work shall be installed in strict conformance with manufacturer’s requirements and recommendations. Equipment and materials shall be installed in a neat and professional manner and shall be aligned, leveled, and adjusted for satisfactory operation.

C. Material and equipment shall be new, shall be of the best quality and design, shall be current model of the manufacturer, shall be free from defects and imperfections and shall have markings or a nameplate identifying the manufacturer and providing sufficient reference to establish quality, size and capacity. Material and equipment of the same type shall be made by the same manufacturer whenever practicable.

D. Installation of devices shall be performed or supervised by a National Institute for Certification of Engineering Technologies (NICET) Level 2 or higher Fire Alarm Technician. Submit copies of the certification for employees through shop drawing submittals.

1.4 APPLICABLE CODES AND STANDARDS

A. Execute Work in accordance with the National Fire Protection Association Standards and all Local, State, and National codes, ordinances and regulations in force governing the particular class of Work involved. Obtain timely inspections by the constituted authorities. Upon final completion of the Work obtain and deliver to the Owner executed final certificates of acceptance from the Authority Having Jurisdiction.

B. Any conflict between these Specifications and accompanying Drawings and the applicable Local, State and Federal codes, ordinances and regulations shall be reported to the Architect in sufficient time, prior to the opening of Bids, to prepare the Supplementary Drawings and Specification Addenda required to resolve the conflict.

C. The governing codes are minimum requirements. Where these Drawings and Specifications exceed the code requirements, these Drawings and Specification shall prevail.

D. All material, manufacturing methods, handling, dimensions, method or installation and test procedure shall conform to but not be limited to the following industry standards and codes.


E. Contractor shall comply with rules and regulations of public utilities and municipal departments affected by connections of services.

1.5 DEFINITIONS

A. General:

1. Furnish: The term “furnish” is used to mean “supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations.”
2. Install: The term “install” is used to describe operations at the project site including the actual “unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.”
3. Provide: The term “provide” means “to furnish and install, complete and ready for the intended use.”
4. Furnished by Owner or Furnished by Others: The item will be furnished by the Owner or Others. It is to be installed and connected under the requirements of this Division, complete and ready for operation, including items incidental to the Work, including services necessary for proper installation and operation. The installation shall be included under the guarantee required by this Division.
5. NRTL: Nationally Recognized Testing Laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA, etc.), and acceptable to the AHJ over this project. Nationally Recognized Testing Laboratories and standards listed are used only to represent the characteristics required and are not intended to restrict the use of other listed Manufacturers and models that meet the specified criteria.


B. The terms "approved equal", "equivalent", or "equal" are used synonymously and shall mean "accepted by or acceptable to the Engineer as equivalent to the item or manufacturer specified". The term "approved" shall mean labeled, listed, or both, by an NRTL, and acceptable to the AHJ over this project.

1.6 COORDINATION

A. The Contractor shall visit the site and ascertain the conditions to be encountered while installing the Work under this Division, verify all dimensions and locations before purchasing equipment or commencing work, and make due provision for same in the bid. Failure to comply with this requirement shall not be considered justification for omission, alteration, incorrect or faulty installation of Work under this Division or for additional compensation for Work covered by this Division.

B. The Contractor shall refer to Drawings of the other disciplines and to relevant equipment drawings and shop drawings to determine the extent of clear spaces. The Contractor shall make offsets required to clear equipment, beams and other structural members; and to facilitate concealing piping in the manner anticipated in the design.

C. The Contractor shall maintain a foreman on the jobsite at all times to coordinate his work with other contractors and subcontractors so that various components of the Fire Alarm systems will be installed at the proper time, will fit the available space, and will allow proper service access to the equipment. Carry on the work in such a manner that the work of the other contractors and trades will not be handicapped, hindered, or delayed at any time.

D. Work of this Division shall progress according to the "Construction Schedule" as established by the Prime Contractor and his subcontractors and as approved by the Architect. Cooperate in establishing these schedules and perform the Work under this Division, in a timely manner in conformance with the construction schedule so as to ensure successful achievement of schedule dates.

E. Where coordination and interfacing with other systems or equipment is required, it shall be the responsibility of the fire alarm system installer (contractor) to either provide the relays, contacts, power supplies and other necessary hardware or see to it that such hardware is provided with the other systems or equipment.

F. The contractor shall coordinate work in this section with all related trades. Work and/or equipment provided in other sections and related to the fire alarm system shall include, but not be limited to:
   1. Sprinkler watering and valve tamper switches shall be provided by the fire sprinkler installer, but wired and connected by the fire alarm installer.
   2. Duct smoke detectors shall be furnished, wired and connected by the fire alarm system installer. The HVAC installer shall furnish necessary duct opening to install the duct smoke detector’s housing.
   3. Air handling fan control circuits and contacts to be furnished by the HVAC control equipment.
   4. Conduit shall be by Division 26 “Common Work Results for Electrical”.

G. System shall be complete and operational with power and control wiring provided to meet the design intent shown on the drawings and specified within the specification sections.
1.7 MEASUREMENTS AND LAYOUTS

A. The drawings are schematic in nature, but show the various components of the systems approximately to scale and attempt to indicate how they are to be integrated with other parts of the building. Figured dimensions shall be taken in preference to scale dimensions. Determine exact locations by job measurements, by checking the requirements of other trades, and by reviewing the Contract Documents. The Contractor will be held responsible for errors which could have been avoided by proper checking and inspection.

1.8 SUBMITTALS

A. Refer to Division 1 and General Conditions for submittal requirements, in addition to requirements specified herein. Submittals not complying fully with the submittal requirements will be rejected.

B. Contractor shall prepare installation drawings (working shop drawings) based upon this design. Requests for deviations from the approved design shall be submitted in writing to the Engineer of Record for approval.

C. Shop drawings shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations. Drawings that are not legible, or that do not contain sufficient detail to verify compliance with applicable codes and standards, will be rejected without further review.

D. Submittals and shop drawings shall not contain HEI’s firm name or logo, nor shall it contain the HEI's engineers’ seal and signature. They shall not be copies of HEI's work product. If the contractor desires to use elements of such product, the license agreement for transfer of information at the end of this section must be used.

E. Submit Shop Drawings as early as required to support the project schedule. Allow for two weeks Engineer review time plus mailing time plus a duplication of this time for resubmittal if required. Submit Shop Drawings as soon as possible before construction starts.

F. Before submitting Shop Drawings and material lists, the Contractor shall verify that the equipment submitted is mutually compatible and suitable for the intended use. Contractor shall verify that the equipment will fit the available space and allow ample room for maintenance. If the size of equipment furnished makes necessary any change in location, or configuration, submit a shop drawing showing the proposed layout.

G. Refer to Division 1 for acceptance of electronic submittals for this project. For electronic submittals, Contractor shall submit the documents in accordance with the procedures specified in Division 1. Contractor shall notify the Architect and Engineer that the shop drawings have been posted. If electronic submittal procedures are not defined in Division 1, Contractor shall include the website, user name and password information needed to access the submittals. For submittals sent by e-mail, Contractor shall copy the Architect and Engineer’s designated representatives. Contractor shall allow the Engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the electronic submittal and shall clearly indicate the materials, performance criteria and accessories being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without review.

H. The Engineer’s checking and subsequent acceptance of such submittals shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications unless he has, in writing, called the Engineer's and Architect's attention to such deviations at the time of submission, and secured written acceptance; nor shall it relieve him from responsibility for errors in dimensions, details, sizes of members, or quantities; or for omissions of components or fittings; or for not coordinating items with actual building conditions and adjacent work.

I. Product Data: Provide a bill of materials and product cutsheets showing material specifications, electrical characteristics and connection requirements. Highlight or indicate specific product options and accessories as applicable to the project.
J. Shop Drawings:
    1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
    2. Shop drawings shall be prepared by a NICET Level II or higher certified technician. Submit copies of the certification for the designer with submittal.
    3. The fire alarm system equipment vendor shall provide shop drawings showing fire alarm floor plans and a full building riser diagram. Fire alarm floor plans and riser diagram shall show fire alarm control panel, annunciator, all fire alarm initiating devices and notification appliances. Show typical wiring diagrams of control panel/s, annunciator and each device and wiring connections required. Show all interfaces to other systems, such as temperature control systems, and security systems.
    4. The fire alarm floor plans and riser diagram shall show wiring to all fire alarm devices/appliances, indicating wire sizes and quantities as well as conduit/raceway sizes and locations of end-of-line (EOL) resistors. The fire alarm floor plans and riser diagram shall clearly show the routing of all fire alarm system wiring, including all horizontal routing and vertical routing (in chases).
    5. Routing of all fire alarm wiring shall comply with the “Survivability” requirements of NFPA 72.
    6. Provide a Sequence of Operations Matrix that explains how the submitted fire alarm system functions.
    7. Include voltage drop calculations for notification-appliance circuits.
    8. Include battery-size calculations.
    9. Shop drawing scale shall match the Engineer’s drawings where possible. Scale shall not be less than 3/32" = 1'-0".
   10. Shop drawings shall be produced using computer-aided design. Hand drawn documents will not be reviewed or approved.

K. Indicate within the submittal all applicable UL listings and all applicable approvals or certifications.

L. Qualification Data: Submit copies of the certification for the Installer.

M. Manufacturer’s Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of products.

1.9 ELECTRONIC DRAWING FILES
   A. In preparation of shop or record drawings, Contractor may, at his option, obtain electronic drawing files in AutoCAD or DXF format from the Engineer for a shipping and handling fee of $200 for a drawing set up to 12 sheets and $15 per sheet for each additional sheet. Contact the Architect for Architect’s written authorization. Contractor shall complete and send the form attached at the end of this section along with a check made payable to Henderson Engineers, Inc. Contractor shall indicate the desired shipping method and drawing format on the attached form. In addition to payment, Architect’s written authorization and Engineer’s release agreement form must be received before electronic drawing files will be sent.

1.10 SUBSTITUTIONS
   A. Refer to Division 1 and General Conditions for Substitutions.
   B. Materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by the proposed substitution.
   C. No substitution will be considered prior to receipt of Bids unless written request for approval to bid has been received by the Engineer at least ten calendar days prior to the date for receipt of Bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data and other information necessary for an evaluation. A statement setting
forth changes in other materials, equipment or other Work that incorporation of the substitute would require shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The Engineer's decision of approval or disapproval to bid of a proposed substitution shall be final.

D. If the proposed substitution is approved prior to receipt of Bids, such approval will be stated in an Addendum. Bidders shall not rely upon approvals made in any other manner. Verbal approval will not be given.

E. No substitutions will be considered after the Contract is awarded unless specifically provided in the Contract Documents.

1.11 OPERATION AND MAINTENANCE DATA
A. Refer to Division 1 and General Conditions for Operational and Maintenance Manuals.
B. Instruct the Owner's permanent personnel in the proper operation of, startup and shutdown procedures and maintenance of the equipment and components of the systems installed under this Division.
C. The O&M Manuals shall be provided in labeled 3-ring binder with cover, binding label, tabbed fly sheets and plastic insert folders for Record Drawings. Include the following sections with the appropriate information for each section:
   1. Typewritten Index.
   2. Qualifications. Provide designer and installer qualification.
   3. Bill of Materials. Provide complete nomenclature, model number and vendor information for all parts.
   4. Operating Instructions. Complete instructions detailing operation and maintenance of all equipment installed.
   5. Product Data: Provide product cutsheets for all equipment utilized and installed.
   6. Riser diagram.
   7. Device addresses.
   8. Record copy of site-specific software.
   9. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:
      a. Equipment tested.
      b. Frequency of testing of installed components.
      c. Frequency of inspection of installed components.
      d. Requirements and recommendations related to results of maintenance.
      e. Manufacturer's user training manuals.
   10. Manufacturer's required maintenance related to system warranty requirements.
   11. Abbreviated operating instructions for mounting at fire alarm control unit and each annunciator unit.
   13. Contact list with minimum three service representative phone numbers.

1.12 RECORD DRAWINGS
A. A set of prints shall be kept on the jobsite during construction for the purpose of noting changes to location of all fire alarm equipment, devices, appliances and circuits as finally installed. During the course of construction, the Contractor shall indicate on these drawings, changes made from the Contract Drawings. Particular attention shall be made to those items which need to be located for servicing.
B. The record drawings shall show actual locations of initiating devices, notification appliances, and end-of-line devices. Show the approximate location, size and type of all wiring and routing of wiring. Drawings should also include one-line riser diagrams showing all devices.

C. The Contractor shall sign-off on the Record Drawings as being an accurate representation of the completed installation.

D. Refer to Division 1 and General Conditions for Record Drawings

E. At the completion of the project, the Contractor shall obtain at his expense, reproducible copies of the drawings and incorporate changes noted on the jobsite work prints onto these sheets. These changes shall be done by a skilled drafter. Each sheet shall be marked “Record Drawing”, with date. The drawings and associated system calculations shall be delivered to the Architect/Engineer.

1.13 SPARE PARTS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Provide 10% of the total or a minimum of one (1) manual pull station.
   2. Provide 10% of the total or a minimum of two (2) of each type of automatic smoke detector.
   3. Provide 5% of the total or a minimum of one (1) of each type of automatic heat detector.
   4. Provide 5% of the total or a minimum of two (2) of each strobe type and candela rating.
   5. Provide 5% of the total or a minimum of two (2) of each horn type. Combination horn/strobe units matching the units installed are acceptable.
   6. Keys and Tools: One extra set for access to locked or tamper proofed components.

1.14 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products indicated in this section with minimum three years documented experience.

B. Installer: Company specializing in installing the products indicated in this section with minimum three years documented experience. Shall be bondable and licensed Contractor and employ full-time factory-trained and certified installers and technicians. Installers shall provide with the fire alarm submittal proof of factory training for each installer.

C. Final checkout and verification: Shall be conducted by a technician certified by the National Institute for Certification in Engineering Technologies (NICET) registered as level 2 or higher in the fire protection technology certification program. Provide certification information with fire alarm submittal.

D. The equipment manufacturer’s service department shall be fully stocked in standard parts and components and engaged in the maintenance of fire alarm systems. On-the-premises service shall be available within 4 hours of notification, 7 days a week, 24 hours a day.

1.15 GUARANTEES AND WARRANTIES

A. Refer to Division 1 and General Conditions for Guarantees and Warranties.

B. Furnish service and maintenance of fire alarm system including wiring and raceways for one year from date of substantial completion.

C. All components, system software, parts and assemblies shall be guaranteed against defects in materials and workmanship for the one-year period stated above, unless specific items are noted to carry a longer warranty in the Construction Documents or manufacturer’s standard warranty.

D. Labor (including travel expenses) to trouble-shoot, repair, reprogram, or replace components shall be furnished by this contractor at no charge during the warranty period.

E. All corrective software modifications made during warranty periods shall be updated on all user documentation and on user and manufacturer archived software.
1.16 PROJECT CONDITIONS
A. Conditions Affecting Work In Existing Buildings: The following project conditions apply:
   1. The Drawings describe the general nature of remodeling to the existing building. However, the Contractor shall visit the Site prior to submitting a bid to determine the nature and extent of work involved.
   2. Work in the existing building shall be scheduled with the Owner.
   3. Certain demolition work must be performed prior to the remodeling. The Fire Alarm Contractor shall perform the demolition which involves fire alarm system equipment and materials.
   4. Fire Alarm Contractor shall remove articles which are not required for the new work. Unless otherwise indicated, each item removed by the Contractor during this demolition shall be removed from the premises and disposed of in accordance with applicable federal, state and local regulations.
   5. Fire Alarm Contractor shall relocate and reconnect fire alarm equipment that must be relocated in order to accomplish the remodeling shown in the Drawings or indicated in the Specifications. General Contractor shall install finish material.
   6. Obtain permission from the Architect for channeling of floors or walls not specifically noted on the Drawings.
   7. Protect adjacent materials indicated to remain. Install and maintain dust and noise barriers to keep dirt, dust, and noise from being transmitted to adjacent areas. Remove protection and barriers after demolition operations are complete.
   8. Locate, identify, and protect Fire alarm services passing through demolition area and serving other areas outside the demolition limits. Maintain services to areas outside demolition limits. When services must be interrupted, install temporary services for affected areas.

B. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.

C. Interruption of Existing Fire alarm Service: Do not interrupt fire alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary fire watch service according to local Fire Department requirements:
   1. Notify Construction Manager/Owner no fewer than seven days in advance of proposed interruption of fire alarm service.
   2. Do not proceed with interruption of fire alarm service without Construction Manager’s/Owner’s written permission.

D. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.17 SEQUENCING AND SCHEDULING
A. Existing Fire alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire alarm equipment "NOT IN SERVICE" until removed from the building.

B. Equipment Removal: After acceptance of new fire alarm system, remove all unused fire alarm equipment, wiring and installation materials not necessary for system functionality or spare parts.

PART 2 - PRODUCTS AND MATERIALS

2.1 SYSTEM DESCRIPTION
A. Noncoded, UL-listed addressable system, with multiplexed signal transmission and horn/strobe evacuation.
B. All components provided shall be listed for use with the selected system.
C. 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.
D. Source Limitations for Fire alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested, and will operate, as a system.

2.2 MANUFACTURER
A. Subject to compliance with requirements, provide products manufactured by the following manufacturers as indicated on the Drawings:
   1. Notifier

2.3 SYSTEMS OPERATIONAL DESCRIPTION
A. Fire alarm signal initiation shall be by one or more of the following devices:
   2. Heat detectors.
   3. Smoke detectors.
   4. Automatic sprinkler system water flow.
B. Fire alarm signal shall initiate the following actions:
   1. Identify alarm and specific initiating device at fire alarm control unit and remote annunciators (if provided).
      a. A pulsing alarm tone shall occur within the control panel until acknowledged.
      b. The alarm LED shall flash on the control panel and remote annunciator panel until the alarm has been acknowledged at the control panel/remote annunciator panel. Once acknowledged, this same LED shall latch on and the custom label for the address in alarm shall be displayed on the alphanumeric LCD readout. A subsequent alarm received from another address after acknowledged shall flash the alarm LED on the control panel showing the new alarm information.
   2. Transmit an alarm signal to the alarm supervising station.
   3. Audible notification appliances shall sound until silenced by the alarm silence switch at the control panel.
   4. All visible alarm notification appliances shall display a continuous synchronized pattern until reset by the Alarm Reset Switch.
   5. Record events in the system memory.
   6. All fan-powered air-handling equipment shall shutdown and remain down until the fire alarm control panel is reset.
C. Supervisory signal initiation shall be by one or more of the following devices and actions:
   1. Valve supervisory switch.
   2. Duct-smoke detectors
   3. High- or low-air-pressure switch of a dry-pipe sprinkler system.
   4. User disabling of zones or individual devices.
   5. Loss of communication with any panel on the network.
D. System Supervisory Signal Actions:
   1. Identify specific device causing supervisory signal fire alarm control unit and remote annunciators (if provided).
      a. Visible and audible supervisory alarm indicated by address at fire alarm control panel.
b. Manual acknowledge function at fire alarm control panel and remote annunciator panel silences audible supervisory alarm; visible alarm is displayed until device is returned to its normal position/supervisory condition is cleared.

2. Record events in the system memory.
3. After a time delay of 90 seconds transmit a supervisory signal to the alarm supervising station.
4. Duct-mounted smoke detectors shall shutdown their respective unit upon detection of smoke and remain down until manually reset.
5. Individual fan-powered air distribution equipment less than 2,000 cfm that is not provided with duct detection shall shutdown when the respective air handling unit is shutdown.

E. System trouble signal initiation shall be by one or more of the following devices and actions:
1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
4. Loss of primary power at fire alarm control unit.
5. Ground or a single break in internal circuits of fire alarm control unit.
6. Abnormal ac voltage at fire alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire alarm control unit or annunciator.

F. System Trouble Signal Actions:
1. Identify specific device causing trouble signal fire alarm control unit and remote annunciators (if provided).
   a. Visible and audible trouble alarm indicated by address at fire alarm control panel.
   b. Manual acknowledge function at fire alarm control panel and remote annunciator panel silences audible trouble alarm; visible alarm is displayed until device is returned to its normal position/trouble condition is cleared.
2. Record events in the system memory.
3. After a time delay of 90 seconds, transmit a trouble signal to the alarm supervising station.

2.4 FIRE ALARM SYSTEM CONTROL UNIT
A. General Requirements for Fire alarm Control Unit:
1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.
   a. System software and programs shall be held in nonvolatile flash, electrically erasable, programmable, read-only memory, retaining the information through failure of primary and secondary power supplies.
   b. Include a real-time clock for time annotation of events on the event recorder and printer.
   c. Provide communication between the FACP and remote circuit interface panels, annunciators, and displays.
   d. The FACP shall be listed for connection to a central-station signaling system service.
   e. Provide nonvolatile memory for system database, logic, and operating system and event history. The system shall require no manual input to initialize in the event of a complete power down condition. The FACP shall provide a minimum 500-event history log.
f. The control unit shall have dedicated alarm, supervisory and trouble LED’s and dedicated alarm, supervisory and trouble acknowledge, and alarm silence switches.

g. Lamp Test: Manual lamp test function causes each LED to function at fire alarm control panel.

h. Drill Sequence of Operation: Manual drill function causes alarm mode operation as described above.

i. The FACP shall be provided with surge protection.

j. Install in a surface mounted enclosure.

B. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, 80 characters, minimum.

2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

C. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits: Provide circuitry, which meets the performance requirements during abnormal conditions, based upon the class of the circuitry selected.

1. Initiating Device Circuits: Class B.

   a. Pathway Survivability: Level 0.

2. Notification Appliance Circuits: Class B.

   b. Pathway Survivability: Level 0.

3. Signaling Line Circuits: Class B.

   c. Pathway Survivability: Level 0.

4. Any circuits interconnecting fire alarm control panels between separate buildings shall be provided with surge protection.

D. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory signals and digital alarm communicator transmitters shall be powered by 24-V dc source.

1. The location of the dedicated branch circuit disconnecting means shall be permanently identified at the control unit.

2. The circuit disconnecting means shall have a red marking and be provided with a breaker lock or other approved method to avoid accidental operation.

3. Alarm current draw of entire fire alarm system shall not exceed 80 percent of the power-supply module rating.

E. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

1. Batteries: Sealed lead acid.

2. The secondary power system shall operate system in standby mode for 24 hours followed by alarm mode for 5 minutes.

F. System Supervision: Automatically detects and reports open circuits, shorts, and grounds of wiring for initiating device, signaling line, and notification appliance circuits. Alarm, supervisory and trouble signals shall be monitored by the supervising station over a Digital Alarm Communicator Transmitter (DACT), or other approved method.
2.5 DIGITAL ALARM COMMUNICATOR TRANSMITTER

A. Digital alarm communicator transmitter (DACT) shall be acceptable to the remote station and shall comply with UL 864.

B. The installing contractor shall select the appropriate DACT equipment based on the available communication methods.

C. Coordinate with General Contractor to ensure proper connections are provided for communication to and from the DACT. Two (2) separate communication methods are required and shall not be subject to a common failure within the scope of work identified within these contract documents. Unless noted otherwise, the installing contractor shall utilize two (2) of the following communication methods:
   1. Building 10/100 Base network (LAN), DSL modem, or cable modem.
   2. Other alternative method complying with the performance requirements of NFPA 72 for ‘Communication Methods for Supervising Station Alarm Systems that is acceptable to the Authority Having Jurisdiction and the Engineer of Record. Approval of any alternative methods must be obtained from the Engineer of Record via an RFI prior to submitting bids for the scope of work.

D. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire alarm control unit and automatically transmit across the primary communication method. If service on the primary communication method is interrupted for longer than 45 seconds, the transmitter shall initiate a local trouble signal and transmit a signal indicating loss of primary communication to the supervising station over the secondary communication method. Transmitter shall automatically report communication restoration to the supervising station. If service is lost on both communication methods, transmitter shall initiate a local trouble signal.

E. Digital data transmission shall include the following:
   1. Address of the alarm initiating device.
   2. Address of the supervisory signal.
   3. Address of the trouble signal.
   4. Loss of ac supply.
   5. Loss of power.
   6. Low battery.
   7. Abnormal test signal.

F. Secondary Power: Integral rechargeable battery and automatic charger.

G. Self-Test: Conducted automatically every 24 hours with report transmitted to supervising station.

2.6 REMOTE ANNUNCIATOR

A. Description: Alphanumeric display and LED indicating lights shall match those of fire alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.
   1. Mounting: Surface.

2.7 INITIATING DEVICES

A. Manual Fire Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer’s surface back box.
   1. Double action mechanism requiring two actions to initiate an alarm, pull lever type; with integral addressable module arranged to communicate manual station status (normal, alarm, or trouble) to fire alarm control unit.
2. Station Reset: Key or wrench operated switch.

B. System Smoke Detectors: Photoelectric type complying with UL 268 operating at 24-V dc, nominal with integral addressable module arranged to communicate detector status (normal, alarm, or trouble) to fire alarm control unit.
   1. Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base.
   2. Device shall have an integral visual-indicating light, LED type, indicating detector has operated and power-on status.
   3. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
   4. Photoelectric detectors shall have sensitivity between 0.5 and 3.5 percent/foot smoke obscuration.

C. Duct Smoke Detectors: Photoelectric type complying with UL 268A with a standard, relay or isolator detector mounting base. Provide manufacturer’s standard housing to protect the measuring chamber from damage and insects. Provide drilling templates and gaskets to facilitate locating and mounting the housing.
   1. Provide for variations in duct air velocity between 100 and 4,000 feet per minute.
   2. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied. Provide an air exhaust tube and an air sampling inlet tube that extends into the duct air stream up to ten feet.
   3. Self-Restoring: Detectors shall not require resetting or readjustment after actuation to restore them to normal operation.
   5. Provide remote alarm LEDs and remote test stations as shown on the plans.
   6. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.

D. Heat Detectors – Comply with UL 521. Detector shall have twist lock base interchangeable with smoke detectors bases and be equipped with an integral addressable module arranged to communicate detector status (normal, alarm, or trouble) to fire alarm control unit.
   1. Combination Type: Actuated by either a fixed temperature of 135 deg F (57 deg C) or a rate of rise that exceeds 15 deg F (8 deg C) per minute unless otherwise indicated.
   2. Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of 135 deg F (88 deg C).

2.8 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Connected to notification appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.
   1. Combination Devices: Factory integrated audible and visible devices in a single mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections. Minimum audible level and strobe intensity shall meet all requirements for separate appliances.
   2. Provide strobe synchronization as required per NFPA 72.
   3. Wall mounted notification appliances shall be manufacturer standard red finish.
   4. Ceiling mounted notification appliances shall be manufacturer standard red finish.

B. Alarm Horns: Comply with UL 464. Electric vibrating polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Horns shall produce a sound-pressure level of...
90 dBA, measured 10 feet (3 m) from the horn, using the coded signal prescribed in UL 464 test protocol.

C. Visible Alarm Notification Appliances (Strobes): Xenon strobe lights complying with UL 1971, unfiltered or clear filtered white light, with candela ratings as indicated on drawings. Strobes shall meet all requirements of the Americans with Disabilities Act.

2.9 AUXILIARY DEVICES

A. Waterflow Alarm Switches: Shall be provided by the Fire Sprinkler Installer and shall be wired complete and ready for use by the Fire Alarm System Installer. Switch shall have an adjustable delay to minimize false alarms due to fluctuations in water pressure.

B. Valve (Tamper) Switches: Shall be provided by the Fire Sprinkler Installer and shall be wired complete and ready for use by the Fire Alarm System Installer.

C. Monitor Module: Addressable microelectronic module providing a system address for alarm initiating devices for wired applications with normally open contacts. Include address setting means on the module.

D. Control/Relay Module: Provide intelligent control relay modules. The Control Relay Module shall provide one form "C" dry relay contact rated at 2 amps @ 24 VDC to control external appliances or equipment shutdown. The control relay shall be rated for pilot duty and releasing systems. The position of the relay contact shall be confirmed by the system firmware.

E. Fire Department Key Box: Shall be by Knox Company or as otherwise specified by the authority having jurisdiction. Provide internal switch(es), as required by the Authority Having Jurisdiction, to indicate supervisory condition(s) at the fire alarm control and annunciator panels.

2.10 FIRE ALARM WIRE AND CABLE


B. Fire alarm Wire and Cable: NRTL listed and labeled as complying with NFPA 70 (NEC) Article 760. All wiring, including wiring to existing modified devices and appliances shall be new.

C. Signaling Line, Initiating Device and Notification Appliance Circuits: Power limited fire protective signaling cable, solid copper conductor, 300 volts insulation, suitable for temperature, conditions and location installed. Minimum wire size for initiating device circuits, control circuits and notification appliance circuits shall be determined by calculations and manufacturer’s requirements or recommendations. Wire and cable shall be twisted and shielded if recommended by the system manufacturer.

D. The type of cable chosen should be based on fire alarm system requirements, specification requirements and applicable code requirements. Consideration should also be given to the length of cable runs and potential interference.

E. Initiating, notification, and control circuits shall be sized based on 20% additional power consuming devices.

F. Conduit and Boxes: Comply with requirements in Division 26 Section "Raceway and Boxes for Electrical Systems.

G. Circuit Integrity Cable: Twisted shielded pair, NFPA 70, Article 760, Classification CI, for power-limited fire alarm signal service Type FPL. NRTL listed and labeled as complying with UL 1424 and UL 2196 for a 2-hour rating.

H. Multiconductor Armored Cable: NFPA 70, Type MC, copper conductors, Type TFN/THHN conductor insulation, copper drain wire, copper armor with outer jacket and red identifier stripe, NTRL listed for fire alarm and cable tray installation, plenum rated.

2.11 ACCESS TO EQUIPMENT

A. All detectors, modules, equipment, etc. shall be located so as to provide easy access for operation, service inspection and maintenance.

B. Access Doors:
1. Provide access doors for all concealed equipment, except where above lay-in ceilings.
2. Access doors shall be adequately sized for the devices served with a minimum size of 18" x 18", furnished by the respective Contractor or Subcontractor and installed by the General Contractor.
3. Access doors must be of the proper materials for type of construction where installed.
4. The exact location of all access doors shall be verified with the Architect prior to installation.
5. Steel Access Doors and Frames: Factory-fabricated and assembled units, complete with attachment devices and fasteners ready for installation. Joints and seams shall be continuously welded steel, with welds ground smooth and flush with adjacent surfaces.
6. Frames: 16-gauge steel, with a 1-inch-wide exposed perimeter flange for units installed in unit masonry, pre-cast, or cast-in-place concrete, ceramic tile, or wood paneling.
   a. For installation in masonry, concrete, ceramic tile, or wood paneling: 1 inch-wide exposed perimeter flange and adjustable metal masonry anchors.
   b. For gypsum wallboard or plaster: perforated flanges with wallboard bead.
7. Flush Panel Doors: 14-gauge sheet steel, with concealed spring hinges or concealed continuous piano hinge set to open 175 degrees; factory-applied prime paint.
   a. Fire-Rated Units: Insulated flush panel doors, with continuous piano hinge and self-closing mechanism.
9. 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:
   a. Arrow United Industries.
   b. Bar-Co., Inc.
   c. J.L Industries.
   e. Milcor Div. Inryco, Inc.
   f. Nystrom Building Products
   g. Wade
   h. Zurn

PART 3 - EXECUTION

3.1 GENERAL
   A. The Contractor shall install, program and test all new equipment identified in this contract in accordance with the applicable codes, standards, and manufacturer’s instructions.
   B. The installation supervisor shall be on the job site during the entire installation. The installation supervisor shall maintain marked up copies of the drawings at the job site showing as-built conditions. These drawings shall be updated daily and available for Owner review.
   C. The Contractor shall provide all required conduit and all associated hardware, and shall install (pull), connect, and test all cable for a complete fire alarm system. All wiring shall be installed in accordance with the guidelines of these specifications and documents as well as the NFPA codes and standards listed in these specifications.

3.2 EXAMINATION
   A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.
1. Verify that manufacturer’s written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 EQUIPMENT INSTALLATION

A. Comply with NFPA 72 and requirements of authorities having jurisdiction for installation and testing of fire alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, “Fire Alarm Systems.”

1. Devices placed in service before all other trades have completed cleanup shall be replaced.

2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer’s written storage instructions.

B. Install wall-mounted equipment, with tops of cabinets not more than 72 inches above the finished floor.

C. Manual Fire alarm Boxes: Provide manual fire alarm boxes as shown on drawings. Mount manual fire alarm box on a background of a contrasting color. The operable part of manual fire alarm box shall be at 48 inches above floor level unless noted otherwise.

D. Smoke and Heat Detectors: Provide detectors as shown on drawings.

1. Comply with the “Smoke-Sensing Fire Detectors” section in the “Initiating Devices” chapter in NFPA 72, for smoke detector spacing.

2. Comply with the “Heat-Sensing Fire Detectors” section in the “Initiating Devices” chapter in NFPA 72, for heat detector spacing.

3. HVAC: Locate detectors not closer than 36 inches from air-supply diffuser or return-air opening.

4. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.

5. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.

6. Install ceiling mounted detectors in areas with exposed structure tight to underside of floor/roof deck unless noted otherwise on drawings.

E. Duct Smoke Detectors: Comply with NFPA 72. Install sampling tubes so they extend the full width of the duct. Tubes more than 36 inches long shall be supported at both ends.

1. Do not install smoke detector in duct smoke detector housing during construction. Install detector only during system testing and prior to system turnover.

2. Provide duct detection and shutdown for fan powered air distribution equipment exceeding 2,000 cfm.

3. Provide equipment and connections to shutdown fan powered air distribution equipment with a capacity less than 2,000 cfm that are part of an air distribution system with a capacity greater than 2,000 cfm.

F. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, or valve-tamper switch that is not readily visible from normal viewing position.

G. Install ceiling mounted visible and audible/visible notification appliances in areas with exposed structure to bottom of floor/roof structure or at 30 ft AFF, whichever is lower.
H. Install ceiling mounted visible and audible/visible notification appliances in areas with finished ceilings flush with bottom of ceiling or at 30 ft AFF, whichever is lower.

I. Install wall mounted visible and audible/visible notification appliances with visible element (strobe) between 80 inches and 96 inches above finished floor unless noted otherwise on drawings.

J. Install wall mounted audible devices with the top of the device at least 90 inches above finished floor or 6 inches below the ceiling, whichever is lower, unless noted otherwise on Drawings. If combination devices are installed, they shall be installed per the visible signal device requirements.

3.4 PATHWAYS
A. Pathways above suspended ceilings and in nonaccessible locations may be routed exposed where permitted by NFPA 70 & 72.
   1. Exposed pathways located less than 96 inches above the floor shall be installed in conduit.

B. Minimum allowable conduit size shall be ¾ inch. The conduit shall be sized so that conduit fill does not exceed 75% of NFPA 70 maximum fill requirements. Cables in vertical risers shall not exceed 50% of NFPA 70 maximum fill requirements. Conduit installation shall be as required by the Contractor's layout and as described in these specifications. All conduit field routing shall be acceptable to the Owner. Routing not acceptable shall be rerouted and replaced without expense to the Owner.

C. All wire, cable, conduit and raceways shall be concealed in walls, ceiling spaces, electrical shafts or closets in finished areas except as specifically noted otherwise. Conduit and raceways may be exposed in unfinished areas or where specifically approved by the Owner.

D. Except as otherwise specified or indicated on the drawings, all conduit shall be installed parallel or perpendicular to dominant surfaces with right angle turns made of symmetrical bends or fittings. Except where prevented by the location of other work, a single conduit or a conduit group shall be centered on structural members.

E. Conduit shall be located at least six inches from hot water or steam pipes, and from other hot surfaces. Conduit shall not block access to any existing equipment or fixtures.

F. Mount end-of-line device in box with last device or separate box adjacent to last device in circuit for conventional hardwired class B initiating and notification appliance circuits.

G. Conduit shall be securely fastened to all boxes and cabinets. Threads on metallic conduit shall project through the wall of the box to allow the bushing to butt against the end of the conduit. The locknuts both inside and outside shall then be tightened sufficiently to bond the conduit securely to the box. Conduit shall enter cabinets from the bottom and sides only.

3.5 CONNECTIONS
A. All wiring shall be terminated at devices or panels using terminal connectors for screw type terminals. All terminal connectors for conductors shall be pre-insulated ring type or pre-insulated spade type. Pre-insulated terminal connectors shall include a vinyl sleeve, color coded to indicate conductor size. Pre-insulated terminal connectors shall include a metallic support sleeve bonded to the vinyl-insulating sleeve and designed to grip the conductor insulation.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches (910 mm) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.
   1. Provide equipment and connections to shutdown fan powered air distribution equipment with an individual capacity less than or equal to 2,000 cfm that are part of an air distribution system with a design capacity greater than 2,000 cfm.
   2. Supervisory connections at valve supervisory switches.
   3. Supervisory connections at low-air pressure switch of each dry-pipe sprinkler system.
3.6 INSTALLATION OF ACCESS DOORS
   A. Set frames accurately in position and securely attached to supports, with face panels plumb and
      level in relation to adjacent finish surfaces.
   B. Adjust hardware and panels after installation for proper operation.

3.7 IDENTIFICATION
   A. Identify system components, wiring, cabling, and terminals. Comply with requirements for
      identification specified in Section 260553 “Identification for Electrical Systems.”
   B. All conduits and junction boxes shall be labeled as specified in Division 26 (red).
   C. The location of end-of-line resistors shall be identified with a label indicating “EOL.”
   D. Provide label at each initiating device indicating the device address. Label shall be visible from
      the floor below or immediately adjacent to the device.

3.8 GROUNDING
   A. Ground fire alarm control unit and associated circuits; comply with IEEE 1100. Install a ground
      wire from main service ground to fire alarm control unit.
   B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.9 FIELD QUALITY CONTROL
   A. Systems shall be checked and tested in accordance with the instructions provided by the
      manufacturer to insure that the system functions as required and is free of grounds, opens, and
      shorts. Each device shall be tested.
      1. Smoke detectors shall be tested with products of combustion.
   B. Upon completion of the system installation and before the Date of Final Acceptance, a factory-
      trained technician shall perform all necessary tests and adjustments and shall then file a Letter of
      Certification and a Certificate of Completion (NFPA 72) with the Owner indicating that the system
      functions and conforms to the Fire Alarm System Specifications.
   C. Upon completion of the system installation, a factory-trained technician shall perform all
      necessary tests and adjustments in the presence of the Owner’s designated personnel. Test in
      accordance with NFPA 72 and requirements of the authority having jurisdiction. Perform the
      following tests at a minimum:
      1. Visual Inspection: Conduct visual inspection prior to testing. Inspection shall be based on
         completed record Drawings and system documentation that is required by the "Completion
         Documents, Preparation" table in the "Documentation" section of the "Fundamentals"
         chapter in NFPA 72.
      2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the
         "Inspection, Testing and Maintenance" chapter in NFPA 72.
         a. Test audible appliances for the public operating mode according to manufacturer's
            written instructions.
         b. Test visible appliances for the public operating mode according to manufacturer's
            written instructions.
   D. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or
      replaced devices and appliances.
   E. Fire alarm system will be considered defective if it does not pass tests and inspections.
   F. Include services of factory trained and certified technician to supervise installation, adjustments,
      final connections, and system testing as performed by the fire alarm contractor’s factory-trained
      technicians.
3.10 DEMONSTRATION

A. The equipment supplier's factory trained technician shall train the Owner's personnel in the proper use and maintenance of the system. Training sessions shall be conducted as needed, not to exceed a total of 2 sessions, with each session lasting a maximum of 4 hours each.

B. Demonstrate normal and abnormal modes of operation, and required responses to each.

C. Video tape the training sessions in format as agreed to with the Owner. Provide three copies of each session to the Owner and obtain written receipt from the Owner.

END OF SECTION 284600