S P E C I F I C A T I O N S

Sedgwick County...
working for you

EMS POST #1
Project Manual

Sedgwick County
Bid Number: 26-0035

3099 West 13th Street North
Wichita, Kansas 67203

HANNEY & ASSOCIATES ARCHITECTS
▪ 1726 S. HILLSIDE ▪ WICHITA, KANSAS 67211 ▪ (316) 683-8965 ▪

EMS POST # 1
INDEX TO SPECIFICATIONS

DIVISION 0 – SEDGWICK COUNTY DOCUMENTS

Invitation to Bid ..... 4 pages
Instructions to Bidders ..... 5 pages
Bid Form ..... 3 pages
Bid Terms and Conditions Revised ..... 4 pages
Performance Labor and Material Bonds ..... 1 page
Kansas Statutory Payment Bond ..... 1 page
Performance Bond ..... 1 page
Certificed Coy of Resolution ..... 1 page
Exhibit "A" ..... 1 page
Appendices "A" and "B" ..... 4 pages
Subcontracting Worksheet ..... 1 page
Privilege Log ..... 1 page
AIA A104-2017 Contract Sample ..... 28 pages

DIVISION 1 – GENERAL REQUIREMENTS

Section 010000 Conditions of the Contract ..... 10 pages
Section 011000 Summary of Work ..... 3 pages
Form: Contractor's Statement of Responsibility for ICC 500 Storm Shelter Construction ..... 2 pages
Section 012500 Substitution Procedures ..... 4 pages
Section 012900 Payment Procedures ..... 7 pages
Section 013200 Construction Progress Documentation ..... 3 pages
Section 013300 Submittal Procedures ..... 7 pages
Section 014000 Quality Requirements ..... 6 pages
Section 017300 Execution ..... 9 pages
Section 017839 Project Record Documents ..... 4 pages

GeoTech Report ..... 38 pages

DIVISION 3 – CONCRETE

Section 033000 Cast-in-Place Concrete ..... 8 pages

DIVISION 4 – MASONRY

Section 042200 Concrete Unit Masonry ..... 13 pages
Section 042550 Brick Masonry ..... 14 pages

DIVISION 5 – METALS

Section 051200 Structural Steel Framing ..... 5 pages
Section 054100 Cold Formed Metal Framing ..... 2 pages
Section 055200 Pipe and Tube Railings ..... 4 pages

DIVISION 6 – WOOD, PLASTICS & COMPOSITES
Section 061600 Sheathing ..... 1 page
Section 064023 Interior Architectural Woodwork ..... 6 pages

DIVISION 7 – THERMAL & MOISTURE PROTECTION
Section 072100 Thermal Insulation ..... 4 pages
Section 072500 Weather Barriers ..... 3 pages
Section 074180 Steel Wall Panels ..... 5 pages
Section 076200 Sheet Metal Flashing and Trim ..... 7 pages
Section 079200 Joint Sealants ..... 6 pages
Section 072500 Expansion Control ..... 4 pages

DIVISION 8 – OPENINGS (DOORS & WINDOWS)
Section 081113 Hollow Metal Doors and Frames ..... 11 pages
Section 081416 Flush Wood Doors ..... 2 pages
Section 083640 Overhead Doors ..... 5 pages
Section 087100 Door Hardware ..... 16 pages
Section 088000 Glazing ..... 3 pages

DIVISION 9 – FINISHES
Section 092900 Gypsum Board ..... 7 pages
Section 093000 Tile ..... 3 pages
Section 095123 Acoustical Tile Ceilings ..... 4 pages
Section 096816 Resilient Materials ..... 4 pages
Section 099000 Painting ..... 9 pages

DIVISION 10 – SPECIALITIES
Section 103500 Flag Poles ..... 3 pages
Section 104416 Fire Extinguishers and Cabinets ..... 2 pages
Section 105000 Lockers ..... 4 pages
Section 108000 Toilet and Bath Accessories ..... 3 pages

DIVISION 11 – EQUIPMENT
Section 113100 Appliances ..... 2 pages

DIVISION 12 – FURNISHINGS
Section 125100 Window Coverings ..... 3 pages

DIVISION 13 – SPECIAL CONSTRUCTION
Section 131210 Pre-Engineered Buildings ..... 8 pages

DIVISION 15 – HEATING, VENTILATING, AND AIR CONDITIONING (On Drawings)

DIVISION 16 – ELECTRICAL (On Drawings)

*****SOME PROVISIONS MAY NOT BE INCLUDED IN THE FINAL VERSION OF THIS DOCUMENT IF DEEMED INAPPLICABLE BY THE COUNTY*****

INVITATION FOR BIDS

PROJECT: Construct New EMS Post 1
3099 W. 13th Street North
Wichita, Kansas 67203

COUNTY REQUEST FOR BID (**RFB**) NUMBER: **26-0035**

PRE-BID MEETING:
A pre-bid meeting will be held on site. Bidders are to meet at the vacant lot located at 3099 W. 13th Street North, Wichita, KS 67203 **beginning at 10:00 a.m. on Friday, August 7, 2026.**

Attendance is not mandatory; however, this will be the only time to meet directly with County staff and the architect to answer questions concerning this project. General contractors are encouraged to have their subcontractors attend this meeting to assess the site conditions.

Bidders are encouraged to examine bidding documents as early as possible. **To ensure each bidder has the most current information for bidding there is an established date and time for last questions to be asked. Bidders requiring clarification or interpretation of the Bidding Documents shall make such requests, in writing only, to Lee Barrier, Purchasing Agent, at Lee.Barrier@sedgwick.gov no later than 5:00 p.m. on Friday, August 21, 2026.**

RESPONSES TO INVITATION FOR BID:
PLEASE NOTE ADDRESS CHANGE FOR PURCHASING DEPARTMENT.
100 N. Broadway Avenue, Suite 610, Wichita, Kansas 67202
Responses will be received in the Sedgwick County Purchasing Department, located in the Finance Department, until **1:45 p.m.** on **Tuesday, September 8, 2026.** Late Bids will not be accepted and will not be considered for award recommendation.

Purchasing is now offering the option of electronic bid submission. Should you elect to participate with an electronic response, the RFB number (26-0035) **must** be entered into the subject line and email the entire document with supplementary materials to:

Purchasing@sedgwick.gov

Should you elect to participate with a physical response, the response must be sealed and marked on the lower left-hand corner with the firm name and address, RFB number (26-0035), and the response due date. Submit one (1) original **AND** one (1) electronic copy (.PDF/Word supplied on a flash drive) of the entire document with any supplementary materials to: Buyer's Name, Sedgwick County Purchasing Department, 100 N. Broadway, Suite 610, Wichita, KS, 67202.

Again, submittals are due **NO LATER THAN 1:45 pm on Tuesday, September 8, 2026.** If you have any questions or difficulties, please contact Purchasing at Purchasing@sedgwick.gov or call (316) 660-7255 for assistance. Late or incomplete responses will **not** be accepted and will not receive consideration for final award.

If you choose to send a hard copy of your bid, Sedgwick County will not accept submissions that arrive late due to the fault of the U.S. Postal Service, United Parcel Service, DHL, FedEx, or any other delivery/courier service.

BID RESPONSES WILL BE OPENED AT: 3:00 p.m. on **Tuesday, September 8, 2026.**
This meeting will be held in the Finance Department, 100 N. Broadway, Suite 610, Wichita, Kansas, 67202. All interested parties are invited to attend this meeting, as bids/responses will be received,

publicly opened and read aloud or you may listen in as the bids/responses are read into the record. If you would like to listen in, please dial our Meet Me line (316) 660-7271 at 3:00 pm.

After review and appropriate approval, a contract will be awarded to the lowest responsive, responsible and best bidder meeting specifications and appropriately licensed to do the specified work outlined in these documents.

Plans and specifications are available in electronic form only and may be downloaded by clicking the following link, Sedgwick County Construction Projects. Company information will be collected to generate a plan holder's list which will be updated weekly and available at the CONSTRUCT NEW EMS POST 1 section of the current RFP/RFQ page.

There will be **NO** Bid Document Deposit for this set of Documents.

A RECOMMENDATION FOR CONTRACT AWARD:
Will be made to the Board of Bids and Contracts at its regular meeting **at 10:00 a.m. on Thursday, September 10, 2026.** Generally held in the County Commission Meeting Room located at 100 N. Broadway, Lower Level, Wichita, Kansas, 67202, although this date or location could change.

CONTRACT AWARD:
Board of County Commissioners will consider award on **Wednesday, September 16, 2026, although this date could change.**

PROJECT SCOPE:
Construct a new EMS Post 1 Facility.

BIDDING DOCUMENTS:
1. Complete sets of Bidding Documents shall be used in preparing Bids.
2. Neither the Owner nor the Architect/Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
3. The Owner or Architect/Engineer, in making copies of the Bidding Documents available, do so only for the purpose of obtaining Bids on the work and do not confer a license or grant for any other use.
4. Bids shall include furnishing all labor, materials, equipment and performing the work for the above-described Project in strict accordance with the Bidding Documents and any Addenda.

DURING BIDDING PERIOD:
Inquiries regarding Bid Documents, Bid/Selection process or any requests for information about this specific project shall be directed in writing only to:

Lee Barrier, Purchasing Agent
100 N. Broadway Avenue, Suite 610
Wichita, KS 67202
Telephone: (316) 660-7150 Fax: (316) 660-1839
E-mail: **Lee.Barrier@sedgwick.gov**

All contact concerning this solicitation shall be made through the Purchasing Department.
Bidders shall not contact county employees, department heads, using agencies, evaluation committee members or elected officials with questions or any other concerns about the solicitation. Questions, clarifications and concerns shall be submitted to the Purchasing Department **in writing**. Failure to comply with these guidelines may disqualify the Bidder's response.

OWNER'S REPRESENTATION:

Owner's Representative for the duration of the Project:

Sandy Anguelov, Senior Construction Project Manager
271 W. 3rd Street, Suite 325
Wichita, Kansas 67202
Telephone: (316) 660-9865
E-mail: Sandy.Anguelov@sedgwick.gov

Architect's Representative:

Martin Hanney
Hanney & Associates Architects
1726 South Hillside
Wichita, Kansas 67211
Telephone: (316) 683-8965
E-mail: martin@haarchitects.com

BIDDER'S REPRESENTATION:

To induce the Owner to accept their Bid, in addition to and not in lieu of any other representations and warranties contained in the Bidding Documents, the Bidder represents and warrants the following to the Owner:

1. The Bidder and their subcontractors are financially solvent and possess sufficient working capital to complete the work and perform all obligations hereunder.
2. Bidder is able to provide the plant, tools, materials, supplies, equipment, and labor required to complete the work and perform the Bidder's obligations hereunder.
3. The Bidder will be authorized to do business in the State of Kansas and will be properly licensed to do this work.
4. The Bid and execution of the Bidding Documents and the Bidder's performance thereunder are within the Bidder's duly authorized powers.
5. The Bidder has made an exhaustive study of the Bidding Documents; understands the terms and provisions thereof; and has sought or will timely seek any and all necessary clarifications prior to submitting the Bid; and that the Bid is made in accordance with the foregoing.
6. The Bidder has visited the Project and is completely familiar with the local and special conditions under which the work is to be performed and has correlated such knowledge with the requirements of the Bidding Documents.
7. The Bid is based upon the approved materials, systems and equipment described in the Bidding Documents without exception, including all warranties, coordination and components required to perform the work.
8. The Bidder certifies that their Bid is submitted without collusion, fraud, or misrepresentation as to other Bidders, so that all Bids for the Project result from a free, open and competitive bidding environment.
9. The Bidder possesses a high level of experience and expertise in the business administration, management, and superintendence of projects of the size, complexity and nature of this project, and that the Bidder will work with the care, skill and diligence of such a contractor.
10. The Bidder acknowledges that the Owner is relying upon this Bidder's skill and experience in connection with the work being bid herein.
11. The complete sets of Bidding Documents were used in the preparation of the Bid and that neither the Owner nor the Architect is responsible for errors or misinterpretations resulting from the use of incomplete sets of such Documents.

The foregoing warranties are in addition to, and not in lieu of (A) any and all other liability imposed upon the Contractor by law with respect to the Contractor's duties, obligations and performance of the work and (B) any and all other warranties, representations and certifications made in the Bidding Documents. The

Contractor's liability hereunder shall survive the Owner's final acceptance of and payment for the work. All representations and warranties set forth herein and in the Contract Documents shall survive the final completion of the work or the earlier termination of this Agreement.

Bid Guarantee:

1. Bid Security is required in the amount of at least **5%** of the bid plus all additional alternates. In case of multiple prices in a bid or alternate, write for the maximum possible contract amount.
2. Bid Security can be in the form of a certified or Cashier's Check or Bid Bond acceptable to Sedgwick County. Checks are to be made payable to the Sedgwick County Clerk and drawn on a solvent Kansas bank or trust company. These checks or bonds will be retained by Sedgwick County until the purchase contract has been awarded.
3. Bid Bonds shall be written by a bonding agency approved by the United States Treasury Department and licensed to do business in the State of Kansas.
4. Bid Bonds shall be submitted on AIA Document A310, latest edition, as issued and approved by the American Institute of Architects.
5. Bid Security will be retained by the Sedgwick County Clerk until the Contract for the Project has been completed and is a guarantee that if awarded the Contract, the Bidder will enter into a contract and give bonds as required. In the event the successful Bidder fails to consummate a signed Contract, through no fault of the Owner, Bid Security shall be retained by the Owner as liquidated damages and not as a penalty.
6. Sedgwick County reserves the right to retain the Bid Security of the three (3) lowest Bidders until the successful Bidder has entered into a Contract or until 60 days after Bid opening, whichever is the shorter. All other Bid Securities will be returned as soon as practicable.

Sedgwick County is desirous of allowing as many Kansas vendors as possible the opportunity to participate, including minority owned, woman owned and small businesses, in the roles of general contractors and subcontractors. If your company does not fall into either of these categories, your efforts to contract with vendors who fall into these categories are appreciated.

General Contractor will be required to maintain a subcontractor worksheet throughout the project and will submit the worksheet to County staff at any time requested but shall submit the worksheet at the completion of project.

END OF INVITATION FOR BIDS

INSTRUCTIONS TO BIDDERS

PROJECT: Construct New EMS Post 1
3099 W. 13th Street North
Wichita, KS 67203

COUNTY REQUEST FOR BID (**RFB**) NUMBER: **26-0035**

ARCHITECT: Martin Hanney
Hanney and Associates Architects
1726 South Hillside
Wichita, KS 67211

Bids shall be made in accordance with these Instructions to Bidders:

A. Responses to this invitation will be accepted only from General Contractors who are licensed to do business in Sedgwick County.

B. Applications will also be accepted from General Contractors who have applied to receive a reciprocal license.

C. A copy of General Contractor's Certificate of Insurance will be required to be submitted with the Bid at the time the bids are due. Insurance policy will be due from the successful contractor as part of the required documents prior to issuance of the notice to proceed.

D. Bidding Documents shall include the Invitation for Bids, Bid Form, construction drawings, proposed Contract Documents, including any Addenda issued prior to receipt of Bids, supplemental information and any additional information requested.

E. Bids must be on a lump sum basis and shall be the Contract Amount.

F. Bidder Qualifications: For the duration of the project, all Prime Bidders shall be located within Sedgwick County, Kansas or establish an office in Sedgwick County, Kansas, and may be required by the Owner to furnish information to support the Bidder's capability to fulfill the Contract if awarded the Contract. Such information does not need to be submitted with the Bid but may be requested at the Owner's option. Such information may include, but not be limited to, the following:

1. Proof of registration with the Kansas Director of Taxation by non-resident Bidders (K.S.A. 79-1009).
2. Proof of registration with the Kansas Secretary of State by foreign corporations.
3. List of projects of similar size and type the Bidder has constructed or in which the Bidder has been engaged in a responsible capacity.
4. Evidence the Bidder maintains a permanent place of business.
5. A current financial statement.

Examination:

1. BEFORE SUBMITTING A BID, each Bidder shall examine carefully all documents pertaining to the work and visit the site to fully inform himself of the condition of the site and the conditions and limitations under which the work is to be performed.

2. SUBMISSION OF A BID will be considered presumptive evidence that the Bidder has fully informed himself of the conditions of the site, requirements of the Contract Documents, and of

pertinent national, state and local codes and ordinances, and that the Bid made allowances for all conditions, requirements and contingencies.

3. In reviewing these Documents, it is evident that certain information, if disclosed to the public, may jeopardize the security of Sedgwick County, and appropriate measures will be taken to maintain confidentiality.

4. **To ensure each bidder has the most current information for bidding there is an established date and time for last questions to be asked. Bidders requiring clarification or interpretation of the Bidding Documents shall make such requests, in writing only, to the Purchasing Agent no later than 5:00 p.m. on Friday, August 21, 2026.**

5. Samples shall be submitted by the above referenced deadline to permit evaluation and notification of Bidders.

6. Any interpretation, correction or change of the Bidding Documents will be made by written Addenda. Interpretations, corrections, or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, and changes.

Addenda:

1. DISCREPANCIES OR OMISSIONS in the documents will be clarified in the form of an electronic Addendum and will be posted on the County web site. Bidders finding discrepancies, omissions, or who are in doubt as to the meaning of any portion of the Contract Documents, should immediately request an interpretation from the Senior Purchasing Agent. In response, an Addendum will be issued, and the contractor shall rely solely on information contained in the written Addenda about said discrepancy or omission. **Neither the Architect nor the Owner will be responsible for any other form of instructions or interpretations given to the contractor, either verbal or written.**

2. ADDENDA received by Bidders shall be acknowledged by same on their Bid Form.

Substitutions:

1. Each Bidder represents that their Bid is based upon materials and equipment described in the Bidding Documents.

2. No substitution will be considered unless written request has been submitted to the Purchasing Agent and the Architect, in duplicate, for approval by **5:00 p.m**. on **Friday, August 21, 2026**. Each such request shall include a complete description of the proposed substitute, drawings, cuts, performance or test data, or information necessary for a complete evaluation. If the Architect approves any proposed substitution, such approval will be set forth in an Addendum.

Preparation of Bids:

1. BIDS shall be made on unaltered Bid Forms furnished by the County or detached from this Project Manual.

2. FILL IN all blanks on the Bid Form with ink or type. Blanks left on Bid Form may be cause for disqualification of Bidder.

3. Where Bidder is a Corporation, Bids must be signed with the legal name of the Corporation, followed by the legal signature of an officer authorized to bind the Corporation to a contract.

4. RECAPITULATION of work to be done shall not be included with any Bid.

5. Where so indicated by the makeup of the Bid Form, amounts shall be expressed in both words and figures, and in case of discrepancy between the two, the written amount shall govern.

Identification and Submission of Bid:

1. Contractor shall provide one (1) Original of the Bid Response Form, Bid Security and other supplemental information required to be submitted with the Bid.

2. All the Bid Documents shall be enclosed in a sealed envelope with the notation "Bid Enclosed" on the face. The firm name and address, bid number, bid opening date, and Bid opening time shall be provided in the lower left-hand corner of the Envelope.

Modification and Withdrawal of Bid:

1. A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period that a Bidder's Bid Security is held following the time and date designated for the receipt of Bids. The Bidder so agrees in submitting his Bid.

2. WITHDRAWAL BEFORE BID OPENING: A Bid may be withdrawn at any time before Bid Opening but may not be resubmitted. If a bidder withdraws a bid, as authorized in K.S.A. 75-6905, the awarding authority may require that such bidder shall not be allowed to perform any work on the project through subcontract agreements or by any other means including re-bids.

3. AFTER BID OPENING: No Bid may be withdrawn or modified, except where the award of contract has been delayed for more than 60 days.

In the event of an Award, the lowest, responsive, responsible and best bid price meeting the specifications will be required to enter into contract required for the Project. Said Bidder shall also provide a Performance Bond for the full amount of the contract. The Performance Bond, in the amount of 100% of the Contract amount, must be submitted within 30 calendar days after award of contract. Failure to return these Documents within the required time period may cause a cancellation of the Award.

Consideration of Bids/Selection Process:

1. Bids received will be opened and read aloud publicly.

2. Owner shall have the right to determine the acceptable Bidder based on the sum of the Base Bid and the Alternates accepted.

3. The Owner will award a contract to the lowest, responsive, responsible and best Bidder provided:

    a. The Bid conforms to and has been submitted according to the requirements of the Bidding Documents and includes the Certificate of Insurance including Contractor's General Automotive Liability, Workers Compensation Insurance and Owner's Liability Insurance.

    b. The Bid is judged to be reasonable.

    c. The Bid does not exceed the funds available.

    d. The Bid complies with the Instruction to Bidders and Mandatory Requirements.

    e. The completion time is satisfactory to the Owner.

f. Evidence of the experience, qualifications and financial responsibility of the Bidder and his Subcontractors and the time of completion are all satisfactory to the Owner.

g. The County reserves the right to reject Bidders in accordance with the Bidding Documents.

4. Bids will be screened by a Review Committee consisting of the Project Manager, Architect and the Purchasing Agent.

5. No negotiations, decisions, or actions shall be initiated by any firm as a result of any verbal discussion with the Owner or employee of the Owner before the opening of responses to the document.

6. The Owner shall have the right to waive any informality and/or irregularity in any Bid received.

7. The Owner shall have the right to reject any and all Bids.

Time for Completion and Liquidated Damages:

All Bidders are required to state on the Bid Form the time needed for all work under the general contract to be completed, which would yield their best Bid. Unless otherwise required, this time frame shall be stated in calendar days and shall represent the Contractor's commitment to complete the project on schedule.

The contractual period will begin with the issuance of Notice to Proceed and continue through completion of the project.

The Agreement will include a stipulation that liquidated damages will be assessed in the amount of $265.00 per calendar day after Completion Date that the work is not substantially complete.

Upon satisfactory completion of the Contract, a formal CERTIFICATE OF PROJECT COMPLETION will be forwarded to the Contractor by the Project Architect. The date of substantial completion of the Project will be the starting date of the warranty period.

All work shall be in accordance with all Federal and State Laws, Local Ordinances and Building Codes, and the 2010 Standards for Accessible Design.

Taxes: Materials and equipment incorporated in the work are exempt from payment of sales tax under the laws of the State of Kansas.

Project Timeline:

The following dates are provided in addition to those previously stated to help interested contractors in planning participation in the project herein. The dates listed, however, are in no way guaranteed and are subject to change without notice.

Project out for bid:	Monday	August 3, 2026	
Pre-bid Meeting:	Friday	August 7, 2026	10:00 a.m.
Last questions received:	Friday	August 21, 2026	5:00 p.m.
Last addendum issued:	Tuesday	September 1, 2026	5:00 p.m.
Bids Due in Purchasing:	Tuesday	September 8, 2026	1:45 p.m.
Bid Opening:	Tuesday	September 8, 2026	3:00 p.m.
Board of Bids and Contracts:	Thursday	September 10, 2026	10:00 a.m.
Board of County Commissioners:	Wednesday	September 16, 2026	9:00 a.m.

Notice to Proceed:

No work shall commence until the Owner issues a Notice to Proceed, and a Notice to Proceed will not be issued until all of the following are electronically submitted to: Sandy Anguelov, at Sandy.Anguelov@sedgwick.gov by the selected vendor. The Project Services Office is located at: 271 W 3rd Street., Suite 325, Wichita, Kansas, 67202.

1. The Contract signed by the representative with authority and ability to do so.
2. Performance and Statutory Bonds with the attached powers of attorney. Attach the receipt of the Clerk of the District Court to the Statutory Bond.
3. List of subcontractors and supplier's proof of a valid Contractor's license from the jurisdiction in which the work is being performed for both contractor and applicable sub-contractors is required.
4. Corporate Resolution of authority to sign and deliver the Contract Documents, executed by the Corporation's Secretary or Assistant Secretary and dated before all other dated submittals.
5. Domestic (Kansas) corporations shall furnish evidence of good standing in the form of a Certificate signed by the Kansas Secretary of State. Foreign (non-Kansas) corporations shall furnish evidence of authority to transact business in Kansas, in the form of a Certificate signed by the Kansas Secretary of State.
6. Construction Schedule with major milestones identified.
7. Insurance Certification for Payment.

Such documents must be electronically submitted or delivered within ten (10) days of the Owner's written notification to the successful Bidder. If they are not delivered within such time then the Bidder will be deemed to have abandoned its contract with the Owner, and the Owner will award a contract to the next lowest and best Bid.

1. The successful Bidder shall not make claim either for time or money against the Owner for labor or materials performed or delivered prior to issuance of the Notice to Proceed.
2. The County's responsibility to issue a Notice to Proceed is expressly conditioned on the Contractor's timely execution and delivery of such documents.
3. The County intends to issue a Notice to Proceed within 30 days of receipt of Bids.
4. A Purchase Order will be issued for the bid amount and constitute as the contract.
5. Bidders shall also note that the Work cannot begin until after a State of Kansas Sales Tax Exemption Certificate has been provided by Sedgwick County and affixed to the Purchase Order and the Notice to Proceed.
6. Contractor must submit Insurance Policy.

END OF INSTRUCTIONS TO BIDDERS

BID FORM

BID PROVIDED BY:

_____
(Company Name)

_____

I have received the Bid Documents, Specifications, and Construction Documents, collectively known as the Contract Documents for Construction of the

CONSTRUCT NEW EMS POST 1

COUNTY REQUEST FOR BID (RFB) NUMBER 26-0035

as prepared by the Architect, Martin Hanney, Hanney and Associates Architects:

In submitting this Bid, I agree:

1. To hold my Bid open for 60 days after the date of this Bid.

2. To enter into and execute a Contract, if awarded on the basis of this Bid, and to proceed in accordance with the requirements of the General Conditions and Contract Form.

3. To provide all labor, materials, equipment, tools of trades and labor, accessories, appliances, warranties and guarantees, and to pay all royalties, fees, permits, licenses and applicable taxes necessary to complete the work in accordance with the proposed Contract Documents.

4. To remove and haul away from the construction site any and all debris arising from this contract and to assume sole liability for all removal, handling, and dumping of debris.

5. To comply with any and all local, state, federal or other governmental laws, rules and regulations with respect to the transportation, disposal, and dumping of debris and other excavated materials and Contractor shall secure any and all necessary permits and approvals incident to said transportation, dumping and disposal.

6. To further agree to indemnify and hold the Owner and Designer harmless from any and all claims and/or damage of any kind whatsoever as a result of the Contractor's performance of this Contract.

7. That attached to this Bid is one copy of the Certificate of Insurance including Contractor's General Automotive Liability, Workers Compensation Insurance and Owner's Liability Insurance.

8. **CALENDAR DAYS:**
   The Undersigned agrees to reach substantial completion of the Work in _____ consecutive calendar days from the date of Notice to Proceed. This includes material lead times.

   The Undersigned agrees to reach final completion of the Work in _____ consecutive calendar days from the date of Substantial Completion.

   Total Calendar Days _____

9. **BID:**

BASE BID

To complete the Base Bid Work, in the time stipulated, in accordance with the Bidding Documents for the lump sum price of:

_____

_____Dollars ($_____).

10. **ADDENDA:**

The Bidder acknowledges receipt of the following numbered Addenda:

None (__) #1(___) #2(___) #3 (___) #4(___) #5(___)

11. **AGREEMENTS:**

The Undersigned agrees to the following terms and conditions:

a. An incomplete Bid, or other information not requested which is written on this Bid Form, may be cause for rejection.
b. Read the Invitation for Bids and the Instructions to Bidders carefully.
c. The Owner reserves the right to reject any or all Bids and to waive all technicalities should such action be deemed to be in the best interest of the Owner.
d. This Bid may not be withdrawn for a period of 60 calendar days following the receipt and opening.
e. Failure to acknowledge receipt of any Addendum issued may be cause for Bid rejection.
f. In the event that changes to the work are required, the undersigned agrees that ten percent (**10 %**) total between General and Subcontractors of his net costs shall be added thereto for Overhead, Profit and General Requirements (including but not limited to, Insurance and Bonds).

12. **MAJOR SUBCONTRACTORS:**

The Undersigned acknowledges the following named major subcontractors are to be used for their respective division of work. Contractors shall identify by type, any disadvantaged, minority and women-owned businesses used as a subcontractor for this project.

Subcontractor:_____

Address – City, State, Zip: _____

Additional, if necessary: _____

_____

13. **DECLARATIONS:**

The Undersigned hereby declares he has carefully examined the Drawings and Specifications, has visited the actual location of the work, has satisfied himself as to all conditions and understands that, in signing this Bid Form, he waives all right to plead any misunderstandings regarding same and agrees to be bound by the provisions of said Drawings and Specifications and all statements made therein.

The Undersigned proposes to enter into Contract and to furnish and pay for the specified Bonds and other required Documents within 10 working days after notification of award of Contract.

14. **FIRM IDENTIFYING INFORMATION:**

FIRM NAME _____

CONTACT _____

SIGNATURE _____TITLE _____

PRINT NAME _____

ADDRESS _____ CITY/STATE _____ ZIP _____

PHONE _____ FAX _____ HOURS _____

COMPANY WEBSITE ADDRESS _____ E-MAIL _____

NUMBER OF LOCATIONS _____ NUMBER OF PERSONS EMPLOYED_____

TYPE OF ORGANIZATION:

Public Corporation ___ Private Corporation___ Sole Proprietorship ___ Partnership __ Small Business __

General Nature of Business _____

Manufacturer _____ Distributor _____ Retail _____ Dealer____ Service _____

___Not Minority/Caucasian (00) publicly traded companies and nonprofits are in this category

Minority Owned Business:

___African American (05), ___Asian Pacific (10), ___Subcontinent Asian (15), ___Hispanic (20),

___Native American (25), ___Other (30) - Please specify_____,

___Not Minority/Caucasian – Woman Owned (50), ___African American – Woman Owned (55),

___Asian Pacific – Woman Owned (60), ___Subcontinent Asian – Woman Owned (65), ___Hispanic – Woman Owned (70), ___Native American – Woman Owned (75), ___Other – Woman Owned (80)

Insurance registered in the State of Kansas with a minimum best rating of A-VIII: ____ Yes ___ No

15. **SIGNATURE AND SEAL:**

DATED THIS**:**_____ DAY OF: _____**,** 2026**.**

_____
LEGAL NAME OF PERSON, FIRM OR CORPORATION

_____
MAILING ADDRESS OF ABOVE

_____
SIGNATURE

_____
TELEPHONE NUMBER _____

FAX NUMBER_____

_____
E-MAIL

(Affix Corporate Seal here)

REQUEST FOR BID CONDITIONS

In submitting a response to this Request for Bid, vendors hereby understand the following:

1. Pricing offered in the bid document will be provided to other local governments and governments whom Sedgwick County regularly enters into cooperative agreements.

2. Sedgwick County reserves the right to reject any and/or all bids and responses to these and/or related documents, to accept any item(s) in the bids, to waive any irregularity in the bids, and further if determined to be non-responsive in any form, or if determined to be in the best interest of Sedgwick County.

3. Alternate bids (two or more bids submitted) will be considered for an award. Sedgwick County reserves the right to make the final determination of actual equivalency or suitability of such bids with respect to requirements outlined herein. The bids submitted, and any further information acquired through interviews, will become and is to be considered a part of the final completed contract. If there is any variance or conflict, the bid specifications will control.

4. Bidders MUST return completed copies of the entire document to the Sedgwick County Purchasing Department, 525 N. Main, 8th Floor, Suite 823, Wichita, KS 67203, on or before the date and time specified. Bids must be sealed in an envelope and marked with the firm name and address, bid number, bid opening date, and bid opening time. The time clock stamp, located in the Sedgwick County Purchasing Department will determine the time of receipt.

5. Bids submitted may not be withdrawn for a period of 60 days immediately following the opening of this Request for Bid. Prices MUST be free of federal, state, and local taxes unless otherwise imposed by a governmental body, and applicable to the material on the bid.

6. Sedgwick County interprets the term "Lowest Responsible and Best Bidder" as requiring Sedgwick County to: (a) choose between the kinds of materials, goods, wares, or services subject to the bid, and (b) determine which bid is most suitable for its intended use or purpose. Sedgwick County can consider, among other factors, such things as the availability of service(s), part(s) material(s) and/or supply(s), warranty, maintenance, freight costs, performance of product and labor cost of items upon which bids are received.

7. All requested information must be supplied. If bidders cannot respond to any part of this request, bidders should state the reason they cannot respond and note an exception. Bidders may provide supplemental information to assist Sedgwick County in analyzing its bid.

8. If the bidder refuses or fails to make deliveries of the materials within the times specified on the face of the Request for Bid or purchase order, Sedgwick County may, by written notice, terminate the contract or purchase order.

9. The bidder will certify and warrant that goods, personal property, chattels, and equipment sold and delivered are free and clear of any and all liens, or claims of liens, for materials or services arising under, and by virtue of the provisions of K.S.A. Sections 58-201, et seq., and any other lien, right, or claim of any nature or kind whatsoever.

10. The successful bidder will hold and save Sedgwick County, and its officers, agents, servants/employees harmless from liability of any patented, or unpatented invention, process, article, or appliance manufactured, or used in the performance of the contract, including its use by Sedgwick County. Vendors working on county property or on behalf of County will be required to carry minimum insurance listed in bid document.

11. All items furnished, if applicable, must be the best of their respective kinds, and will be free from defects in material and workmanship. Items will be subject to County inspection and approval at any time within 30 days after delivery. If a substitution is made, it will be the decision of a Sedgwick County representative to determine if it is of equal quality. Items furnished must be manufactured in compliance with all existing legal or governmental directives.

12. Unless specified otherwise, all items bid are to be as a minimum but not necessarily limited to: new, current model year, and untitled prior to shipping and/or installation.

13. Sedgwick County is desirous of allowing as many Kansas vendors as possible the opportunity to participate including minority men and women-owned businesses, and small businesses in the roles of providing goods and services to Sedgwick County. If your company does not fall into any of these categories, your efforts to contract with vendors who do fall into these categories are appreciated. Construction projects utilizing subcontractors requires a subcontracting worksheet. Contact purchasing department for details.

14. Contracts entered into on the basis of submitted bids are revocable if contrary to law.

15. County reserves the right to enter into agreements subject to the provisions of the Cash Basis Law (K.S.A. 10-1112 and 10-1113), the Budget Law (K.S.A. 79-2935). Agreements shall be construed and interpreted so as to ensure that the County shall at all times stay in conformity with such laws, and as a condition of agreements the County reserves the right to unilaterally sever, modify, or terminate agreements at any time if, in the opinion of its legal counsel, the Agreement may be deemed to violate the terms of such law.

16. The Bidder agrees to comply with K.S.A. 44-1030.
    a. The contractor shall observe the provisions of the Kansas act against discrimination and shall not discriminate against any person in the performance of work under the present contract because of race, religion, color, sex, disability, national origin, or ancestry;
    b. In all solicitations or advertisements for employees, the contractor shall include the phrase, "equal opportunity employer," or a similar phrase to be approved by the commission;
    c. If the contractor fails to comply with the manner in which the contractor reports to the commission in accordance with the provisions of K.S.A. 44-1031 and amendments thereto, the contractor shall be deemed to have breached the present contract and it may be canceled, terminated or suspended, in whole or in part, by the contracting agency;
    d. If the contractor is found guilty of a violation of the Kansas act against discrimination under a decision or order of the commission which has become final, the contractor shall be deemed to have breached the present contract and it may be canceled, terminated or suspended, in whole or in part, by the contracting agency; and
    e. The contractor shall include the provisions of subsections (a) through (d) in every subcontract or purchase order so that such provisions will be binding upon such subcontractor or vendor.

17. All project participants, consultants, engineers, contractors and subcontractors, must comply with all applicable Federal, State and County laws pertaining to contracts entered into by governmental agencies. All participants must comply with the Americans with Disabilities Act (ADA), including the 2008 ADA Amendments Act, and 2010 ADA Standards for Accessible Design.

18. Contractors/subcontractors performing new construction, maintenance, alterations, or additions to Sedgwick County buildings or facilities must comply with building guidelines/codes, and the 2010 ADA Standards for Accessible Design. Any violation of the provisions of the ADA or 504, or specification deficiencies, should be reported to the county's ADA coordinator. Failure to notify the county's ADA coordinator for remedy may be considered a breach of contract and may be grounds for cancellation, termination for suspension, in whole or in any part of the contract. All construction plans will have the county's ADA coordinator approval prior to beginning any work.

19. Contractors/vendors providing services to the public on behalf of Sedgwick County will agree that all personnel in their employment that have direct contact with the public will attend ADA Awareness and Sensitivity training provided by Sedgwick County or the Independent Living Resource Center. Training should be coordinated through the county's ADA coordinator, (316) 660-7052 and evidence of training shall be provided to the county's ADA coordinator. Any violations of the provisions of ADA or section 504, will be deemed a breach of contract and be subject to termination of contract.

20. The successful bidder may have access to private or confidential data maintained by the County to the extent necessary to carry out its responsibilities of the contract. Contractor shall be responsible for compliance with the privacy provision of the Health Insurance Portability and Accountability Act (HIPAA) and shall comply with all other HIPAA provisions and regulations applicable. If the successful bidder is a business associate as that term is defined under HIPAA, the contract shall include the County's standard business associate addendum. A copy of that standard addendum is available on request.

21. The bidder responding to this bid solicitation proposes to furnish all materials, labor, supplies, equipment and incidentals necessary to provide the equipment/materials/services described herein in accordance with the Notification of Solicitation (if applicable), Request for Information (if applicable), Request for Bid, Addenda, Contract, Bonds, Insurance, Plans, Specifications, any Instructions, Mandatory Requirements and Conditions.

22. Unless specified elsewhere in the document, all prices quoted must be F.O.B. Destination, Freight Prepaid and Allowed, which will include all delivery, handling, and any other charges related to delivery including surcharges.

23. It will be understood that the bidder's sureties and insurers, as applicable, are subject to the approval of the County.

24. Prior to a vendor being awarded a contract, Domestic (Kansas) corporations shall 1) furnish evidence of good standing in the form of a Certificate signed by the Kansas Secretary of State. Foreign (non-Kansas) corporations shall furnish evidence of authority to transact business in Kansas, in the form of a Certificate signed by the Kansas Secretary of State; and 2) a copy of the Corporation Resolution evidencing the authority to sign the Contract Documents, executed by the Corporation's Secretary or Assistant Secretary.

25. Sedgwick County will not award to any vendor that is currently listed in the exclusion records of the SAM (System for Award Management) website maintained by the General Services Administration (GSA) or to any vendor presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency.

26. Sedgwick County reserves the right to conduct background checks at any time on new or existing vendors. Background checks will be used to evaluate eligibility to be engaged in a work capacity by Sedgwick County, and will not be used to discriminate on the basis of race, sex, age, color, religion, national origin, disability, genetic, sexual orientation or veteran status.

27. Upon award, the bidder agrees to execute and deliver to the County a contract in accordance with the contract documents (if applicable) within ten days of notice of the award to the bidder. The bidder agrees that the surety/deposit given concurrently herewith will become the property of the County in the event the bidder fails to execute and deliver such contract within the specified time. In the further event of such failure, the bidder will be liable for the County's actual damages that exceed the amount of the surety.

28. It will be understood that time is of the essence in the bidder's performance. The bidder agrees that the County's damages would be difficult or impossible to predict in the event of a default in the performance hereof; and it is therefore agreed that if the bidder defaults in the performance of the contract documents, the bidder will be liable for payment of the sums stipulated in the contract documents as liquidated damages, and not as a penalty.

29. The bidder hereby certifies that he or she has carefully examined all of the documents for the project, has carefully and thoroughly reviewed this Request for Bid, has inspected the location of the project (if applicable), and understands the nature and scope of the work to be done; and that this bid is based upon the terms, specifications, requirements, and conditions of the Request for Bid documents. The bidder further agrees that the performance time specified is a reasonable time, having carefully considered the nature and scope of the project as aforesaid.

30. It will be understood that any bid and any and/or all referencing information submitted in response to this Request for Bid will become the property of Sedgwick County, and will not be returned. As a governmental entity, Sedgwick County is subject to making records available for disclosure after Board of County Commission approval of the recommendation.

31. Sedgwick County will not be responsible for any expenses incurred by any vendor in the development of a response to this Request for Bid including any onsite (or otherwise) interviews and/or presentations, and/or supplemental information provided, submitted, or given to Sedgwick County and/or its representatives. Further, Sedgwick County will reserve the right to cancel the work described herein prior to issuance and acceptance of any contractual agreement/purchase order by the recommended vendor even if the Board of County Commissioners has formally accepted a recommendation.

32. By submission of a response, the bidder agrees that at the time of submittal, he or she: (1) has no interest (including financial benefit, commission, finder's fee, or any other remuneration) and will not acquire any interest, either direct or indirect, that would conflict in any manner or degree with the performance of bidder's services, or (2) benefit from an award resulting in a "Conflict of Interest". A "Conflict of Interest" will include holding or retaining membership, or employment, on a board, elected office, department, division or bureau, or committee sanctioned by and/or governed by the Sedgwick County Board of County Commissioners. Bidders will identify any interests, and the individuals involved, on separate paper with the response and will understand that the County, at the discretion of the Purchasing Director in consultation with the County Counselor, may reject their bid/quotation. The bidder certifies that this bid is submitted without collusion, fraud or misrepresentation as to other bidders, so that all bids for the project will result from free, open and competitive bidding among all vendors.

33. No gifts or gratuities of any kind shall be offered to any County employee at any time.

34. Sedgwick County will issue a purchase order/contract for the acquisition of products/services specified as a result of an award made in reference to this document. Contract documents will be subject to any regulations governed by the laws of the State of Kansas and any local resolutions specifically applicable to the purchase.

35. Any dispute arising out of the contract documents or their interpretation will be litigated only within the courts of the State of Kansas. No prepayment of any kind will be made prior to shipment. Payment will be made upon verification of delivery, compliance with specifications, assurance that the product/service performs as specified and warranted, and receipt of correct invoicing.

36. Sedgwick County will accept responses transmitted via a facsimile unless stated to the contrary within this document. Bids must be received prior to the time and dates listed to be considered responsive. Sedgwick County will not accept late responses and will return them to the sender. Further, Sedgwick County will NOT: (1) guarantee security of the document received; (2) be held responsible for Bids which are NOT legible (and may choose to reject such responses); and, (3) guarantee that the receiving facsimile machine will accept transmission or that phone lines are functioning and

available for transmission. Submitting a bid response via facsimile does NOT relieve the bidder of: (1) responsibilities stated in the document (such as attendance at a mandatory pre-bid conference); (2) providing non-paper informational items which must be returned with the response (diskettes, large drawings, photographs, models, etc.); and, (3) providing original copies of bid sureties (bonds, certificates of insurance, etc.).

PERFORMANCE AND LABOR AND MATERIAL BONDS:

PERFORMANCE AND LABOR AND MATERIAL BONDS shall be furnished to the Owner by the Contractor, in an amount equal to 100 percent of the Contract Sum as security for the faithful performance of the contractor and payment of all persons performing labor and furnishing materials in connection with the contract. Said payment bond shall also be executed as a statutory bond and filed in the office of the Clerk of the District Court of the County in which the Project is located. Contractor shall provide the Owner with a certified copy of said statutory bond as so filed.

BONDS FURNISHED shall be written by a SURETY approved by the U.S. Treasury Dept. and licensed to do business in the State of Kansas. No Work shall be commenced until bonds are in force.

FORM OF BOND shall be Statutory Payment Bond – State of Kansas.

POWER OF ATTORNEY for the surety company agent must accompany each bond issued, and must be certified to include the date of the bonds.

PROVIDE TRIPLICATE COPIES of the bond forms and power of attorney.

COST of the bonds shall be included in the bid and paid for by the Contractor.

END OF SECTION

BOND TO THE STATE OF KANSAS
STATUTORY PAYMENT BOND
(K.S.A. 60-1111, as amended)

WITNESSETH: That _____ ("Principal"), and _____ ("Surety"), are hereby jointly and severally held and firmly bound unto the STATE OF KANSAS in the sum of _____ dollars ($_____) lawful money of the United States of America, for the use and benefit of all persons entitled thereto and for the payment of which we hereby bind ourselves, our successors, assigns, heirs, executors and administrators.

THE CONDITION OF THE OBLIGATION IS SUCH, THAT,

WHEREAS, the Principal has entered into an Agreement with Sedgwick County, Kansas dated _____, 2026, for improvements described as the

Construct New EMS Post 1
3099 W. 13th Street North
Wichita, KS 67203
RFB #: 26-0035

(the "Work") according to the Contract Documents, which are incorporated herein by reference.

NOW, THEREFORE, if the Principal and its subcontractors shall pay all indebtedness incurred for supplies, materials or labor furnished, used or consumed in connection with the Work including gasoline, lubricating oils, fuel oils, grease, coal and similar items used or consumed directly in furtherance of the Work, then this obligation is to be null and void; otherwise to remain in full force and effect.

The Surety covenants and agrees that no change, extension of time, alteration or addition to the Contract Documents or to the Work shall in any way reduce, nullify, or affect the Surety's obligations on this bond; and the Surety hereby waives notice on any such change, extension of time, alteration or additional to said Contract Documents or Work.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed and delivered this _____ day of _____, 2026.

Principal _____

Title _____

Surety _____

Title _____

RFB#: 26-0035

PERFORMANCE BOND

WITNESSETH THAT, _____ ("Principal") and _____ ("Surety") ARE HELD AND FIRMLY BOUND UNTO THE BOARD OF COUNTY COMMISSIONERS OF SEDGWICK COUNTY, KANSAS, (the "County"), for the use and benefit of claimants herein below identified in the amount of:

_____ dollars ($_____).

and in the amount of any change orders issued for the Work, for which payment Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT,

> WHEREAS, Principal has by agreement dated _____, 2026 entered into a contract with the County for the construction described as **Construct New EMS Post 1, 3099 W. 13th Street North, Wichita, KS 67203** in accordance with the Contract Documents.

NOW, THEREFORE, if the Principal shall well and truly perform all the covenants, conditions, and obligations of the Contract Documents and any Addenda and Change Orders and shall hold the County and all interested property owners harmless against all claims, loss, damage, demands, or causes of actions which they may sustain or suffer by reason of any breach of said Contract Documents or of negligence of the Principal or of improper execution of the Work or use of inferior materials by the Principal; and if said Principal shall maintain the improvements as provided for in said Contract Documents and shall make good all defects in material and workmanship for a period of one year, or for such other period as provided for in the Contract Documents; then, this obligation shall be void: Otherwise to remain in full force and effect.

FURTHERMORE, the Surety convents and agrees that no price change, extension of time, alteration, or addition to the terms of the Contract Documents or to the Work to be performed thereunder shall in any way affect Surety's obligation on this bond; and Surety hereby waives notice of any such change, extension of time, alteration or addition to said Contract Documents.

IN WITNESS WHEREOF, the Principal and Surety have duly executed these presents all as of the day and year first above written.

Principal _____

Title _____

Surety _____

Title _____

CERTIFIED COPY OF A RESOLUTION
OF THE BOARD OF DIRECTORS
OF _____
A KANSAS CORPORATION

The undersigned, being the duly elected qualified and acting Secretary of _____, a Kansas corporation (the "Corporation"), hereby certifies as follows:

At a special meeting of the board of directors of the Corporation, held _____, 2026, when meeting was duly and properly called according to the by-laws of the Corporation and at which a quorum of said board was present, the following resolution was passed and adopted:

"WHEREAS, the Corporation desires to contract with Sedgwick County, Kansas (the "County") for the construction of certain public improvements, and,

"WHEREAS, the Corporation desires to authorize certain officers of the Corporation to execute and deliver to the County all agreements and documents related thereto.

"NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF _____, a Kansas corporation, that _____(name),_____(title), of the Corporation, be and is hereby authorized to execute and deliver to the County all contracts and documents incidental thereto, including but not limited to statutory bonds, construction bonds, insurance agreements and policies, plans and specifications, and any further documents required thereby, relating or pertaining to the following described project:

Construct New EMS Post 1
3099 W. 13th Street North
Wichita, KS 67203
RFB#: 26-0035

"BE IT FURTHER RESOLVED BY THE BOARD OF DIRECTORS OF THE CORPORATION that the authority conferred hereby upon such officer is continuing unless notice in writing be given by the Corporation to the County."

DATED this _____ day of _____, 2026.

_____
Secretary

(SEAL)

RFB#: 26-0035
EXHIBIT A

Liability insurance coverage indicated below must be considered as primary and not as excess insurance. If required, Contractor's professional liability/errors and omissions insurance shall (i) have a policy retroactive date prior to the date any professional services are provided for this project, and (ii) be maintained for a minimum of 3 years past completion of the project. Contractor shall furnish a certificate evidencing such coverage, with County listed as an additional insured including both ongoing and completed operations, except for professional liability, workers' compensation and employer's liability.

Certificate shall be provided prior to award of contract. Certificate shall remain in force during the duration of the project/services and will not be canceled, reduced, modified, limited, or restricted until thirty (30) days after County receives written notice of such change. All insurance must be with an insurance company with a minimum BEST rating of A-VIII and licensed to do business in the State of Kansas **(must be acknowledged on the bid/proposal response form).**

NOTE: If any insurance is subject to a deductible or self-insured retention, written disclosure must be included in your proposal response and also be noted on the certificate of insurance.

It is the responsibility of Contractor to require that any and all approved subcontractors meet the minimum insurance requirements.

Workers' Compensation:	
Applicable coverage per State Statutes	
Employer's Liability Insurance:	$500,000.00
Commercial General Liability Insurance (on form CG 00 01 04 13 or its equivalent):	
Each Occurrence	$1,000,000.00
General Aggregate, per project	$2,000,000.00
Personal Injury	$1,000,000.00
Products and Completed Operations Aggregate	$2,000,000.00
Automobile Liability:	
Combined single limit	$500,000.00
Umbrella Liability: Following form for both the general liability and automobile **X Required/ Not Required** Each Claim Aggregate	 $1,000,000.00 $1,000,000.00
Professional Liability/ Errors & Omissions Insurance: **Required/ X Not Required** Each Claim Aggregate	 $1,000,000.00 $1,000,000.00
Pollution Liability Insurance: **Required/ X Not Required** Each Claim Aggregate	 $1,000,000.00 $1,000,000.00

Special Risks or Circumstances:

Entity reserves the right to modify, by written contract, these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

CONTRACTOR IS PROVIDING CONSTRUCTION SERVICES:

In addition to the above coverages, Contractor shall also provide the following:

APPENDIX A
SEDGWICK COUNTY MANDATORY CONTRACTUAL PROVISIONS ATTACHMENT

1. **Terms Herein Controlling Provisions**: It is expressly agreed that the terms of each and every provision in this attachment shall prevail and control over the terms of any other conflicting provision in any other document relating to and a part of the Agreement in which this attachment is incorporated.

2. **Choice of Law**: This Agreement shall be interpreted under and governed by the laws of the State of Kansas. The parties agree that any dispute or cause of action that arises in connection with this Agreement will be brought before a court of competent jurisdiction in Sedgwick County, Kansas.

3. **Termination Due To Lack of Funding Appropriation**: If, in the judgment of the Chief Financial Officer, sufficient funds are not appropriated to continue the function performed in this Agreement and for the payment of the charges hereunder, County may terminate this Agreement at the end of its current fiscal year. County agrees to give written notice of termination to Contractor at least thirty (30) days prior to the end of its current fiscal year, and shall give such notice for a greater period prior to the end of such fiscal year as may be provided for in the Agreement, except that such notice shall not be required prior to ninety (90) days before the end of such fiscal year. Contractor shall have the right, at the end of such fiscal year, to take possession of any equipment provided to County under the Agreement. County will pay to Contractor all regular contractual payments incurred through the end of such fiscal year, plus contractual charges incidental to the return of any related equipment. Upon termination of the Agreement by County, title to any such equipment shall revert to Contractor at the end of County's current fiscal year. The termination of the Agreement pursuant to this paragraph shall not cause any penalty to be charged to the County or the Contractor.

4. **Disclaimer of Liability**: County shall not hold harmless or indemnify any contractor beyond that liability incurred under the Kansas Tort Claims Act (K.S.A. 75-6101 *et seq.*).

5. **Acceptance of Agreement**: This Agreement shall not be considered accepted, approved, or otherwise effective until the statutorily required approvals and certifications have been given.

6. **Arbitration, Damages, Jury Trial and Warranties**: Notwithstanding any language to the contrary, no interpretation shall be allowed to find the County has agreed to binding arbitration, or the payment of damages or penalties upon the occurrence of a contingency. Notwithstanding any language to the contrary, no interpretation shall be allowed to find the County has consented to a jury trial to resolve any disputes that may arise hereunder. Contractor waives its right to a jury trial to resolve any disputes that may arise hereunder. No provision of any Agreement and/or this Contractual Provisions Attachment will be given effect which attempts to exclude, modify, disclaim, or otherwise attempt to limit implied warranties of merchantability and fitness for a particular purpose.

7. **Representative's Authority to Contract**: By signing this Agreement, the representative of the Contractor thereby represents that such person is duly authorized by the Contractor to execute this Agreement on behalf of the Contractor and that the Contractor agrees to be bound by the provisions thereof.

8. **Federal, State, and Local Taxes**: Unless otherwise specified, the proposal price shall include all applicable federal, state, and local taxes. Contractor shall pay all taxes lawfully imposed on it with respect to any product or service delivered in accordance with this Agreement. County is exempt from state sales or use taxes and federal excise taxes for direct purchases. These taxes shall not be included in the Agreement. Upon request, County shall provide to the Contractor a certificate of tax exemption.

   County makes no representation as to the exemption from liability of any tax imposed by any governmental entity on the Contractor.

9. **Insurance**: County shall not be required to purchase any insurance against loss or damage to any personal property to which this Agreement relates, nor shall this Agreement require the County to establish a "self-insurance" fund to protect against any such loss or damage. Subject to the provisions of the Kansas Tort Claims Act (K.S.A. 75-6101 *et seq.*), Contractor shall bear the risk of any loss or damage to any personal property to which Contractor holds title.

10. **Conflict of Interest**: Contractor shall not knowingly employ, during the period of this Agreement or any extensions to it, any professional personnel who are also in the employ of the County and providing services involving this Agreement or services similar in nature to the scope of this Agreement to the County. Furthermore, Contractor shall not knowingly employ, during the period of this Agreement or any extensions to it, any County employee who has participated in the making of this Agreement until at least two years after his/her termination of employment with the County.

11. **Confidentiality.** County and Contractor, to the extent applicable, must comply with all the requirements of the Kansas Open Records Act (K.S.A. 45-215 *et seq*.) in providing services and/or goods under this Agreement and the production of records. In addition, Contractor may have access to private or confidential data maintained by County to the extent necessary to carry out its responsibilities under this Agreement and shall maintain such information securely and confidentially. Contractor shall accept full responsibility for providing adequate supervision and training to its agents and employees to ensure compliance with applicable laws. No private or confidential data collected, maintained, or used in the course of performance of this Agreement shall be disseminated by either party except as authorized by statute, either during the period of the Agreement or thereafter. Contractor must agree to return any or all data furnished by the County promptly at the request of County in whatever form it is maintained by Contractor. Upon the termination or expiration of this Agreement, Contractor shall not use any of such data or any material derived from the data for any purpose and, where so instructed by County, shall destroy or render such data or material unreadable.

12. **Cash Basis and Budget Laws**: The right of the County to enter into this Agreement is subject to the provisions of the Cash Basis Law (K.S.A. 10-1112 and 10-1113), the Budget Law (K.S.A. 79-2935), and all other laws of the State of Kansas. This Agreement shall be construed and interpreted so as to ensure that the County shall at all times stay in conformity with such laws, and as a condition of this Agreement, the County reserves the right to unilaterally sever, modify, or terminate this Agreement at any time if, in the opinion of its legal counsel, the Agreement may be deemed to violate the terms of such laws.

13. **Anti-Discrimination Clause**: Contractor agrees: (a) to comply with the Kansas Act Against Discrimination (K.S.A. 44-1001 et seq.), the Kansas Age Discrimination in Employment Act (K.S.A. 44-1111 et seq.), and the applicable provisions of the Americans with Disabilities Act (42 U.S.C. 12101 et seq.) (ADA) and to not discriminate against any person because of race, religion, color, sex, disability, national origin or ancestry, or age in the admission or access to, or treatment or employment in, its programs and activities; (b) to include in all solicitations or advertisements for employees the phrase "equal opportunity employer;" (c) to comply with the reporting requirements set out at K.S.A. 44-1031 and K.S.A. 44-1116; (d) to include those provisions in every subcontract or purchase order so that they are binding upon such subcontractor or vendor; (e) that a failure to comply with the reporting requirements of (c) above or if the Contractor is found guilty of any violation of such acts by the Kansas Human Rights Commission, such violation shall constitute a breach of contract and the Agreement may be cancelled, terminated, or suspended, in whole or in part, by County, without penalty thereto; and (f) if it is determined that the Contractor has violated applicable provisions of the ADA, such violation shall constitute a breach of the Agreement and the Agreement may be cancelled, terminated, or suspended, in whole or in part, by County, without penalty thereto.

    Parties to this Agreement understand that the provisions of this paragraph 13 (with the exception of those provisions relating to the ADA) are not applicable to a contractor who employs fewer than four employees during the term of this Agreement or whose contracts with the County cumulatively total $5,000 or less during the County's fiscal year.

14. **Suspension/Debarment**: Contractor acknowledges that as part of the Code of Federal Regulations (2 C.F.R. Part 180) a person or entity that is debarred or suspended in the System for Award Management (SAM) shall be excluded from federal financial and nonfinancial assistance and benefits under federal programs and activities. All non-federal entities, including Sedgwick County, must determine whether the Contractor has been excluded from the system and any federal funding received or to be received by the County in relation to this Agreement prohibits the County from contracting with any Contractor that has been so listed. In the event the Contractor is debarred or suspended under the SAM, the Contractor shall notify the County in writing of such determination within five (5) business days as set forth in the Notice provision of this Agreement. County shall have the right, in its sole discretion, to declare the Agreement terminated for breach upon receipt of the written notice. Contractor shall be responsible for determining whether any sub-contractor performing any work for Contractor pursuant to this Agreement has been debarred or suspended under the SAM and to notify County within the same five (5) business days, with the County reserving the same right to terminate for breach as set forth herein.

15. **HIPAA Compliance**: Contractor agrees to comply with the requirements of the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191 (codified at 45 C.F.R. Parts 160 and 164), as amended ("HIPAA"); privacy and security regulations promulgated by the United States Department of Health and Human Services ("DHHS"); title XIII, Subtitle D of the American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, as amended ("HITECH Act"); the Genetic Information Nondiscrimination Act of 2008 ("GINA"); provisions regarding Confidentiality of Alcohol and Drug Abuse Patient Records (codified at 42 C.F.R. Part 2), as amended (collectively referred to as "HIPAA"), to the extent that the Contractor uses, discloses, or has access to protected health information as defined by HIPAA. Under the final Omnibus Rule effective March 2013, Contractor may be required to enter into a Business Associate Agreement pursuant to HIPAA.

16. **Compliance with Law**: Contractor shall comply with all applicable local, state, and federal laws and regulations in carrying out this Agreement, regardless of whether said local, state, and federal laws are specifically referenced in the Agreement to which this attached is incorporated.

17. **Tax Set-Off**: If, at any time prior to or during the term of any executed agreement, Contractor is delinquent in the payment of real and/or personal property taxes to Sedgwick County, and the delinquency exists at the time payment is due under the Agreement, County will offset said delinquent taxes by the amount of the payment due under the Agreement and will continue to do so until the delinquency is satisfied, pursuant to K.S.A. 79-2012.

18. **Inapplicability to Municipal Contractors**: The following provisions found in this Sedgwick County Mandatory Contractual Provisions Attachment shall be inapplicable if the contractor is a Kansas county, incorporated city, township, or improvement district: 8, 10, and 17.

19. **Safety Recall Notices**: Throughout the term of the Agreement and at all times thereafter, Contractor must immediately notify County of any and all safety recall notices of products, goods, and services Contractor has provided to County. In addition, Contractor shall remedy the recalled defect(s), at no cost to County, by: (1) providing products, goods, or services reasonably equal to or better than the quality of the products, goods, or services without accounting for the recalled defect(s); or (2) providing compensation to County in an amount not less than the original cost of the products, goods, or services less a reasonable amount for depreciation. This Section 19 survives expiration or termination of the Agreement.

20. **Generative AI**: Contractor shall disclose any use of Generative AI which processes, involves, has access or exposure to, impacts, or potentially impacts the County or County data, systems, goods, services, or products. In addition to the foregoing, Contractor shall specifically identify when Generative AI is intended for use to draft reports containing recommendations that involve engineering judgment or propose decisions, actions, or inactions that involve or rely upon professional engineering knowledge or experience. For purposes of this section, Generative AI is artificial intelligence capable of generating text, images, or other media, using generative models. In the event of any such disclosure, County may, in its sole discretion, deny the use of the Generative AI in performance of the Agreement or terminate this Agreement immediately and without any liability or duty beyond that compensation for goods or services already provided.

    In addition, Contractor shall not expose or input any confidential County data, records, processes, or other types of information into Generative AI. Confidential data shall constitute Personal Health Information, medical records, legal or privileged records, personnel records, similarly sensitive records, or other types of data or records identified as confidential by County.

21. **Breach of System**: To the extent Contractor accesses, maintains, retains, modifies, records, stores, destroys, or otherwise holds, uses, or discloses County records or data, it shall, following the discovery of a breach or compromise of Contractor's system or of County information, immediately notify the County of such breach or compromise. Such notice shall include the County data or records that have been, or is reasonably believed by the Contractor to have been, used, accessed, acquired, or disclosed. Contractor shall provide County with any other available information that County reasonably requests or could be used to protect County's own system and data. Within five (5) days of the incident, Contractor shall provide County, in writing, a plan containing remedial steps being taken to address the compromised or potentially compromised data and future plans to prevent recurrence of the same or similar breach. If such remediation plan is acceptable to County IT, Contractor shall immediately implement the plan. In the event the remediation plan is not acceptable to County IT, both parties shall negotiate, in good faith, for Contractor to provide security protection for the County and/or individuals potentially impacted by the breach.

[balance of this page intentionally left blank]

APPENDIX B
SEDGWICK COUNTY MANDATORY INDEPENDENT CONTRACTOR ADDENDUM

1. This Agreement shall satisfy all tax and other governmentally imposed responsibilities including, but not limited to, payment of: state, federal, and social security taxes; unemployment taxes; workers' compensation; and self-employment taxes. No federal, state, or local taxes of any kind shall be withheld or paid by County.

2. The parties agree that as an independent contractor, Contractor is not entitled to the following benefits from County: (a) unemployment insurance benefits; (b) workers' compensation coverage; or (c) health insurance coverage. Contractor may only receive such coverages if provided by Contractor or an entity other than County. Subject to the foregoing, Contractor hereby waives and discharges any claim, demand, or action against County's workers' compensation insurance and/or health insurance and further agrees to indemnify County for any such claims related to Contractor's operations or the performance of services by Contractor hereunder.

3. The parties hereby acknowledge and agree that County will not: (a) require Contractor to work exclusively for County; (b) establish a quality standard for Contractor, except that County may provide plans and specifications regarding the work but will not oversee the actual work or instruct Contractor as to how the work is to be performed; (c) pay to Contractor a salary or hourly rate, but rather will pay to Contractor a fixed or contract rate; (d) provide more than minimal training for Contractor; (e) provide tools or benefits to Contractor (materials and equipment may be supplied, however); (f) dictate the time of Contractor's performance; (g) pay Contractor personally, when possible; instead, County will make all checks payable to the trade or business name under which Contractor does business; and (h) combine its business operations in any way with Contractor's business, but will instead maintain such operations as separate and distinct.

4. Contractor does not have the authority to act for County, to bind County in any respect whatsoever, or to incur debts or liabilities in the name of or on behalf of County.

5. Unless given express written consent by County, Contractor agrees not to bring any other party (including but not limited to employees, agents, subcontractors, sub-subcontractors, and vendors) onto the project site.

6. If Contractor is given written permission to have other parties on the site, and Contractor engages any other party which may be deemed to be an employee of Contractor, Contractor will be required to provide the appropriate workers' compensation insurance coverage as required by this Agreement.

7. Contractor has and hereby retains control of and supervision over the performance of Contractor's obligations hereunder and, if Contractor is given written permission to have other parties on site and the Contractor provides the appropriate coverage, the Contractor agrees to retain control over any persons employed by Contractor for performing the services hereunder and take full and complete responsibility for any liability created by or from any actions or individuals brought to the project by Contractor.

8. County will not provide training or instruction to Contractor regarding the performance of services hereunder.

9. Contractor will not receive benefits of any type from County.

10. Contractor represents that it is engaged in providing similar services to the general public and is not required to work exclusively for County.

11. All services are to be performed solely at the risk of Contractor and Contractor shall take all precautions necessary for the proper and sole performance thereof.

12. No workers' compensation insurance shall be obtained by County covering Contractor. Contractor shall comply with the workers' compensation laws pertaining to Contractor.

13. Contractor will not combine its business operations in any way with County's business operations and each party shall maintain their operations as separate and distinct.

PROJECT SUBCONTRACTING WORK SHEET

Project Name **Construct New EMS Post 1**

Check here if you are not using subcontractors _____

Bid #	26-0035
General Contractor	
Created by	

General Contractors shall provide the name, description, DBE classification (type) Minority Certification #, date of work and dollar value for each subcontractor (including lower-tier subcontractors) used to complete the referenced project. Contractors may be required to provide backup documentation to verify information.
Each column requires input.

DBE classification type: African American (1); Asian (2); Hispanic (3); Native American (4); other minority (5); Women Owned Business (6). Additional general classifications: Small Business Owner (7); Does not meet any classification (0).

	Subcontractor Name and Address	Type	Jurisdiction Name & Minority Certification Number (if vendor has one)	Description of Services	Date of Work	Dollar Value of work
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Form shall be submitted to Purchasing at the completion of project.

PRIVILEGE LOG
RFB#: 26-0035

Consistent with the guidance provided in Section 1 of this Request for Bid, Sedgwick County is subject to the Kansas Open Records Act (K.S.A. 45-215 *et seq*.). As such, portions, and potentially all, of your proposal may become accessible to the public through records requests even if it is not awarded the contract.

If you are claiming some of the submitted documentation should not be disclosed, indicate the associated information and the basis for such claims of privilege in the spaces below. In the event records requests are submitted for information identified as privileged, proprietary or confidential, Sedgwick County may attempt to coordinate a response and would expect for you to be available to defend your claims in court. Failure to provide information in the spaces below shall constitute a waiver of any claims of violation of privileged, proprietary or confidential information resulting from the production of these records, regardless of other language or claims within your Response.

PRIVILEGE LOG		
Page and/or Section of Information Not Subject to Disclosure	**Description of Information that You Claim are Privileged or Confidential. Do not include specific details, but rather categories or general descriptions of the information in question.**	**Basis for the Claim of Privilege. Please include the Applicable Federal or State Law Cite and Rationale**

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AIA® Document A104™ – 2017

Standard Abbreviated Form of Agreement Between Owner and Contractor

AGREEMENT made as of the «» day of « » in the year «2026»
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Sedgwick County Board of County Commissioners
100 N. Broadway, Suite 660
Wichita, Kansas 67202

and the Contractor:
(Name, legal status, address and other information)

.
«

for the following Project:
(Name, location and detailed description)

«Construct New EMS Post 1
3099 W. 13th Street North
Wichita, Kansas 67203
This project is to construct a new EMS Post 1 Facility.

The Architect:
(Name, legal status, address and other information)

« -Hanney and Associates Architects »
1726 South Hillside
« Wichita, KS 67211 »
« Phone: (316) 683-8965«»

The Owner and Contractor agree as follows.

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ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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TABLE OF ARTICLES

1 THE WORK OF THIS CONTRACT

2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

3 CONTRACT SUM

4 PAYMENT

5 DISPUTE RESOLUTION

6 ENUMERATION OF CONTRACT DOCUMENTS

7 GENERAL PROVISIONS

8 OWNER

9 CONTRACTOR

10 ARCHITECT

11 SUBCONTRACTORS

12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

13 CHANGES IN THE WORK

14 TIME

15 PAYMENTS AND COMPLETION

16 PROTECTION OF PERSONS AND PROPERTY

17 INSURANCE AND BONDS

18 CORRECTION OF WORK

19 MISCELLANEOUS PROVISIONS

20 TERMINATION OF THE CONTRACT

21 CLAIMS AND DISPUTES

EXHIBIT A DETERMINATION OF THE COST OF THE WORK

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ARTICLE 1 THE WORK OF THIS CONTRACT

The Contractor shall execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents listed in Article 6 of this Agreement or reasonably inferable by the Contractor from the Contract Documents as necessary to produce the results intended by the Contract Documents to be the responsibility of others.

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[« »] The date of this Agreement.

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[« X »] A date set forth in a notice to proceed issued by the Owner.

[« »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

« »

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If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 2.2 The Contract Time shall be measured from the date of commencement.

§ 2.3 Substantial Completion

§ 2.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check the appropriate box and complete the necessary information.)

[« X »] Not later than « » («») calendar days from the date of commencement of the Work.

[« »] By the following date: « »

§ 2.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 2.3.3 All times stated in the Contract Documents, including, without limitation, those for the commencement, prosecution, interim milestones, and completion of the Work, and for the delivery and installation of materials and equipment, are of the essence in this Agreement.

§ 2.3.4 The date of substantial completion of the Work or a designated portion thereof is the date, certified by the Architect, when construction is sufficiently complete in accordance with the Contract Documents that the Owner may, if it so elects, occupy and use the Work or designated portion thereof for the purposes for which it was intended.

§ 2.3.5 If the Contractor fails to achieve Substantial Completion of the Work within the Contract Time and as otherwise required by the Contract Documents, the Owner shall be entitled to retain or recover from the Contractor, as liquidated damages and not as a penalty, the following daily amounts commencing upon the first day following expiration of the Contract Time and continuing until the Date of Substantial Completion. Such liquidated damages are hereby agreed to be a reasonable pre-estimate of damages the Owner will incur as a result of delayed completion of the Work: Two Hundred Sixty-Five Dollars and no cents ($265.00).

§ 2.3.6 The Owner may deduct liquidated damages as described in the above paragraph from any unpaid amounts then or thereafter due the Contractor under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the Contractor shall be payable to the Owner at the demand of the Owner, together with interest from the date of the demand at a rate equal to the lower of the Treasury bill rate or the highest lawful rate of interest payable by the Contractor.

ARTICLE 3 CONTRACT SUM

§ 3.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's proper performance of the Contract and the completion of the Work. The Contract Sum shall be one of the following:
(Check the appropriate box.)

[« X »] Stipulated Sum, in accordance with Section 3.2 below

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[« »] Cost of the Work plus the Contractor's Fee, in accordance with Section 3.3 below

[« »] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 3.4 below

(Based on the selection above, complete Section 3.2, 3.3 or 3.4 below.)

§ 3.2 The Stipulated Sum shall be $_____, subject to additions and deductions as provided in the Contract Documents.

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§ 3.2.1 The Stipulated Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

«Value Engineer Options worksheet »

§ 3.2.2 Unit prices, if any:
(Identify the item and state the unit price and the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 3.2.3 Allowances, if any, included in the stipulated sum:
(Identify each allowance.)

Item	Price

§ 3.3 Cost of the Work Plus Contractor's Fee
§ 3.3.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.

§ 3.3.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)

« »

§ 3.4 Cost of the Work Plus Contractor's Fee With a Guaranteed Maximum Price
§ 3.4.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.

§ 3.4.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)

« »

§ 3.4.3 Guaranteed Maximum Price
§ 3.4.3.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed « » ($ « »), subject to additions and deductions by changes in the Work as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.
(Insert specific provisions if the Contractor is to participate in any savings.)

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« »

§ 3.4.3.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

« »

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§ 3.4.3.3 Unit Prices, if any:
(Identify the item and state the unit price and the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 3.4.3.4 Allowances, if any, included in the Guaranteed Maximum Price:
(Identify each allowance.)

Item	Price

§ 3.4.3.5 Assumptions, if any, on which the Guaranteed Maximum Price is based:

« »

§ 3.4.3.6 To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Change Order.

§ 3.4.3.7 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 3.4.3.5. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 3.4.3.5 and the revised Contract Documents.

« »

ARTICLE 4 PAYMENT

§ 4.1 Progress Payments

§ 4.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 4.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month and the payment shall be less the specified retainage.

« »

§ 4.1.3 Provided that an Application for Payments is received by the Architect not later than the twenty-fifth (25th) day of a month, the Owner shall make payment to the Contractor not later than the third Friday of the next month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than thirty (30) days after the Architect received the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

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§ 4.1.3.1 Notwithstanding anything to the contrary in this Contract, payment of amounts due a Contractor from an Owner, except retainage, shall be made within 30 days after the Owner receives a timely, properly completed, undisputed request for payment according to terms of the contract, unless extenuating circumstances exist which would preclude approval of payment within 30 days. If such extenuating circumstances exist, than payment shall be made within 45 days after the Owner receives such payment request.

§ 4.1.3.2 If the Owner fails to pay Contractor within the time period set in Paragraph 4.1.3.1, the Owner shall pay interest computed at the rate of eighteen percent (18%) per annum on the undisputed amount to the Contractor beginning on the day following the end of the time period set forth in Paragraph 4.1.3.1.

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§ 4.1.4 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold retainage from the payment otherwise due as follows:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment and any terms for reduction of retainage during the course of the Work. The amount of retainage may be limited by governing law.)

« Ten percent (10%) »

§ 4.1.5 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

« » % « »

§ 4.2 Final Payment
§ 4.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 18.2, and to satisfy other requirements, if any, which extend beyond final payment;
.2 the Contractor has submitted a final accounting for the Cost of the Work, where payment is on the basis of the Cost of the Work with or without a Guaranteed Maximum Price; and
.3 a final Certificate for Payment has been issued by the Architect in accordance with Section 15.7.1.

§ 4.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

« »

ARTICLE 5 DISPUTE RESOLUTION
§ 5.1 Binding Dispute Resolution
For any claim subject to, but not resolved by, mediation pursuant to Section 21.5, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[« »] Arbitration pursuant to Section 21.6 of this Agreement

[« »] Litigation in a court of competent jurisdiction

[« »] Other *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, claims will be resolved in a court of competent jurisdiction.

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ARTICLE 6 ENUMERATION OF CONTRACT DOCUMENTS

§ 6.1 The Contract Documents are defined in Article 7 and, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 6.1.1 The Agreement is this executed AIA Document A104™–2017, Standard Abbreviated Form of Agreement Between Owner and Contractor.

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§ 6.1.2 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203–2013 incorporated into this Agreement.)

«N/A »

§ 6.1.3 The Supplementary and other Conditions of the Contract are those modified and contained in the Project Manual dated <INSERT DATE> drawings dated <INSERT DATE>.

Document	Title	Date	Pages
RFB 26-0035	EMS Post 1		

§ 6.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

« »

Section	Title	Date	Pages
Project Manual	EMS Post 1		

§ 6.1.5 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

« »

Number	Title	Date
Drawings	EMS Post 1	

§ 6.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are enumerated in this Article 6.

§ 6.1.7 Additional documents, if any, forming part of the Contract Documents:

.1 Other Exhibits:
(Check all boxes that apply.)

[« »] Exhibit A, Determination of the Cost of the Work.

[« »] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

« »

[« »] The Sustainability Plan:

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Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents.)

«»

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ARTICLE 7 GENERAL PROVISIONS

§ 7.1 The Contract Documents

The Contract Documents are enumerated in Article 6 and consist of this Agreement (including, if applicable, Supplementary and other Conditions of the Contract), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. 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 complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of inconsistencies within or between parts of the Contracts Documents, or between the Contract Documents and applicable standards, codes, resolutions, and ordinances, the Contract shall (i) provide the better quality or greater quantity of Work or (ii) comply with the more stringent requirement, either or both in accordance with the Architect's interpretation. The terms and conditions of this Paragraph 7.1, however, shall not relieve the Contractor of any obligations set forth in Paragraphs 9.1 and 9.6.

§ 7.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than the Owner and the Contractor.

§ 7.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 7.4 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 7.5 Ownership and use of Drawings, Specifications and Other Instruments of Service

§ 7.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 7.5.2 The Contractor, Subcontractors, Sub-subcontractors and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to the protocols established pursuant to Sections 7.6 and 7.7, solely

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and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 7.6 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

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§ 7.7 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

§ 7.8 Severability

The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 7.9 Notice

§ 7.9.1 Except as otherwise provided in Section 7.9.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering Notice in electronic format such as name, title and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

« »

§ 7.9.2 Notice of Claims shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 7.10 Relationship of the Parties

Where the Contract is based on the Cost of the Work plus the Contractor's Fee, with or without a Guaranteed Maximum Price, the Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.

ARTICLE 8 OWNER

§ 8.1 Information and Services Required of the Owner

§ 8.1.1 Prior to commencement of the Work, at the written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such

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evidence. If commencement of the Work is delayed under this Section 8.1.1, the Contract Time shall be extended appropriately.

§ 8.1.2 The Owner shall furnish all necessary surveys and a legal description of the site.

§ 8.1.3 The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

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§ 8.1.4 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 9.6.1, the Owner shall secure and pay for other necessary approvals, easements, assessments, and charges required for the construction, use, or occupancy of permanent structures or for permanent changes in existing facilities.

§ 8.2 Owner's Right to Stop the Work

If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or repeatedly fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

§ 8.3 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to any other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 15.4.3, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including the Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 21.

§ 8.4 Extent of Owner's Rights

§ 8.4.1 The rights stated in this Article 8 and elsewhere in the Contract Documents are cumulative and not in limitation of any rights of the Owner (i) granted in the Contract Documents, (ii) in law, or (iii) in equity.

§ 8.4.2 In no event shall Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences, or procedures or for the safety precautions and programs in connection with the Work, notwithstanding any of the rights and authority granted the Owner in the Contract Document.

ARTICLE 9 CONTRACTOR

§ 9.1 Review of Contract Documents and Field Conditions by Contractor

§ 9.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents. Prior to execution of the Agreement, the Contractor and each Subcontractor shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including, without limitation, (i) the location, condition, layout, and nature of the Project site and surrounding areas, (ii) generally prevailing climactic conditions, (iii) anticipated labor supply and costs, (iv) availability and cost of materials, tools, and equipment, and (v) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site. Except as set forth in Paragraph 16.2, the Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Owner shall not be required to make any adjustment in either the contract Sum or Contract Time in connection with any failure by the Contractor or any Subcontractor to have complied with the requirements of this Paragraph 9.1.1.

§ 9.1.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 8.1.2, shall take field measurements of any existing

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conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies, or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents.

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§ 9.1.2.1 The exactness of grades, elevations, dimensions, or locations given on any Drawings issued by the Architect, or the work installed by other contractors, is not guaranteed by the Architect or the owner.

§ 9.1.2.2 The Contractor shall, therefore, satisfy itself to the accuracy of all grades, elevations, dimensions, and locations. In all cases of interconnection of its Work with existing or other work, it shall verify at the site all dimensions relating to such existing or other work. Any errors due to the Contractor's failure to so verify all such grades, elevations, dimensions, or locations shall be promptly rectified by the Contractor without any additional cost to the Owner.

§ 9.1.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 9.2 Supervision and Construction Procedures

§ 9.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

§ 9.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

§ 9.3 Labor and Materials

§ 9.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 9.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 9.3.3 The Contractor may make a substitution only with the consent of the Owner, after evaluation by the Architect and in accordance with a Modification.

§ 9.3.4 The Contractor shall deliver, handle, store, and install materials in accordance with manufacturers' instructions.

§ 9.4 Warranty

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements shall be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage. All other warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner,

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and shall commence in accordance with Section 15.6.3. The Contractor agrees to assign to the Owner at the time of final completion of the Work any and all manufacturer's warranties relating to materials and labor used in the Work and further agrees to perform the Work in such a manner so as to preserve any and all such manufacturer's warranties.

§ 9.5 Taxes

The Contractor shall pay sales, consumer, use, and other similar taxes that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

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§ 9.5.1 Materials

§ 9.5.1.1 Materials and equipment incorporated into this Project are exempt from the payment of sales tax under the laws of the State of Kansas.

§ 9.5.1.2 The owner will provide the contractor with a proper exemption certificate number when the notice to proceed is issued. Should the Owner fail to provide an exemption certification the Contractor shall notify the Architect in writing prior to placing any orders. The contractor shall be reimbursed for sales tax amounts for which he becomes liable until such exemption is provided.

§ 9.5.1.3 Upon issuance of a proper exemption certification number to the Contractor, the Contractor shall assume full responsibility for his own assessed penalties relating to the Contractor's improper use of the exemption certificate. Contractor shall comply with statutes of the State of Kansas related to sales tax exemption.

§ 9.5.1.4 The Contractor shall be responsible for furnishing the Owner a copy of all invoices bearing the exemption certification number pertaining to materials that are incorporated in this project.

§ 9.5.1.5 Contractor shall retain, for a period of not less than five years, all his and his subcontractor's invoices claiming sales tax exemption, properly identified with tax exemption number as required by State of Kansas.

§ 9.5.1.6 Upon completion of the Project, the Contractor shall execute and issue, to the Owner, a certificate of compliance on the form provided by the State Department of Revenue.

§ 9.6 Permits, Fees, Notices, and Compliance with Laws

§ 9.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 9.6.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules, regulations and lawful orders of public authorities applicable to performance of the Work. The Contractor shall promptly notify the Architect and Owner if the Drawings and Specifications are observed by the Contractor to be at variance therewith. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, without such notice to the Architect and Owner, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 9.7 Allowances

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. The Owner shall select materials and equipment under allowances with reasonable promptness. Allowance amounts shall include the costs to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts. Contractor's costs for unloading and handling at the site, labor, installation, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowance.

§ 9.8 Contractor's Construction Schedules

§ 9.8.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work

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and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 9.8.2 The Contractor shall perform the Work in general accordance with the most recent schedule submitted to the Owner and Architect.

§ 9.9 Submittals

§ 9.9.1 The Contractor shall review for compliance with the Contract Documents and submit to the Architect Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents in coordination with the Contractor's construction schedule and in such sequence as to allow the Architect reasonable time for review. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them; (2) determined and verified materials, field measurements, and field construction criteria related thereto, or will do so; and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Work shall be in accordance with approved submittals.

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§ 9.9.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

§ 9.9.3 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents or unless the Contractor needs to provide such services in order to carry out the Contractor's own responsibilities. If professional design services or certifications by a design professional are specifically required, the Owner and the Architect will specify the performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional. If no criteria are specified, the design shall comply with applicable codes and ordinances. Each Party shall be entitled to rely upon the information provided by the other Party. The Architect will review and approve or take other appropriate action on submittals for the limited purpose of checking for conformance with information provided and the design concept expressed in the Contract Documents. The Architect's review of Shop Drawings, Product Data, Samples, and similar submittals shall be for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. In performing such review, the Architect will approve, or take other appropriate action upon, the Contractor's Shop Drawings, Product Data, Samples, and similar submittals.

§ 9.10 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 9.10.1 Only materials and equipment that are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials, and equipment likely to cause hazardous conditions.

§ 9.10.2 The Contractor and any such entity for whom the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner, which may be withheld in the sole discretion of the Owner.

§ 9.10.3 Without limitation of any other provision of the Contract Documents, Contractor shall use best efforts to minimize any interference with the occupancy or beneficial use of (i) any areas and building adjacent to the site of the Work, and (ii) the Building, in the event of partial occupancy. Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project site, including, without limitation, lavatories, toilets, entrances, and parking areas other than those designated by the Owner.

§ 9.10.3.1 Without limitation of any other provision of the Contract Documents, the Contractor shall use its best efforts to comply with all resolutions, rules and regulations promulgated by the Owner in connection with the use

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and occupancy of the Project site and the Building, as amended for time to time. The Contractor shall immediately notify the Owner in writing if during the performance of the Work, the Contractor finds compliance with any portion of such resolutions, rules and regulations to be impracticable, setting forth the problems of such compliance and suggesting alternatives through which the same result intended by such portions of the resolutions, rules and regulations can be achieved. The Owner may, in the Owner's sole discretion, adopt such suggestions, develop new alternatives, or require compliance with the existing requirements of the resolutions, rules and regulations. In the even Owner requires compliance with subsequently adopted resolutions, rules and regulations, any resulting change in the Work shall be adjusted as provided in Article 13 of the Contract.

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§ 9.10.4 The Contractor shall comply with all insurance requirements and collective bargaining agreements applicable to use and occupancy of the Project site and the Building.

§ 9.11 Cutting and Patching

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

§ 9.12 Cleaning Up

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus material from and about the Project.

§ 9.13 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 9.14 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 9.15 Indemnification

§ 9.15.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) (including loss of use resulting therefrom), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.15.1.

§ 9.15.2 In claims against any person or entity indemnified under this Section 9.15 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 9.15.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

§ 9.15.3 The Contractor's indemnity obligations under this Paragraph 9.15 shall also specifically include, without limitation, all fines, penalties, damages, liability, costs, and expenses (including, without limitation, reasonable attorney's fees) arising out of, or in connection with, any (i) violation of or failure to comply with any law, statute, resolution, ordinance, rule, regulation, code, or requirement of a public authority that bears upon the performance of the Work by the Contractor, a Subcontractor, or any person or entity for whom either is responsible, (ii) means, methods, procedures, techniques, or sequences of execution or performance of the Work, and (iii) failure to secure

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and pay for permits, fees, approvals, licenses, and inspections, as required under the Contract Documents, or any violation of any permit of other approval of a public authority applicable to the Work by the Contractor, a Subcontractor, or any person or entity for whom either is responsible.

§ 9.15.4 The Contractor shall indemnify and hold harmless all of the Indemnitees from and against any costs and expenses (including reasonable attorneys' fees) incurred by any of the Indemnitees in enforcing any of the Contractor's defense, indemnity, and hold harmless obligations under this Contract.

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ARTICLE 10 ARCHITECT

§ 10.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction, until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

§ 10.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 10.3 The Architect will visit the site at intervals appropriate to the stage of the construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general, if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 10.4 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 10.5 Based on the Architect's evaluations of the Work and of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 10.6 The Architect has authority to reject Work that does not conform to the Contract Documents and to require inspection or testing of the Work.

§ 10.7 The Architect will review and approve or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 10.8 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect will make initial decisions on all claims, disputes, and other matters in question between the Owner and Contractor but will not be liable for results of any interpretations or decisions rendered in good faith.

§ 10.9 The Architect's decisions on matters relating to aesthetic effect, in connection with administration of the Contract, will be final if consistent with the intent expressed in the Contract Documents.

ARTICLE 11 SUBCONTRACTORS

§ 11.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site.

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§ 11.2 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the Subcontractors or suppliers proposed for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Architect has made reasonable written objection within ten days after receipt of the Contractor's list of Subcontractors and suppliers. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

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§ 11.3 Contracts between the Contractor and Subcontractors shall (1) 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 the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by the Contract Documents, assumes toward the Owner and Architect, and (2) allow the Subcontractor the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner.

ARTICLE 12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 12.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 12.2 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's activities with theirs as required by the Contract Documents.

§ 12.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a Separate Contractor because of delays, improperly timed activities, or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work, or defective construction of a Separate Contractor.

§ 12.4 The Contractor shall, as part of the Work, provide for the coordination of work to be performed by each separate contractor engaged by the Owner, if any, with the work to be performed by the Contractor or its Subcontractors of any tier. The Contractor shall use its best efforts to cooperate with the Owner and all separate contractors, their subcontractors, and any other entity involved in the performance of the Work. In order to cause the Work and any work to be performed by separate contractors to be completed in an expeditious manner, the Contractor agrees that it will ensure that such separate contractors have a reasonable opportunity to complete their work as and when required.

§ 12.5 If any part of the Work depends on the proper performance of the work of a separate contractor, the Contractor shall, prior to proceeding with the Work, promptly report to the Owner any apparent discrepancies or defects in such other work that render it unsuitable and prevent the Contractor from proceeding expeditiously with the Work.

§ 12.6 If the Contractor wrongfully causes damage to the Work or the property of the Owner, the Contractor shall promptly remedy such damage. If the Contractor wrongfully causes damage to the work or property of any separate contractor, the Contractor shall promptly attempt to settle any resulting dispute or claim with such other contractor.

ARTICLE 13 CHANGES IN THE WORK

§ 13.1 By appropriate Modification, changes in the Work may be accomplished after execution of the Contract. The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Owner, Contractor, and Architect, or by written Construction Change Directive signed by the Owner and Architect. Upon

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issuance of the Change Order or Construction Change Directive, the Contractor shall proceed promptly with such changes in the Work, unless otherwise provided in the Change Order or Construction Change Directive.

§ 13.2 Adjustments in the Contract Sum and Contract Time resulting from a change in the Work shall be determined by mutual agreement of the parties or, in the case of a Construction Change Directive signed only by the Owner and Architect, by the Contractor's cost of labor, material, equipment, and reasonable overhead and profit, unless the parties agree on another method for determining the cost or credit. Pending final determination of the total cost of a Construction Change Directive, the Contractor may request payment for Work completed pursuant to the Construction Change Directive. The Architect will make an interim determination of the amount of payment due for purposes of certifying the Contractor's monthly Application for Payment. When the Owner and Contractor agree on adjustments to the Contract Sum and Contract Time arising from a Construction Change Directive, the Architect will prepare a Change Order.

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§ 13.3 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work.

§ 13.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be equitably adjusted as mutually agreed between the Owner and Contractor; provided that the Contractor provides notice to the Owner and Architect promptly and before conditions are disturbed. No adjustment in the Contract Time or Contract Sum shall be permitted, however, in connection with a concealed or unknown condition that does not differ materially from those conditions disclosed or that reasonably should have been disclosed by the Contractor's (i) prior inspections, tests, reviews, and preconstruction services for the Project, or (ii) inspections, tests, reviews, and preconstruction services that the Contractor had the opportunity to make or should have performed in connection with the Project.

§ 13.5 Except as permitted in Paragraph 12.1, a change in the Contract Sum or the Contract Time shall be accomplished only by a Change Order. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that the Owner has been unjustly enriched by any alteration or addition to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any claim to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

§ 13.6 Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the construction schedule.

ARTICLE 14 TIME

§ 14.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing this Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 14.2 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 14.3 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 14.4 The date of Substantial Completion is the date certified by the Architect in accordance with Section 15.6.3.

§ 14.5 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) changes ordered in the Work; (2) by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably anticipatable, unavoidable casualties, or any causes beyond the Contractor's control; or (3) by other

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causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine, subject to the provisions of Article 21.

ARTICLE 15 PAYMENTS AND COMPLETION

§ 15.1 Schedule of Values

§ 15.1.1 Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price pursuant to Section 3.2 or 3.4, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Stipulated Sum or Guaranteed Maximum Price to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy required by the Architect. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

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§ 15.1.2 The allocation of the Stipulated Sum or Guaranteed Maximum Price under this Section 15.1 shall not constitute a separate stipulated sum or guaranteed maximum price for each individual line item in the schedule of values.

§ 15.2 Control Estimate

§ 15.2.1 Where the Contract Sum is the Cost of the Work, plus the Contractor's Fee without a Guaranteed Maximum Price pursuant to Section 3.3, the Contractor shall prepare and submit to the Owner a Control Estimate within 14 days of executing this Agreement. The Control Estimate shall include the estimated Cost of the Work plus the Contractor's Fee.

§ 15.2.2 The Control Estimate shall include:

.1 the documents enumerated in Article 6, including all Modifications thereto;

.2 a list of the assumptions made by the Contractor in the preparation of the Control Estimate to supplement the information provided by the Owner and contained in the Contract Documents;

.3 a statement of the estimated Cost of the Work organized by trade categories or systems and the Contractor's Fee;

.4 a project schedule upon which the Control Estimate is based, indicating proposed Subcontractors, activity sequences and durations, milestone dates for receipt and approval of pertinent information, schedule of shop drawings and samples, procurement and delivery of materials or equipment the Owner's occupancy requirements, and the date of Substantial Completion; and

.5 a list of any contingency amounts included in the Control Estimate for further development of design and construction.

§ 15.2.3 When the Control Estimate is acceptable to the Owner and Architect, the Owner shall acknowledge it in writing. The Owner's acceptance of the Control Estimate does not imply that the Control Estimate constitutes a Guaranteed Maximum Price.

§ 15.2.4 The Contractor shall develop and implement a detailed system of cost control that will provide the Owner and Architect with timely information as to the anticipated total Cost of the Work. The cost control system shall compare the Control Estimate with the actual cost for activities in progress and estimates for uncompleted tasks and proposed changes. This information shall be reported to the Owner, in writing, no later than the Contractor's first Application for Payment and shall be revised and submitted with each Application for Payment.

§ 15.2.5 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in the Control Estimate. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the Control Estimate and the revised Contract Documents.

§ 15.3 Applications for Payment

§ 15.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 15.1, for completed portions of the Work. The application shall be notarized, if required; be supported by all data substantiating the Contractor's right to payment that the Owner or Architect require; shall reflect retainage if provided for in the Contract Documents; and include any revised cost control information required by Section 15.2.4. Applications for Payment shall not include requests for payment for portions of the Work for which the

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Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 15.3.2 With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

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§ 15.3.3 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 15.3.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.

§ 15.3.5 Partial payments will be made monthly on proper application. Certification will be issued for ninety percent (90%) of the amount requested by the Contractor and approved by the Architect to be properly due until at least fifty percent (50%) of the Contract amount has been paid. Thereafter, the accumulated retainage will remain at five percent (5%) of the Contract amount (including additions, if any) except that should the Contractor at any time fail to keep current with the approved progress schedule, certification of ninety percent (90%) shall automatically again become effective and shall apply so long as the Contract progress lags behind such progress schedule.

§ 15.4 Certificates for Payment

§ 15.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner of the Architect's reasons for withholding certification in whole or in part as provided in Section 15.4.3.

§ 15.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluations of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 15.4.3 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 15.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 15.4.1. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 9.2.2, because of

.1 defective Work not remedied;

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.2 third-party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a Separate Contractor;

.6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or

.7 repeated failure to carry out the Work in accordance with the Contract Documents.

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§ 15.4.4 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 15.4.3, in whole or in part, that party may submit a Claim in accordance with Article 21.

§ 15.5 Progress Payments

§ 15.5.1 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in a similar manner.

§ 15.5.2 Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor or supplier except as may otherwise be required by law.

§ 15.5.3 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 15.5.4 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 15.6 Substantial Completion

§ 15.6.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 15.6.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 15.6.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. When the Architect determines that the Work or designated portion thereof is substantially complete, the Architect will issue a Certificate of Substantial Completion which shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 15.6.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

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§ 15.7 Final Completion and Final Payment

§ 15.7.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 15.7.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. All warranties, guarantees, operational and parts manuals required under or pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Architect as part of the final Application for Payment. The final certificate of Payment will not be issued by the Architect until all warranties and guarantees have been received and accepted by the Owner.

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§ 15.7.2 Final payment shall not become due until the Contractor has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

§ 15.7.3 The making of final payment shall constitute a waiver of claims by the Owner except those arising from

.1 liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents;
.3 terms of special warranties required by the Contract Documents; or
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 15.7.4 Acceptance of final payment by the Contractor, a Subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of the final Application for Payment.

ARTICLE 16 PROTECTION OF PERSONS AND PROPERTY

§ 16.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;
.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall comply with, and give notices required by, applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury, or loss. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor, a sub-subcontractor, 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 Sections 16.1.2 and 16.1.3. The Contractor may make a claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 9.15. When all or a portion of the Work is suspended for any reason, the Contractor shall securely fasten down all coverings and protect the Work, as necessary, from injury by any cause. The Contractor shall promptly report in writing to the Owner and Architect all accidents arising out of or in connection with the Work that cause death, personal injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious personal injuries, or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner and the Architect.

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§ 16.2 Hazardous Materials and Substances

§ 16.2.1 The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

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ARTICLE 17 INSURANCE AND BONDS

§ 17.1 Contractor's Insurance

§ 17.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in this Section 17.1 or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the insurance required by this Agreement from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 18.4, unless a different duration is stated below:

« »

§ 17.1.2 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than « » ($ « ») each occurrence, « » ($ « ») general aggregate, and « » ($ « ») aggregate for products-completed operations hazard, providing coverage for claims including

.1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;

.2 personal and advertising injury;

.3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;

.4 bodily injury or property damage arising out of completed operations; and

.5 the Contractor's indemnity obligations under Section 9.15.

§ 17.1.3 Automobile Liability covering vehicles owned by the Contractor and non-owned vehicles used by the Contractor, with policy limits of not less than « » ($ « ») per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

§ 17.1.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 17.1.2 and 17.1.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ 17.1.5 Workers' Compensation at statutory limits.

§ 17.1.6 Employers' Liability with policy limits not less than « » ($ « ») each accident, « » ($ « ») each employee, and « » ($ « ») policy limit.

§ 17.1.7 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate.

§ 17.1.8 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate.

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§ 17.1.9 Coverage under Sections 17.1.7 and 17.1.8 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate.

§ 17.1.10 The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Section 17.1 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the period required by Section 17.1.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy.

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§ 17.1.11 The Contractor shall disclose to the Owner any deductible or self- insured retentions applicable to any insurance required to be provided by the Contractor.

§ 17.1.12 To the fullest extent permitted by law, the Contractor shall cause the commercial liability coverage required by this Section 17.1 to include (1) the Owner, the Architect, and the Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's Consultants, CG 20 32 07 04.

§ 17.1.13 Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by this Section 17.1, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 17.1.14 Other Insurance Provided by the Contractor
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	Limits

§ 17.2 Owner's Insurance

§ 17.2.2 Property Insurance
§ 17.2.2.1 The Contractor shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, builder's risk insurance with a deductible not to exceed $1000.00 and sufficient to cover the total value of the entire Project on a replacement cost basis. The Contractor's builder's risk insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed or materials or equipment supplied by others. The builder's risk insurance shall be maintained until Substantial Completion and thereafter as provided in Section 17.2.2.2, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ 17.2.2.2 Unless the parties agree otherwise, upon Substantial Completion, the Contractor shall continue the insurance required by Section 17.2.2.1 or, if necessary, replace the insurance policy required under Section 17.2.2.1 with builder's risk insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 18.4.

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§ 17.2.2.3 If the insurance required by this Section 17.2.2 is subject to deductibles or self-insured retentions, the Contractor shall be responsible for all loss not covered because of such deductibles or retentions.

§ 17.2.2.4 If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Contractor shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 18.4, builder's risk insurance with a deductible not to exceed $1000.00, on a replacement cost basis, protecting the existing structure against direct physical loss or damage, notwithstanding the undertaking of the Work. The Contractor shall be responsible for all co-insurance penalties.

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§ 17.2.2.5 Prior to commencement of the Work, the Contractor shall secure the insurance, and provide evidence of the coverage, required under this Section 17.2.2 and, upon the Owner's request, provide a copy of the insurance policy or policies required by this Section 17.2.2. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ 17.2.2.6 Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by this Section 17.2.2, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Owner: (1) the Owner, upon receipt of notice from the Contractor, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Contractor or the Owner and (2) the Contract Time and Contract Sum shall be equitably adjusted. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide required insurance.

§ 17.2.2.7 Waiver of Subrogation

§ 17.2.2.7.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by this Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 17.2.2.7 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 17.2.2.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements, written where legally required for validity, the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 17.2.3 Other Insurance Provided by the Contractor

(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits

§ 17.3 Performance Bond and Payment Bond

§ 17.3.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in the Contract Documents on the date of execution of the Contract.

§ 17.3.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

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ARTICLE 18 CORRECTION OF WORK

§ 18.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed, or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense, unless compensable under Section A.1.7.3 in Exhibit A, Determination of the Cost of the Work. If prior to the date of Substantial Completion (for the purposes of this Agreement, a project is substantially complete when the Owner can legally take occupancy and use the facility for its intended purpose), the Contractor, a Subcontractor, or anyone for whom either is responsible uses or damages any portion of the Work, including, without limitation, mechanical, electrical, plumbing, and other building systems, machinery, equipment, or other mechanical device, the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner.

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§ 18.2 In addition to the Contractor's obligations under Section 9.4, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 15.6.3, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor. The Owner shall, prior to making any written claim, provide the Contractor with an opportunity to make the corrections.

§ 18.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 8.3.

§ 18.4 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 18.5 Upon completion of any Work under or pursuant to this Article 18, the one (1) year correction period in connection with the Work requiring correction shall be renewed and recommence. The obligations under Article 18 shall cover any repairs and replacement to any part of the Work or other property caused by the defective Work.

ARTICLE 19 MISCELLANEOUS PROVISIONS

§ 19.1 Assignment of Contract

Neither party to the Contract shall assign the Contract without written consent of the other, except that the Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 19.2 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 21.6.

§ 19.3 Tests and Inspections

Tests, inspections, and approvals of portions of the Work required by the Contract Documents or by applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

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§ 19.4 The Owner's representative:
(Name, address, email address and other information)

« Sandy Anguelov »
« Senior Construction Project Manager »
« 271 W. 3rd Street, Suite 325 »
« Wichita, KS 67202 »
« Email: Sandy.Anguelov@sedgwick.gov»
« Phone: (316) 660-9865 »

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§ 19.5 The Contractor's representative:
(Name, address, email address and other information)

«

§ 19.6 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

ARTICLE 20 TERMINATION OF THE CONTRACT

§ 20.1 Termination by the Contractor

If the Architect fails to certify payment as provided in Section 15.4.1 for a period of 30 days through no fault of the Contractor, or if the Owner fails to make payment as provided in Section 4.1.3 for a period of 30 days, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 20.2 Termination by the Owner for Cause

§ 20.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 20.2.2 When any of the reasons described in Section 20.2.1 exists, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may, without prejudice to any other remedy the Owner may have and after giving the Contractor seven days' notice, terminate the Contract and take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 20.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 20.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 20.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

§ 20.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Owner shall pay the Contractor for Work executed; and costs incurred by reason of such termination, including costs attributable to termination of Subcontracts.

§ 20.3.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

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§ 20.3.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall;

§ 20.3.2.1 cease operations as directed by the Owner in the notice;

§ 20.3.2.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work;

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

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§ 20.3.3 Upon such termination, the Contractor shall recover as its sole remedy payment for Work properly performed in connection with the terminated portion of the Work prior to the effective date of termination and for items properly and timely fabricated off the Project site, delivered, and stored in accordance with the Owner's instructions. The Contractor hereby waives and forfeits all other claims for payment and damages, including, without limitation, anticipated profits. Owner shall be credited for (i) payments previously made to the Contractor for the terminated portion of the work, (ii) claims that the Owner has against the Contractor under the Contract, and (iii) the value of the materials, supplies, equipment, or other items that are to be disposed of by the Contractor that are part of the Contract Sum.

ARTICLE 21 CLAIMS AND DISPUTES

§ 21.1 Claims, disputes, and other matters in question arising out of or relating to this Contract, including those alleging an error or omission by the Architect but excluding those arising under Section 16.2, shall be referred initially to the Architect for decision if the claimant recognizes the claim prior to the date of final payment. The Contractor and Owner shall not be obligated to resolve any claim, dispute or other matters related to the contract by mediation or arbitration. Any reference in the contract documents to mediation or arbitration is deemed void.

§ 21.2 Notice of Claims

§ 21.2.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 18.2, shall be initiated by notice to the Architect within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 21.2.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 18.2, shall be initiated by notice to the other party.

§ 21.3 Time Limits on Claims

The Owner and Contractor shall commence all claims and causes of action against the other and arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in this Agreement whether in contract, tort, breach of warranty, or otherwise, within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 21.3.

§ 21.10 Continuing Contract Performance

Pending final resolution of a Claim, except as otherwise agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

ARTICLE 22 Other Conditions or Provisions

§ 22.1 Contractor shall observe the provisions of the Kansas Acts Against Discrimination and shall not discriminate against any person in the performance of work under the present agreement because of race, religion, color, sex, disability, national origin or ancestry.

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§ 22.2 In all solicitation or advertisements for employees, Contractor shall include the phrase "equal opportunity employer" or a similar phrase to be approved by the Kansas Human Rights Commission.

§ 22.3 If Contractor fails to comply with the manner in which Contractor reports to the Kansas Human Rights Commission in accordance with the provisions of K.S.A. 44-1031 and amendments thereto, Contractor shall be deemed to have breached the present contract and it may be canceled, terminated, or suspended in whole or in part, by Sedgwick County (Owner).

§ 22.4 If Contractor is found guilty of a violation of the Kansas Acts Against Discrimination under a decision of order of the Kansas Human Rights Commission which has become final, Contractor shall be deemed to have breached the present agreement and it may be canceled, terminated or suspended, in whole or in part, by Sedgwick County (Owner).

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§ 22.5 Contractor shall include the provisions of the above paragraphs 22.1 through 22.4, inclusively, in every subcontract or purchase order so that such provisions will be binding upon such subcontractor or vendor.

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	CONTRACTOR *(Signature)*
»Joseph E. Thomas, Purchasing Director	«- »« »
(Printed name and title)	*(Printed name and title)*

Approved as to Form:

_____
Armand L. Shukaev, Assistant County Counselor

Attest:

_____
Kelly B. Arnold
County Clerk

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SECTION 010000

CONDITIONS OF THE CONTRACT

1. GENERAL CONDITIONS

AIA Document, A201 – 2007, Sixteenth Edition, "General Conditions of the Contract for Construction" is hereby mad a part of the Contract Documents the same as if the provisions were set forth herein verbatim.

2. SUPPLEMENTARY GENERAL CONDITIONS

The above described General Conditions of the Contract for Construction are supplemented and/or amended as hereinafter set forth. Where any Article is supplemented, amended, deleted and/or superseded, the unaltered provisions of such Article shall remain in effect. In the event of any conflict, inconsistency or ambiguity between the terms and provisions of the General Conditions and the Supplementary General Conditions, the Supplement shall control.

ARTICLE 1 – CONTRACT DOCUMENTS

3. DEFINITIONS

Delete subparagraph 1.1.1 in its entirety and insert in lieu thereof the following new subparagraph 1.1.1:

1.1.1 The Contract Documents consist of bidding documents such as the Advertisement of Invitation to Bid, the Instructions to Bidders, sample forms, the Contractors Bid and any Addenda relating to any of the bidding documents, the Owner-Contractor Agreement, the Conditions of the Contract (General Supplementary, and other Conditions), the Drawings, the Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect pursuant to Paragraph 7.4. The requirements and provisions of the Construction Loan Agreement or Permanent Loan Agreement, or similar financing documents, including any amendments thereto, insofar as the same may be applicable to Contractor's work, are incorporated herein to the extent that the same imposes additional or greater requirements upon Contractor or for the Contractor's Work. Lesser requirements in the financing documents shall in no manner lessen the Contractor's obligations set forth in the Contract Documents described above.

Add the following to the end of subparagraph 1.1.2, the Contract:

This entire Contract shall be construed equally in favor of the Owner and the Contractor and any ambiguity, error, or omission therein shall be construed to effectuate the parties' intent. Contractor shall submit a properly completed Contractor's Qualification Statement, AIA Document A 305, 1986 Edition prior to execution of the Owner-Contractor Agreement. Contractor acknowledges that the Statement is material and the Agreement is entered into by Owner in reliance upon the Statement.

ARTICLE 2 – OWNER

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER
Delete subparagraph 2.2.1 in its entirety and insert in lieu thereof the following new subparagraph 2.2.1:

2.2.1 The Contractor shall not commence the Work until construction funds for the Project are available on terms which are in every respect acceptable to the Owner and until receipt of a written notice to proceed. If for any reason construction funds which are acceptable in every respect are not obtained within ninety (90) days from the execution of this Contract then the Contract shall be null and void from the beginning and of no effect unless such time shall be extended in writing by the Owner and the Contractor. Upon Contractor's written request prior to the commencement of the Work. Owner shall furnish to Contractor reasonable evidence of the availability of such funds.

And the following to the end of subparagraph 2.2.3:

No claim or change order shall be made by or be valid for any inaccuracy, if the same should have been discovered by and expert Contractor.

ARTICLE 3 – CONTRACTOR

3.1 DEFINITION

Add the following to the end of subparagraph 3.1.1:

The Contractor accepts the relationship of trust and confidence established between the Contractor and the Owner by virtue of this contractual relationship. He covenants with the Owner to furnish is best skill and judgment and to cooperate with the Owner and the Architect in furthering the interests of the Owner. He agrees to perform the Work in the best way and in the most expeditious and economical manner consistent with the interests of the Owner.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

Add the following to the end of subparagraph 3.2.3:

In reviewing field conditions, contract documents or taking field measurements, the Contractor shall have imputed knowledge or recognition of any error inconsistency or omission which would have been discovered by an expert contractor performing such activity.

3.5 WARRANTY

Add the following at the end of paragraph 3.5:

Defective work under this Agreement including work not in compliance with the Contract Documents includes any work negligently performed, or unworkmanlike, or unmerchantable, or unfit for the particular purpose for which it is intended to be used. The Contractor shall be responsible for all damages resulting from such defective work. A cause of action under this paragraph shall not be deemed to have accrued until actual discovery by Owner of the defective work and the damage resulting therefrom. Defective or non-conforming work my only be accepted by a written change order signed by the Owner.

3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

Add the following at the end of paragraph 3.5:

Defective work under this Agreement including work not in compliance with the Contract Documents includes any work negligently performed, or unworkmanlike, or unmerchantable or unfit for the particular purpose for which it is intended to be used. The Contractor shall be responsible for all damages resulting from such defective work. A cause of action under this paragraph shall not be deemed to have accrued until actual discovery by Owner of the defective work and damage resulting therefrom. Defective or non-conforming work may only be accepted by a written change order signed by the Owner.

3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

Add the following at the end of subparagraph 3.7.1:

Fees payable by Contractor as set forth in the preceding sentence shall include permit and similar fees which are charged by the Local Governing Authorities.

Add the following at the end of subparagraph 3.7.4:

The Contractor shall have imputed knowledge of any error, inconsistency, or omission which would have been discovered by an expert contractor performing such activity.

3.9 SUPERINTENDENT

Add the following as a new and additional subparagraph 3.9.2:

3.9.2 The Contractors Project Superintendent shall prepare daily construction reports for every calendar day until final completion of the Project. Such reports shall list the individual subcontractors, suppliers, or other trades or crafts or other personnel present on the site for each day, whether in the direct employ of the Contractor or not. It shall identify the number and types of such personnel am dot shall describe in relative detail the work accomplished by each subcontractor, supplier, trade, or craft on each day. Such reports shall be furnished monthly to the Architect and Owner at the time and for the period covered by each application for payment. If no application is submitted on the first day of each month for the month preceding.

Add the following as a new and additional subparagraph 3.9.3:

3.9.3 The Contractor's Project Superintendent or other appropriate Contractor's representative shall take photographs of the status and quality of the work. Such photographs will be at least 3 inches x 5 inches photographs and shall consist of not less than 24 photographs per set. The photographs shall be fair and reasonable photographic representation of the work with written descriptions of what each photograph is intended to show. The Contractor shall furnish one set of photographs bimonthly to the Owner commencing with the construction start taken approximately pm the first (1st) and fifteenth (15th) day of each month.

ARTICLE 4 – ADMINISTRATION OF CONTRACT

4.1 ARCHITECT

Delete subparagraph 4.1.2 in its entirety and insert in lieu thereof the following new subparagraph:

4.1.2 The Architects function in administering the Contract as set forth in AIA Document 201 may from time to time be performed directly by the Owner's duly authorized representative. The duly authorized representative of the Owner shall be designated in writing at the time of commencement of the Work. Additionally duly authorized representatives of the Owner may be designated only in writing specifically referencing this paragraph and describing the scope of such representative authority.

ARTICLE 15 – CLAIMS AND DISPUTES

Add the following as a new and additional subparagraph 15.1.7:

15.1.7 All claims by the Contractor must be made in writing within 21 days after the event giving rise to the claim. The writing which complies with this requirement is a letter specifically directed to the Architect and Owner, referring specifically to subparagraph 15.1.2 and / or 15.1.4, describing the even, the date of the event, and the nature and amount of the claim. No other form of writing is sufficient to meet the requirement of written notice of the claim within 21 days after the occurrence of the event and will result in waiver and disregard of the claim at Owner's option, whether the Owner is prejudiced or not.

Add the following as a new and additional subparagraph 15.1.8:

15.1.8 No claim or change order shall be made by or be valid for any condition or even, whether a concealed condition under 3.7.4 or a Contract Document deficiency or field condition under 3.2.1 or a law variance under 3.7.2 or otherwise, if the condition or event could have been reasonably foreseen or have been reasonably foreseen discoverable by an expert Contractor.

Add the following as a new and additional subparagraph 15.1.9:

15.1.9 No claim, demand or action whatsoever shall be assert by Contractor against the Owner, Lender or Architect, their agents or employees, for any reason as the same is deemed to be waived in all events unless the Contractor shall notify the party in writing in detail of the nature, circumstances, and amount of such claim within ten (10) days from the event giving rise to such claim and giving such party twenty (20) days to remedy such event. Such notice is a condition precedent.

15.3 MEDIATION

Add the following to the end of subparagraph 15.3.3:

Any mediation or arbitration proceeding relating to the Contract which shall require a hearing shall be held in Wichita, Sedgwick County, Kansas, unless the parties shall agree in writing to holding the arbitration hearing at another specific locale.

15.4 ARBITRATION

Add the following to the end of subparagraph 15.4.1:

Any mediation or arbitration proceeding relating to the Contract which shall require a hearing shall be held in Wichita, Sedgwick County, Kansas, unless the parties shall agree in writing to holding the arbitration hearing at another specific locale.

ARTICLE 5 – SUBCONTRACTORS

5.3 SUBCONTRACTUAL RELATIONS

Add the following subparagraph 5.3.1:

5.3.1 Contractor shall require each Subcontractor and each Subcontractor shall require each Sub-subcontractor to include a contractual provision acknowledging that the Owner is a third party beneficiary of the Subcontractor or Sub-subcontractor's performance and shall be entitled to enforce the provisions of any contract with such Subcontractor or Sub-subcontractor should any non-performance be adverse to the interest of the Owner.

ARTICLE 8 – TIME

8.1 DEFINITIONS

Add the following at the end of subparagraph 8.1.4:

The term "Work Day" shall mean a weekday (Monday through Friday, legal holidays excluded) during which a full day of work was not substantially prevented by conditions included under paragraph 8.3.1

Add the following to the end of subparagraph 8.3.2:

The writing which complies with the above requirement is a letter specifically directed to the Architect and Owner, referring specifically to section 8.3.1, describing the delay, the date if its commencement, the section 8.3.1, describing the delay, the date of its commencement, the date of the claim for delay, estimating the effect of the delay, the grounds for an extension, and requesting an extension of time. No other form of writing is sufficient to meet the requirement of written notice of claim of delay within 21 days of its commencement and will result in waiver and disregard of the claim at Owners option, whether the Owner is prejudiced or not.

Delete subparagraph 8.3.3 and insert in lieu thereof the following subparagraph 8.8.3:

8.3.3 This Paragraph 8.3 does preclude recovery of damages for delay by either party under other provisions of the Contract Documents excepting only those provisions relative to liquidated damages.

ARTICLE 9 – PAYMENT AND COMPLETION

9.1 CONTRACT SUM

Add the following to the end of paragraph 9.1:

The Contractor understands and agrees that its only rights to moneys from the Owner is the Contract Sum, as adjusted by valid Change Orders, Constructive Change Directives or written Amendments to the Contract based upon work properly completed under this Contract. And that the Contractor shall have no right for any additional moneys based upon any other legal theory of recovery, included but not limited to the theories of quantum merit, implied indemnity or otherwise, as all such claims are hereby waived. And the Contractor agrees to assert no such claim or contention.

9.2 SCHEDULE OF VALUES

Add the following to the end of paragraph 9.2:

The Contractor in preparing the schedule of values recognizes a fiduciary responsibility to Owner to fairly and reasonably apportion values and that "front end loading" is a fraudulent practice.

9.3 APPLICATIONS FOR PAYMENT

Add the following to the end of subparagraph 9.3.1:

The form of Application for Payment shall be AIA Document G702, Application and Certificate for Payment (1992), supported by AIA Document G703, continuation sheet.

Add the following to the end of subparagraph 9.3.3:

Contractor hereby waives and releases any lien claim upon payment of all or any portion of the progress payment for all Work covered by such application for progress payment. However, Contractor shall bear all risk of loss for the Work or the Project not covered by insurance until such time as the same is substantially complete, occupied by the Owner, and under the Owner's control, and transferred from builders risk to permanent insurance.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

Add the following as a new and additional subparagraph 9.5.1.8:

9.5.1.8 Any other cause for which the Architect or Owner reasonably deems the Owner to be exposed to loss.

9.6 PROGRESS PAYMENTS

Add the following to the end of subparagraph 9.6.1:

Provided, the Owner may withhold payment should the Owner reasonably determine that certification in whole or in part was improper under 9.5.1.

9.9 PARTIAL OCCUPANCY OR USE

Add the following to the end of subparagraph 9.1.1:

The Contractor irrevocably agrees that the Owner may, upon reasonable notice to the Contractor, occupy the Work or any portion thereof prior to substantial completion of the Project, for the purpose of preparing the Project for its intended use.

9.10 FINAL COMPLETION AND FINAL PAYMENT

Add the following new subparagraph as subparagraph 9.10.4.4:

9.10.4.4 Any contractual or other requirement which may require performance in whole or in part after final payment of any improper action by Contractor whose existence was not actually discovered until after final payment.

ARTICLE 11 – INSURANCE AND BONDS

11.1 CONTRACTORS LIABILTIY INSURANCE

Add the following as a new and additional subparagraph 11.1.5:

11.1.5 Schedule of required insurance and limits to be furnished by Contractor.

.1 Worker's Compensation and Employers Liability Insurance affording (1) protection under the Workers' Compensation Law of the State in which the project is located and (2) Employer's Liability and such other forms and amounts of insurance which the Contractor deems reasonably adequate.

.2 Comprehensive General Liability Insurance in primary amounts dedicated to this specific Project of not less than:

Bodily Injury:	$500,000 each occurrence $500,000 aggregate
Property Damage:	$500,000 each occurrence $500,000 aggregate

This insurance shall: (a) include Broad Form Contractual Liability Coverage for the liability assumed by the Contractor; (b) include Completed Operations and Products Liability coverage; (c) include coverage for Personal Injury Liability (Groups A B and C); (d) not be subject to any of the special property damage liability exclusions commonly referred to as XC and U exlclusions; (e) be extended by the addition of the so-called "Broad Form Property Damage Endorsement"; and (f) include premises and operations coverage, independent contractors coverage and elevator coverage.

.3 Comprehensive Automobile Liability Insurance with Employer's Non-Ownership Liability endorsement, Uninsured Motorist and medical payments in following primary amounts:

Bodily Injury and Property Damage	$500,000 combined single limit

.4 Catastrophe (Umbrella) Liability Coverage with limits of liability of not less than $5,000,000.00 applying in excess of the primary coverages provided for in paragraphs 11.1.4.1, 11.1.4.2 and 11.1.4.3 above.

.5 The Owner shall be named as additional insured on all policies provided by the Contractor. Each policy shall include a Waiver of Subrogation Rights against the Owner.

.6 Certificates of Insurance shall be submitted on AIA Document G705, ACORD 25-S (3/88) or other form acceptable to the Owner. The Contractor shall furnish the Owner with a complete, certified copy of each of the policies required within five (5) days of request.

Add the following as a new and additional subparagraph 11.1.6:

11.1.6 If any work provided for or to be performed under the Contract is sublet, the Contractor shall require the Subcontractors to maintain and furnish it with satisfactory evidence of Workers' Compensation, Employer's Liability, Comprehensive General Liability insurance in such forms as described in 11.1.6 and in such amounts as reasonably adequate.

Add the following new and additional subparagraph 11.1.7:

11.1.7 The Contractor shall maintain the above described insurance coverages for a period of two (2) years following the final payment. Contractor shall require its Subcontractors and Sub-subcontractors to maintain their coverages for the same two-year period.

11.3 PROPERTY INSURANCE

Delete subparagraph 11.3.1.2 and insert in lieu thereof the following subparagraph:

11.3.1.2 Notwithstanding any other provision of the Article, if Owner furnishes to Contractor a copy of the builders risk insurance policy, Contractor shall notify Owner in writing of any objection thereto within 10 days. And any objection not clearly stated in writing is deemed to be waived and no claim made based upon such coverage. Furthermore, the Contractor shall be responsible for any deductible amount up to the sum of $1,000.00 per claim or occurrence. And, the Contractor's rights, under this Article shall be limited to the sums paid by the insurance company plus any deductible over $1,000,000.00.

Delete subparagraphs 11.3.1.3 and 11.3.1.4 as well as subparagraphs 11.3.2, 11.3.3., 11.3.5, and 11.3.6.

11.4 PERFORMANCE BOND AND PAYMENT BOND

Delete subparagraph 11.4.1 and insert in lieu thereof the following new subparagraph 11.4.1:

11.4.1: Performance Bond, Labor and Material Payment Bond and a Statutory Payment Bond shall be furnished by the Owner, by the Contractor, in an amount equal to 100 percent of the Contract Sum, including adjustments by Change Order as security for the faithful performance of the contract and the payment of all persons performing labor and furnishing materials in connection with the Contract.

.1 Bonds furnished shall be written by a Surety approved by the US Treasury Department and licensed to do business in the State in which the project is located. No work shall be commenced until bonds are in force.

.2 Form of Bond shall be AIA Document A311, February 1984 edition, issued and approved by the American Institute of Architects as well as Kansas Statutory Payment Bond.

.3 Power of Attorney for the surety company agent must accompany each bond issued, and must be certified to include the date of bonds.

.4 Provide triplicate copies of the bond forms and power of attorney.

.5 Cost of all bonds shall be included in the bid and paid for by the Contractor.

.6 The Statutory Payment Bond to the State of Kansas, pursuant to KSA 60-1111, shall be furnished and filed by Contractor in the office of the clerk of the district court of the county in which the Project is located. Contractor shall provide the Owner with a certified copy of said public works bond as so filed.

ARTICLE 12 – UNCOVERING AND CORRECTION OF WORK

Add the following as new subparagraph 12.3:

12.3 The provisions of this Article shall be in addition to and not be in limitation of any other right which the Owner may have under applicable law with regard to defective Work nor shall the same alter any time frame for the enforcement of such right.

ARTICLE 13 – MISCELLANEOUS PROVISIONS

13.1 INTEREST
Add the following to the end of subparagraph 13.6:

No payment to Contractor shall bear interest until due or if the payment is subject to a good faith dispute or set-off.

13.7 COMMENCEMENT OF STATUTORY PERIOD

Delete 13.7.1 and all its subparts in their entirety.

Add the following as new subparagraph 13.8:

13.8 It is understood and agreed by the Contractor that the Contractor agrees to and does hereby waive any claim, cause of action, remedy or other possible recovery or recourse which the Contractor may have against Owner's officers, employees or agents, or the Lender, as a result of any rule of law, statute, guaranty, agreement, or other similar device or thing of which the Contractor is beneficiary, and the Contractor agrees that their sole recourse shall be against the entity which signed this Contract.

ARTICLE 14 – TERMINATION OR SUSPENSION OF THE CONTRACT

14.2 TERMINATION BY THE OWNER FOR CAUSE

Add the following to end of subparagraph 14.2.3:

Owner is entitled to rely on the certification of the Architect. And, if the Architect certifies sufficient cause exists for termination, and the same is subsequently deemed to be incorrect, and the Owner terminates Contractor, the Contractor's only right is to the balance of the Contract sum after payment of all reasonable costs of completion.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

Delete subparagraph 14.4.3 and insert in lieu thereof the following new subparagraph 14.4.3:

If the Contract is terminated in whole or in part for the convenience of the Owner, the Contractor shall be entitled to receive an amount equal to their Work properly completed by the Contractor between the date of the last application for a progress payment and the notice of termination. In addition, the Contractor shall receive an amount equal to 1% of the uncompleted balance of the Contract Sum which in no event shall exceed the sum of ten thousand dollars and no cents ($10,000.00), which amount shall be in lieu fo the Contractor's reasonable profit and damages as a result of the termination.

End of "Conditions of the Contract"

SECTION 011000

SUMMARY OF WORK

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes

A. Project Information

B. Work covered by Contract Documents

C. Work by Owner

D. Future work

E. Purchase contracts

F. Owner-furnished, Owner-installed products

G. Access to site

H. Work restrictions

I. Specification and drawing conventions

J. Regulatory requirements

K. Coordination

3. PROJECT INFORMATION

3.1 Project Location: 3099 West 13th Street North, Wichita, KS 67203

3.2 Owner: Sedgwick County Board of County Commisioners

Owner's Representative:
Sandy Angeulov, Senior Project Manager
Sedgwick County Facility Project Services
(316) 660-9853

3.3 Architect:
Martin Hanney, Principal Architect
Hanney & Associates Architects
(316) 683-8965

4. WORK COVERED BY CONTRACT DOCUMENTS

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

4.1.1 The project consists of a single pre-engineered metal building comprised of 3,072 s.f. square feet. Building is a slab on grade structure, with light gage metal framing, pre-finished metal siding, standing seam metal roofing, suspended acoustical ceilings, and exposed concrete floor plan.

4.1.2 As shown in contract documents prepared by Hanney & Associates Architects.

4.2 The Work consists of:

4.2.1 Complete building construction, including parking, sidewalks, landscaping and finish grading.

5. WORK BY OWNER

5.1 General

Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

6. OWNER-FURNISHED PRODUCTS

6.1 Owner will furnish products as indicated on drawings. The Work includes receiving, unloading, handling, storing, protecting, and installing Owner-furnished products.

7. ACCESS TO SITE

7.1 Use of Site

Limit use of Project site to areas within the Contract limits indicated by the Owner.
Do not disturb portions of Project site beyond areas in which the Work is indicated.

7.1.1 Confine construction operations to area defined by Owner.

7.2 Non-smoking Building: Smoking is not permitted within the building.

8. SPECIFICATION AND DRAWING CONVENTIONS

8.1 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:

8.1.1 Specification requirements are to be performed by Contractor unless specifically stated otherwise.

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

8.3 Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:

8.3.1 Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

8.3.2 If there is a conflict between the drawings and the specifications, the drawings shall govern unless noted otherwise. If a conflict is found it is the responsibility of the contractor to notify the architect immediately.

9. REGULATORY REQUIREMENTS

9.1 The following regulations are applicable to the project:
- A 2024 International Building Code
- B. 2024 International Mechanical Code
- C. 2021 Uniform Plumbing Code
- D. 2023 National Electrical Code
- E. 2024 International Fire Code
- F. 2010 American with Disabilities Act Accessibility Guidelines
- G. 2023 ICC 500

9.2 Building will comply with ICC 500 Storm Shelter Construction requirements.
- 9.2.1 Additionally, the Contractor will be required to complete the "Contractor's Statement of Responsibility for ICC 500 Storm Shelter Construction" form, following this specification section.

9.3 Other regulations may also be applicable.

10. COORDINATION

10.1 If necessary, inform each party involved, in writing, of procedures required for coordination; include requirements for giving notice, submitting reports, and attending meetings.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

End of Section 011000

SECTION 012500

SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

Section includes administrative and procedural requirements for substitutions.

3. DEFINITIONS

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

3.1.1 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.

3.1.2 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.

4. SUBMITTALS

4.1 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.

4.1.1 Substitution Request Form: Use AIA form

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

A. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.

B. Coordination information, including a list of changes or modifications 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 substitution 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 and 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.

J. Detailed comparison of Contractor's construction schedule using proposed substitution 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.

4.1.3 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.

A. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.

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

5. QUALITY ASSURANCE

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

6. PROCEDURES

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

PART 2 – PRODUCTS

7. SUBSTITUTIONS

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

7.1.1 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 substitutions 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. Contractor waives all claims for additional costs and time extensions which subsequently may become apparent and which are caused by the change.

I. 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.

7.1.2 Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of the Architect.

A. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied.

1) 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.

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

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

4) Substitution request is fully documented and properly submitted.

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

6) Requested substitution has received necessary approvals of authorities having jurisdiction.

7) Requested substitution is compatible with other portions of the Work.

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

9) Requested substitution provides specified warranty.

10) If requested substitution involves mor 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 3 – EXECUTION (Not Used)

End of Section 012500

SECTION 012900

PAYMENT, PROPOSED CHANGE ORDER, AND COMPLETION PROCEDURES

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

3. DEFINITIONS

3.1 Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of Work and used as the basis for reviewing Contractors Applications for Payment.

3.2 Change Proposal Request: Any written request from the Owner or Architect to the Contractor for a quotation, price, or breakdown on a change proposed but not ordered.

3.3 Final Completion: The stage at which all incomplete and incorrect work has been completed or corrected in accordance with the contract documents.

3.4 List of Incomplete Work: A comprehensive list of items to be completed or corrected, prepared by the Contractor for the purpose of obtaining certification of substantial completion. This list is also referred to as a "Punch List".

3.5 Modifications: Written amendments to the contract signed by both the Owner and the Contractor, change orders, construction change directives, and written orders for a minor change in the work issued by the Architect.

3.6 Substantial Completion: The time at which the work, or a portion of the work which the Owner agrees to accept separately, is sufficiently complete in accordance with the contract documents so that the Owner can occupy or use the work for its intended purpose.

3.7 Time and Material Work: Work which will be paid for on the basis of the actual cost of the work, including materials, labor, equipment, and other costs as defined elsewhere, as documented by detailed records. This basis is also referred to using the terms "cost-plus" , "cost of the work", "force account", and similar terms.

4. SCHEDULE OF VALUES

4.1 Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule. Cost-loaded Critical Path Method Schedule may serve to satisfy the requirements for the schedule of values.

4.1.1 Correlate line items in the schedule of values with other required administrative forms and schedules, including the following:

A. Application for Payment forms with continuation sheets

B. Submittal schedule

C. Items required to be indicated a separate activities in Contractor's construction schedule

4.1.2 Submit the schedule of values to Architect at earliest possible date, but no later than prior to finalizing Owner-Contractor Agreement.

4.1.3 Submit Project Schedule to Architect at earliest possible date, but no later than prior to finanizing Owner-Contractor Agreement.

4.1.4 Submit Pay Draw Schedule to Architect at earliest Possible date, but no later than seven (7) days prior to finalizing Owner-Contractor Agreement.

4.1.5 Submit Application for Progress Payment to Architect at earliest possible date, in advance of the date established for progress payment to allow processing.

4.1.6 Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

4.1.7 Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values correlated with each element.

4.2 Format and Content: Use the Project Manual "Table of Contents" to establish line items for the schedule of values. Provide at least one Line Item for each specification sheet.

4.2.1 Identification: Include the following Project Identification on the Schedule of Values:

A. Project Name

B. Architect

C. Project Number

D. Contractor's name and address

E. Date of Submittal

4.2.2 Arrange Schedule of Values consistent with format of AIA Document G703.

4.2.3 Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual Table of Contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.

4.2.4 Round amounts to nearest whole dollar; total shall equal the Contract Sum.

4.2.5 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.

4.2.6 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.

4.2.7 Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if anym and balance to be paid by Contractor.

4.2.8 Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

4.2.9 Schedule Updating: Update and resubmit the schedule of values before the next Application for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

5. APPLICATIONS FOR PAYMENT

5.1 Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and reviewed and paid for by Owner.

5.2 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.

5.3 Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

5.4 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.

5.4.1 Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

5.4.2 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.

5.4.3 Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

5.5 Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

5.5.1 Provide certificate of insurance for stored materials.

5.5.2 Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.

5.5.3 Provide summary documentation for stored materials indicating the following:

A. Materials previously stored and included in previous Applications for Payment

B. Work completed for this Application utilizing previously stored materials

C. Additional materials stored with this Application

D. Total materials remaining stored, including materials with this Application

5.6 Transmittal: Submit three (3) signed and notarized original copies of each Application for Payment to Architect by a method ensuring timely receipt. One copy shall include waivers of lien and similar attachments if required.

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

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

A. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.

B. When an application shows completion of an item, submit conditional final or full waivers.

C. Owner reserves the right to designate which entities involved in the Work must submit waivers.

D. 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.

E. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to the Owner.

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

A. List of Subcontractors

B. Schedule of values

C. Contractor's construction schedule (preliminary if not final), incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.

D. Products List (preliminary if not final)

E. Schedule of Unit Prices

F. List of Contractor's staff assignments

G. List of Contractor's principal consultants

H. Copies of building permits

I. Copies of authorizations and licenses from authorities having jurisdiction for performance of the work

J. Initial progress report

K. Report of the pre-construction conference

L. Certificates of Insurance and insurance policies

M. Performance and payment bonds

N. Data needed to acquire Owner's insurance

6. PROCEDURES PROPOSED BY CHANGE ORDER

6.1 Provide the following information for every change proposal request:

6.1.1 The amount of change in the contract sum, if any.

6.1.2 The amount of change in the contract time, if any, with explanation.

6.1.3 Cost breakdown, using schedule of values of line items, separated into material and labor costs, additions and deletions, and with overhead and profit handled in the same manner as specified for the schedule of values.

6.1.4 The period of time within which the proposed changes in contract sum or time will be valid.

6.1.5 A statement describing the effect the change may have on the work of other prime Contractors.

6.1.6 Upon request, the following information:

A. Quantities and unit costs of products, labor, and equipment

B. Taxes, insurance, and bonds

C. Overhead and profit

6.1.7 Reasons for change

6.2 When changes are performed on a time and materials basis, identify the applicable modification on the Application for Payment.

7. SUBSTANTIAL COMPLETION PROCEDURES

7.1 Request for inspection and application for payment may coincide.

7.2 The Architect will perform inspection for substantial completion, upon request of the Contractor.

A. Only one certificate of substantial completion will be issued, for the entire project.

7.3 Do not submit request for inspection for substantial completion until the following activities have been completed.

A. Delivery of maintenance materials and tools.

B. Demonstration of all equipment and systems

C. Instruction of the Owner's personnel

D. Removal of temporary facilities

E. Change-over to permanent locking systems

F. The Owner has been informed of necessary procedures for changing over insurance coverages

G. The Owner has been informed of procedures for changing over operation, maintenance, security, etc.

H. The Owner has received occupancy and operating permits from authorities having jurisdiction.

I. All activities specified to occur prior to substantial completion.

7.4 Do not submit request for inspection for substantial completion until the following Submittals have been completed:

A. List of incomplete work

B. All submittals specified to occur prior to substantial completion

7.5 Application for Payment of Substantial Completion: After issuing the Certificate of Substantial Completion, submit an application for Payment showing 100 percent complete for portion of the Work claimed as substantially complete.

A. Include documentation supporting claim that the Work is substantially complete and a statement showing and accounting of changes to the Contract Sum.

B. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

8. FINAL COMPLETION PROCESS

8.1 Request for final inspection and final application for payment may coincide.

8.2 The Architect will perform inspection for final completion, upon request of the Contractor. Submit the following with request for inspection:

A. Previous inspection lists indicating completion of all items

B. If any items cannot be completed, obtain prior approval of such delay.

8.3 Do not submit request for final inspection until the following activities have been completed:

A. Completion of all work, except those items agreed upon by the Owner

B. Final cleaning

C. Final property survey

D. Final extermination

E. All activities specified to occur between substantial completion and final completion

8.4 Do not submit request for final inspection until the following submittals have been completed:

A. Start-up reports

B. Final testing, adjusting, and balancing reports

C. Operation and maintenance data

D. Demonstration reports

E. Instruction reports

F. Warranties

G. Maintenance agreements

H. Final progress photographs

I. Project record documents

J. Keying records

K. All other outstanding specified submittals

8.5 Final Payment Application

Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to the following:

A. Evidence of completion of Project closeout requirements

B. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.

C. Updated final statement, accounting for final changes to the Contract Sum

D. AIA Document G706, "Contractor's Affadavit of Payment of Debts and Claims"

E. AIA Document G706A, "Contractor's Affadavit of Release of Liens"

F. AIA Document G707, "Contractor's Surety to Final Payment"

G. Evidence that claims have been settled

H. 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 013200

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

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

2.1 Start-up construction schedule

2.2 Contractor's construction schedule

3. DEFINITIONS

3.1 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.

A. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.

B. Predecessor Activity: An activity that precedes another activity in the network.

C. Successor Activity: An activity that follows another activity in the network.

3.2 Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the Contract Sum, unless otherwise approved by the Architect.

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

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

3.5 Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

4. INFORMATIONAL SUBMITTALS

4.1 Format for Submittals: Submit required submittals in the following format:
PDF electronic file

4.2 Start-up construction schedule
Approval of cost-loaded start-up construction schedule will not constitute approval of schedule of values for cost-loaded activities.

4.3 Contractor's Construction Schedule:
Initial schedule, of size required to display entire schedule for entire construction period.

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

A. Activity Report: List all activities sorted by activity number and then early start date, or actual start date, if known.

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

C. Total Float Report: List all activities sorted in ascending order of total float.

5. COORDINATION

5.1 Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

5.2 Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

PART 2 – PRODUCTS

6. CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

6.1 Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.

6.2 Activities: Treat each separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

6.2.1 Activity Duration: Define activities so that no activity is longer than twenty (20) days, unless specifically allowed by Architect.

6.2.2 Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of than sixty (60) days, as separate activities in schedule. Procurement cycle activities include, but are not limited to: submittals, approvals, purchasing, fabrication, and delivery.

6.2.3 Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures: in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.

6.2.4 Start-up and Testing Time: Include not less than fifteen (15) days for start-up and testing.

6.2.5 Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.

6.3 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.
6.3.1 Phasing: Arrange list of activities on schedule by phase.

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

6.5 Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next scheduled update. Summarize the following issues:
A. Unresolved issues
B. Unanswered RFI's
C. Rejected or unreturned submittals
D. Notations on returned submittals

8. CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

8.1 Gantt-Chart Schedule: Submit a comprehensive fully developed, horizontal Gantt-chart-type, Contractor's construction schedule within thirty (30) days of date established for commencement of the Work. Base schedule on the start-up construction schedule and additional information received since the start of the Project.

8.2 Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

PART 3 – EXECUTION

9. CONTRACTOR'S CONSTRUCTION SCHEDULE

9.1 Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule three (3) days before each regularly scheduled progress meeting.

10. DISTRIBUTION

10.1 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.

End of Section 013200

SECTION 013300

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

2.2 Related Sections

2.2.1 Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.

2.2.2 Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.

2.2.3 Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

3. DEFINITIONS

3.1 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.

3.2 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.

3.3 File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network that serves as the basis for standard internet protocols. An FTP site is a portion of the network locaed outside of network firewalls within which internal and external users are able to access files.

3.4 Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

4. ACTION SUBMITTALS

4.1 Submittal Schedule: Submit a schedule 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 modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.

4.1.1 Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

4.1.2 Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first sixty (60) days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

4.1.3 Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

4.1.4 Format: Arrange the following information in a tabular format:

A. Scheduled date for first submittal

B. Specification Section number and title

C. Submittal category: Action, informational

D. Name of subcontractor

E. Description of the Work covered

F. Scheduled date for Architect's final release or approval

G. Scheduled dates for purchasing

H. Scheduled dates for installation

I. Activity or event number

5. SUBMITTAL ADMINISTRATIVE REQUIREMENTS

5.1 Architect's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will only be provided for Contractor's use in preparing submittals if approved by the Architect. PDF files can be provided upon request.

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

5.2.1 Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

5.2.2 Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

5.2.3 Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

5.2.4 Coordinate transmittal of different types of submittals for related parts of the Work, so that processing will not be delayed because of need to review submittals concurrently for coordination.

A. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

5.3 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.

5.3.1 Initial Review: Allow fifteen (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.

5.3.2 Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

5.3.3 Resubmittal Review: Allow fifteen (15) days ror review of each resubmittal.

5.3.4 Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

5.4 Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.

5.4.1 Indicate name of firm or entity that prepared each submittal on label or title block.

5.4.2 Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.

5.4.3 Include the following information for processing and recording action taken:

A. Project Name

B. Date

C. Architect

D. Name of Contractor

E. Name of Subcontractor

F. Name of Supplier

G. Name of Manufacturer

H. Submittal number or other unique identifier, including revision identifier.
   1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g. 061000.01). Resubmittals shall include an alphabetic structure after another decimal point (e.g. 061000.01.A)

I. Number and title of appropriate Specification Section

J. Drawing number and detail references, as appropriate

K. Location(s) where product is to be installed, as appropriate

L. Other necessary identification

5.4.4 Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.

5.4.5 Include the following information on an inserted cover sheet:

A. Project name

B. Date

C. Name and address of Architect

D. Name of Contractor

E. Name of firm or entity that prepared submittal

F. Name of Subcontractor

G. Name of Supplier

H. Name of Manufacturer

I. Number and title of appropriate Specification Section

J. Drawing number and detail references, as appropriate

K. Location(s) where product is to be installed, as appropriate

L. Related physical samples submitted directly

M. Other necessary identification

5.4.6 Options: Identify options requiring selection by Architect.

5.4.7 Deviations: Identify deviations from the Contract Documents on submittals.

5.4.8 Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes non-compliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

A. Submit one (1) copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

5.4.9 Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using transmittal form. Architect will return submittals, without review received from sources other than Contractor.

A. Transmittal Form: Provide locations on form for the following information: On attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

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

A. Note date and content of previous submittal.

B. Note date and content of revision in label or title block and clearly indicate extent of revision.

C. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

5.4.11 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 distributions on transmittal forms.

5.4.12 Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

PART 2 – PRODUCTS

6. SUBMITTAL PROCEDURES

6.1 General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

6.1.1 Action Submittals: Submit a minimum of six (6) paper copies of each submittal, unless otherwise indicated. Architect, will return all but two copies.

6.1.2 Informational Submittals: Submit two paper copies of each submittal, unless otherwise indicated. Architect will not return copies.

6.1.3 Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures".

6.1.4 Certificates and Certificates Submittals: Provide 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.

A. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.

B. Provide a notarized statement on original paper copy certificates and certifications where indicated.

6.1.5 Test and Inspection Reports Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements".

6.2 Shop Drawings: Prepare Project-specific information, drawn accurately to scale.

6.2.1 Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

A. Identification of products

B. Schedule

C. Compliance of coordination requirements

D. Notation of coordination requirements

E. Notation of dimensions established by field measurements

6.2.2 Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 x 11 inches, but no larger than 30 by 42 Inches.

6.2.3 Submit Shop Drawings in the following format:

A. Six (6) opaque copies of each submittal. Architect will retain two copies; remainder will be returned.

6.3 Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

6.3.1 Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

6.3.2 Identification: Attach label on unexposed side of Sample that includes the following:

A. Generic description of Sample

B. Product name and name of manufacturer

C. Sample source

D. Number and title of applicable Specification Section

6.3.3 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.

6.3.4 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 two full sets 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.

6.3.5 Samples for Verification: Submit full-size units or Samples of size indicated, prepared from some material to be used for 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 set of Samples. Architect will retain one and the owner will receive on sample set; remainder will be returned.

6.3.6 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.

6.3.7 Product Test Reports: Submit written reports indicating 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.

6.3.8 Field Test Reports: Submit 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 Contract Documents.

PART 3 – EXECUTION

7. CONTRACTOR'S REVIEW

7.1 Action 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.

7.2 Project Closeout and Maintenance / Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures".

7.3 Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name or reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

8. ARCHITECT'S ACTION

8.1 General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

8.2 Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp approximately to indicate action.

8.3 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.

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

8.5 Submittals not required by the Contractor Documents may not be reviewed and may be discarded.

End of Section 013300

SECTION 014000

QUALITY REQUIREMENTS

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

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

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

3. DEFINITIONS

3.1 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.

3.2 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. Services do not include contract enforcement activities performance by Architect or Construction Manager.

3.3 Experienced: When used with an entity individual, "experienced" 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.

3.4 Certificate: A written statement that a portion of the work as accomplished or a particular product conforms to the requirements of the contract documents.

4. CONFLICTING REQUIREMENTS

4.1 Referenced Standards: If compliance with two or more standards is specified and the standards 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 a decision before proceeding.

4.2 Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or permitted. 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 requirements. Refer uncertainties to Architect for a decision before proceeding.

5. ACTION SUBMITTALS

5.1 Shop Drawings: For mock-ups, provide plans, sections, and elevations, indicating materials and size of mock-up construction.

5.1.1 Indicate manufacturer and model number of individual components.

5.1.2 Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

6. INFORMATIONAL SUBMITTALS

6.1 Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

6.2 Contractor's Quality-Control Manager Qualifications: For supervisory personnel.

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

6.3.1 Seismic-force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by Architect.

6.3.2 Main wind-force resisting system or a wind-resisting component listed in the wind-force-resisting system quality assurance plan prepared by the Architect.

6.4 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.

6.5 Schedule of Tests and Inspections: Prepare in tabular form and include the following:

A. Specification Section number and title

B. Entity responsible for performing tests and inspections

C. Description of test and inspection

D. Identification of applicable standards

E. Identification of test and inspection methods

F. Number of tests and inspections required

G. Time schedule or time span for tests and inspections

H. Requirements for obtaining samples

I. Unique characteristics of each quality-control service

6.6 Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

7. REPORTS AND DOCUMENTS

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

A. Date of issue

B. Project title and number

C. Name, address, and telephone number of testing agency

D. Dates and locations of samples and tests or inspections

E. Names of individual making tests and inspections

F. Description of the Work and test and inspection method

G. Identification of product and Specification Section

H. Complete test or inspection data

I. Test and inspection results and an interpretation of test results

J. Record of temperature and weather conditions at time of sample taking and testing and inspecting

K. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements

L. Name and signature of laboratory inspector

M. Recommendations on retesting and re-inspecting

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

8. QUALITY ASSURANCE

8.1 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.

8.2 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.

8.3 Installer Qualifications: A firm or individual experienced in installing, erecting, 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.

8.4 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 to those indicated for this Project in material, design, and extent.

8.5 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.

8.6 Testing Agency Qualifications: An NRTL, and NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicating, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

8.7 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:

8.7.1 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. Provide sizes and configurations of test assemblies, mock-ups, and laboratory mock-ups to adequately demonstrate capability of products to comply with performance requirements.

D. Build site-assmebled test assemblies and mock-ups using installers who will perform same tasks for Project.

E. Build laboratory mock-ups at testing facility using personnel, products, and methods of construction indicated for the completed Work.

F. When testing in complete, remove test specimens, assemblies, mock-ups; do not reuse products on Project unless approved by Architect.

8.7.2 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.

9. QUALITY CONTROL

9.1 Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

9.1.1 Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

9.1.2 Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

9.1.3 Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

9.1.4 Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

9.1.5 Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

9.1.6 Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

9.2 Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

9.2.1 Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

9.2.2 Determine the location form which test samples will be taken and in which in-situ tests are conducted.

9.2.3 Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

9.2.4 Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

9.2.5 Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.

9.2.6 Do not perform any duties of Contractor.

9.3 Coordination: Coordinate sequence of activities to accommodate required quality-assuance and -control service with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

10. SPECIAL TESTS AND INSPECTIONS

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

10.1.1 Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

10.1.2 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.

10.1.3 Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

10.1.4 Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.

10.1.5 Retesting and reinspecting corrected work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

11. TEST AND INSPECTION LOGS

11.1 Prepare a record of tests and inspections. Include the following:

A. Date test or inspection was conducted.

B. Description of the Work tested or inspected.

C. Date test or inspection results were transmitted to Architect.

D. Identification of testing agency or special inspector conducting test or inspection.

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

12. REPAIR AND PROTECTION

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

A. 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 Division 01 Section "Execution".

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

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

End of Section 014000

SECTION 017300

EXECUTION

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

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

A. Construction layout

B. Field engineering and surveying

C. Installation of the Work

D. Cutting and patching

E. Coordination of Owner-installed products

F. Progress cleaning

G. Starting and adjusting

H. Protection of installed construction

I. Correction of the Work

2.2 Related Sections:

2.2.1 Division 01 Section "Submittal Procedures" for submitting surveys.

3. DEFINITIONS

3.1 Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

3.2 Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

3.3 Concealed Spaces: Spaces which are not accessible after completion of construction.

3.4 Damage: Any sort of deterioration whether due to weather, normal wear and tear, accident, or abuse, resulting in soiling, marring, breakage, corrosion, rotting, or impairment of function.

3.5 Debris: Rubbish, waste materials, litter, volatile wastes, and similar materials, with the exception of surplus materials which are to become the property of the Owner.

4. QUALITY ASSURANCE

4.1 Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

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

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

4.2.2 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 deceased operational like or safety. Operational elements include the following:

A. Primary operational systems and equipment

B. Mechanical systems piping and ducts

C. Control systems

D. Communication systems

E. Electrical wiring systems

F. Operating systems of special construction

4.2.3 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. Other construction elements include but are not limited to the following:

A. Water, moisture, or vapor barriers

B. Membranes and flashings

C. Exterior curtain-wall construction

D. Equipment supports

E. Piping, ductwork, vessels, and equipment

F. Noise- and vibration-control elements and systems

4.2.4 Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

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

5. WARRANTY

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.

PART 2 – PRODUCTS

6. MATERIALS

6.1 General: Comply with requirements specified in other Sections.

6.1.1 For projects requiring compliance with sustainable design and construction practices and procedures, utilize products for patching that comply with requirements of Division 01 Section "Sustainable Design Requirements".

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

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

PART 3 – EXECUTION

7. EXAMINATION

7.1 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 and other construction affecting the Work.

7.1.1 Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.

7.1.2 Furnish location data for work related to Project that must be performed by public utilities serving Project site.

7.2 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.

7.2.1 Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

7.2.2 Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.

7.2.3 Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

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

8. PREPARATION

8.1 Existing Utility Information: Furnish information to local utility and 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.

8.2 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.

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

8.4 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 the Contractor, submit a request for information to Architect.

8.5 Surface and Substrate Preparation: Comply with manufacturer's recommendation for preparation of substrates to receive subsequent work.

9. CONSTRUCTION LAYOUT

9.1 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.

9.2 General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.

9.2.1 Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.

9.2.2 Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.

9.2.3 Inform installers of lines and levels to which they must comply.

9.2.4 Check the location, level and plumb, of every major element as the Work progresses.

9.2.5 Notify Architect when deviations from required lines and levels exceed allowable tolerances.

9.2.6 Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

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

9.4 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.

9.5 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.

10. FIELD ENGINEERING

10.1 Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

10.1.1 Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need relocate permanent benchmarks or control points to Architect before proceeding.

10.1.2 Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

10.2 Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

10.2.1 Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

10.2.2 Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

10.2.3 Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

10.3 Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

10.4 Final Property Survey: Engage a land surveyor or professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by the land surveyor or professional engineer, that principal metes, bounds, lines and levels of Project are accurately positioned as shown on the survey.

10.4.1 Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

10.4.2 Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official “property survey”.

11. INSTALLATION

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

11.1.1 Make vertical work plumb and make horizontal work level.

11.1.2 Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

11.1.3 Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

11.1.4 Maintain minimum headroom clearances per drawings.

11.2 Comply with manufacturer’s written instructions and recommendations for installing products in applications indicated.

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

11.4 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.

11.5 Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

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

11.7 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.

11.7.1 Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.

11.7.2 Allow for building movement, including thermal expansion and contraction.

11.7.3 Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeved, 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.

11.8 Joint: 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.

11.9 Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

12. CUTTING AND PATCHING

12.1 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.

12.1.1 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.

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

12.3 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.

12.4 Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 01 Section “Summary”.

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

12.6 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.

12.6.1 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.

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

12.6.3 Concrete and Masonry: Cut using a cutting machine, such as and abusive saw or a diamond-core drill.

12.6.4 Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.

12.6.5 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.

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

12.7 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.

12.7.1 Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

12.7.2 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.

A. Clean piping, conduit, and similar features before applying paint or other finishing materials.

B. Restore damaged pipe covering to its original condition.

12.7.3 Floors and Walls: Where walls or partitions that are removed extend on 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.

A. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

12.7.4 Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.

12.7.5 Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

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

13. OWNER-INSTALLED PRODUCTS

13.1 Site Access: Provide access to Project site for Owner's construction personnel.

13.1.1 Coordination Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

13.1.2 Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

14. PROGRESS CLEANING

14.1 General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

14.1.1 Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

14.1.2 Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F.

14.1.3 Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers approximately and dispose of legally, according to regulations.

A. Utilize containers intended for holding waste materials of type to be stored.

14.1.4 Coordinate progress cleaning for joint-use areas where more than one installer has worked.

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

14.3 Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

14.3.1 Remove liquid spills promptly.

14.3.2 Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

14.4 Installed Work: Keep installed work clean. Clean installed surface 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.

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

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

14.7 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 three paragraphs below and comply to applicable codes.

14.8 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.

14.9 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.

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

15. STARTING AND ADJUSTING

15.1 Coordinate start-up and adjusting of equipment and operating components with requirements in Division 01 Section "General Commissioning Requirements".

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

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

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

15.5 Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements".

16. PROTECTION OF INSTALLED CONSTRUCTION

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

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

17. CORRECTION OF THE WORK

17.1 Repair or remove and replace defective construction. Restore damaged substrates and finishes.

17.1.1 Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

17.2 Restore permanent facilities used during construction to their specified condition.

17.3 Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

17.4 Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

17.5 Remove and replace chipped, scratched, and broken glass or reflective surfaces.

End of Section 017300

SECTION 017839

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

Section includes administrative and procedural requirements for project record documents, including the following:

A. Record Drawings

B. Record Specifications

C. Record Product Data

D. Miscellaneous record submittals

PART 2 – PRODUCTS

3. RECORD DRAWINGS

3.1 Record Prints: Maintain one (1) set of marked-up paper copies of the Contract Drawings and Shop Drawings.

3.1.1 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 mark-up before enclosing concealed installation.

E. Cross-reference record prints to corresponding archive photographic documentation.

3.1.2 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 below first floor

D. Locations and depths of underground utilities

E. Revisions to and actual routing of piping and conduits

F. Revisions to and actual routing of 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 order

L. Details not on the original Contract Drawings

M. Field records for variable and concealed conditions which will not be easy to identify later

N. Record information on the Work that is shown only schematically

O. New information which may be useful to the Owner, but which was not shown in either the contract documents or submittals

3.1.3 Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up record prints.

3.1.4 Keeps record drawings in labeled, bound sets.

3.1.5 Mark record sets with erasable, red-colored pencil. Use different colors of pencils to distinguish between changes for different categories of the Work at the same location or separate contracts.

3.1.6 Mark important additional information that was either shown schematically or omitted from original Drawings.

3.1.7 Note Construction Change Directive numbers, alternative numbers, Change Order numbers, and similar identification, where applicable.

3.1.8 Incorporate new drawings into existing sets, as they are issued.

3.2 Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

3.2.1 New Drawings may be required when a Change Order is issued as a result of accepting an alternative, substitution, or other modification.

3.2.2 Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to the other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

3.3 Format: Identify and date each record Drawing; include the designation "Project Record Drawing" in a prominent location.

3.3.1 Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

3.3.2 Format: Paper copy and if available annotated PDF electronic file.

3.3.3 Record Digital 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.

3.3.4 Identification: As follows:
- A. Project name
- B. Date
- C. Designation "Project Record Drawings"
- D. Name of Architect
- E. Name of Contractor

4. RECORD SPECIFICATIONS

4.1 Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

4.1.1 Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

4.1.2 Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

4.1.3 Record the name of manufacturer, supplier, installer, and other information necessary to provide a record of selections made.

4.1.4 For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.

4.1.5 Note related Change Orders and record Drawings where applicable.

4.2 Format: Submit record Specifications as paper copy and if available annotated PDF electronic file or scanned PDF electronic file(s) of marked up paper copy.

5. RECORD PRODUCT DATA

5.1 Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

5.1.1 Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

5.1.2 Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

5.1.3 Note related Change Orders, record Specifications, and record Drawings where applicable.

5.2 Format: Submit record Product Data as paper copy and if available annotated PDF electronic file or scanned PDF electronic file(s) of marked up paper copy of Product Data.

5.2.1 Include record Product Data directory organized by specification section number and title, electronically linked to each item of record Product Data.

6. MISCELLANEOUS RECORD SUBMITTALS

6.1 Assemble miscellaneous records required by other Specifications Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

6.2 Format: Submit miscellaneous record submittals as paper copy and if available annotated PDF electronic file or scanned PDF electronic file(s) of marked up paper copy of Product Data.

6.2.1 Include miscellaneous record submittals directory organized by specification section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 – EXECUTION

7. RECORDING AND MAINTENANCE

7.1 Recording: Maintain one (1) copy of each drawing / specification during the construction period for project record document purposes. Post changes and modifications to project record documents as they occur; do not wait until the end of the Project.

7.2 Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Samples 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.

8. CLOSE-OUT PROJECT RECORD DOCUMENTS / TRANSMITTAL TO OWNER

8.1 Record Drawings: Comply with the following:

8.1.1 Number of Copies: Submit one (1) complete set of marked-up record prints at the time of request for final certificate of payment.

8.1.2 Collect, organize, label, and package ready for reference.

A. Provide cardboard drawing tubes with end caps for record drawing originals.

B. Bind print sets with durable paper covers.

C. Label each document (and each sheet of drawings) with "Project Record Documents" and the date of preparation.

8.1.3 Submit to the Architect for transmittal to the Owner, unless otherwise indicated.

End of Section 017839

EXHIBIT B4

GEOTECHNICAL EXPLORATION REPORT
Sedgwick County EMS Post 1
West 13th Street North & North Sheridan
Wichita, Kansas

UES Project No. A24125.00762.000
October 1, 2024

Prepared by:

GSI Engineering, LLC
A UES Company (UES)
4503 East 47th Street South
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(316) 554-0725

Prepared for:

Sedgwick County
271 W. 3rd Street, Suite 325
Wichita, Kansas 67206

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Kansas.

October 1, 2024

Colin D. Parker, P.E. Date

My license renewal date is April 30, 2025.
Sections covered by this seal: Sections 1 through 6 and all pages included as appendices within this bound document.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

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TABLE OF CONTENTS

Page No.

1. INTRODUCTION 1
1.1 General 1
1.2 Project Description 1
2. FIELD EXPLORATION 2
3. SITE CONDITIONS 3
3.1 Regional Geology 3
3.2 Surface Conditions 3
3.3 Subsurface Conditions 3
3.4 Groundwater Conditions 4
3.5 Seismic Site Classification 4
4. LABORATORY TESTING 5
5. CONCLUSIONS AND RECOMMENDATIONS 7
5.1 General Geotechnical Considerations 7
5.2 Earthwork 7
5.2.1 Site Preparation 7
5.2.2 General Structural Fill 8
5.2.3 Low Volume Change Material (LVC) 8
5.2.4 Compaction of Engineered Structural Fills 9
5.2.5 Utility Trench Backfill 9
5.2.6 Foundation Backfill 10
5.2.7 Correction of Unsuitable Foundation Soils 11
5.2.8 Excavation Slopes 11
5.3 Shallow Foundations 11
5.4 Floor Slabs 13
5.5 Pavement Recommendations 14
5.5.1 Pavement Subgrade Preparation 14
5.5.2 Recommended Design Sections 15
5.5.3 Asphaltic Cement Concrete Pavement Construction 16
5.5.4 General Pavement Considerations 16
5.6 Lateral Earth Pressures 17
5.7 Surface Drainage and Landscaping 17
5.8 Construction Considerations 18
5.9 Construction Observation and Quality Assurance 19
6. CLOSING REMARKS AND LIMITATIONS 20

APPENDICES

Appendix A -	General Vicinity Map Boring Location Plan
Appendix B -	Boring Logs Key to Symbols Legend & Nomenclature Unified Soil Classification System (USCS)
Appendix C -	Field & Laboratory Test Results

1. INTRODUCTION

1.1 General

This report summarizes the findings of our geotechnical exploration for the proposed Sedgewick County EMS Post 1 located south of West 13th Street between Sheridan Avenue and Custer Avenue in Wichita, Kansas. The scope of work was outlined in our proposal dated August 27, 2024. Ms. Sandy Anguelov of Sedwick County authorized this exploration on September 9, 2024 with issuance of Purhcase Order No.: 4300121469.

The purpose of this geotechnical study is to explore the subsurface conditions at the proposed site with exploratory borings, evaluate the engineering properties of the subsurface materials with appropriate field and laboratory tests, and perform engineering analyses for developing design and construction recommendations for the proposed project.

1.2 Project Description

The proposed project will be located south of W. 13th Street between Sheridan Avenue and Custer Avenue in Wichita, Kansas. We understand the development will consist of the construction of a new EMS facility with associated parking and drives. The single-story structure will be of steel or wood frame construction with a concrete slab-on-grade floor. We estimate the structure will have maximum column and continuous wall loads on the order of 50 kips and 3 kips per linear foot, respectively.

We anticipate that the pavement will support predominately emergency vehicles with less frequent passenger cars, panel delivery vans, passenger vans, and trash trucks.

We assume site grading required to bring the building pad to the desired elevation will be minimal, with cuts or fills less than 2 feet. Please contact us if site grading will be more significant so we may evaluate and adjust our recommendations if necessary.

A site plan is included in Appendix A for reference.

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2. FIELD EXPLORATION

We drilled 4 borings for this geotechnical exploration on September 11, 2024 with a CME 55 truck-mounted drilling rig using 2.25-inch inside diameter hollow stem augers. We drilled 2 borings within the building footprint and 2 borings in the parking/drive areas to depths of approximately 20 feet below the site grade at the time of our exploration.

We selected boring locations based on a preliminary site plan/boring location plan provided by Sedgwick County on August 26, 2024. UES personnel established field locations using a hand-held GPS unit with an accuracy of +/- 10 feet. Boring locations in relation to existing and proposed features are indicated on the Boring Location Plan included in Appendix A. The boring locations should be considered accurate only to the degree implied by the methods used in their determination.

We interpolated ground surface elevations at the boring locations using elevations obtained from ground surface profiling provided by Google Earth. The ground surface elevations at the borings are shown on the boring logs included in Appendix B. The boring elevations should be considered accurate only to the degree implied by the methods used in their determination.

Our drill crew obtained soil samples at the intervals shown on the boring logs in Appendix B. Recovered samples were sealed in plastic containers, labeled, and protected for transportation to the laboratory for further examination, testing, and classification.

We obtained split-barrel samples (designated "Split Spoon" or "S" samples) while performing Standard Penetration Tests (SPT) with a 1-3/8 inch I.D. thick-walled sampler, driven using an automatic hammer in general accordance with ASTM D1586, "*Penetration Test and Split-Barrel Sampling of Soils*." The "N" value, reported in blows per foot (bpf), equals the number of blows required to drive the sampler through the last 12 inches of the 18-inch sample interval using a 140-pound hammer falling 30 inches.

Our drilling personnel prepared field boring logs during drilling operations. These field logs report drilling and sampling methods, sampling intervals, groundwater measurements and the subsurface conditions we encountered. At the conclusion of drilling, our drill crew made groundwater measurements and backfilled the borings in accordance with Kansas state regulations.

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3. SITE CONDITIONS

3.1 Regional Geology

The project site lies within the Arkansas River Lowlands region of western and central Kansas. The topography in this region is typified by flat alluvial plains. Soil stratigraphy generally comprises sand, silt and gravel of Pleistocene Age or younger, weathered from as far as the Rocky Mountains and transported by the Arkansas River. As the river flows eastward, the current slows, and the materials in the water column are deposited within the flood plain. In the project area, the alluvial deposits are underlain by the Wellington Shale of the Permian bedrock system.

3.2 Surface Conditions

The project site comprises an undeveloped grass-covered lot with several mature trees to the south end of the site. The site exhibits approximately 2 feet of elevation change sloping downgradient from the north to the south. The site is bound to the north by West 13th Street North, the east by Adventure planet, the south by residential lots, and the west by Indian Hills Animal Clinic.

3.3 Subsurface Conditions

Although we observed some variability, the subsurface materials we encountered within the depths of exploration generally comprised of 6 inches of topsoil overlying clayey sand to poorly graded sand with an interbedded layer of lean clay with varying amounts of sand. General descriptions of the strata we encountered are presented below, while more detailed subsurface information is presented on the boring logs located in Appendix B. Please note that the indicated depths are relative to the site grade at the time of our exploration.

Stratum 1

We encountered clayey sand to poorly graded sand in each of our soil borings, underlying the surficial topsoil at the surface, and extending to boring termination depths of approximately 20 feet below the site grade at the time of our exploration. This material was generally described as dark brown to light brown, dry to slightly moist, and fine to coarse grained. We measured SPT N-values between 7 and 25 bpf, indicating the sand soils are in a loose to medium dense condition.

Stratum 2

We encountered lean clay with varying amounts of sand in each of our soil borings, underlying and interbedded in the sand soils between 2.5 and 13.5 feet below the site grade at the time of our exploration.

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This material was generally described as dark brown to brown, grayish brown, or reddish brown, and slightly moist to moist. We measured Standard Penetration Test (SPT) N-values between 7 and 23 blows per foot (bpf), indicating the lean clay is in a medium stiff to very stiff condition.

3.4 Groundwater Conditions

Our drill crew made water level observations during drilling and after completion of the borings to evaluate groundwater conditions. We did not encounter groundwater in any of our soil borings.

The groundwater conditions we observed during our exploration program should not be construed to represent an absolute or permanent condition. Uncertainty is involved with short-term water level observations in boreholes.

The free groundwater surface or groundwater table within unconfined aquifers is generally a subdued reflection of surface topography. Water generally flows downward from upland positions (recharge zones) to low lying areas or surface water bodies (discharge zones). As such, the groundwater level and the amount and level of any perched water on the site may be expected to fluctuate with variations in precipitation, site grading, drainage and adjacent land use. Further, the groundwater elevation is expected to vary locally with changes in the nearby creek level. Long-term monitoring utilizing piezometers or observation wells is required to evaluate the potential range of groundwater conditions.

3.5 Seismic Site Classification

We have reviewed the boring logs and laboratory test data for this project. We have also reviewed other geologic data from the general area available to us for further information on the soils extending to a depth of 100 feet below the existing grade.

Based on the above resources, we estimate that the weighted average N-value for soil and rock across this depth is greater than 15 but less than 50 blows per foot (bpf). As defined in ASCE 7-16 as well as the 2018 version of the International Building Code, this building site is assigned a Site Class of D.

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4. LABORATORY TESTING

Our engineering staff reviewed the field boring logs to outline the depth, thickness and extent of the soil strata. The samples taken from the borings were examined in our laboratory and visually classified in general accordance with ASTM D2488, "*Description and Identification of Soils (Visual-Manual Procedure)*." We established a testing program to evaluate the engineering properties of the recovered samples. A UES technician performed laboratory testing in general accordance with the following current ASTM test methods:

- Moisture Content (ASTM D2216, "*Laboratory Determination of Water (Moisture) Content of Soil and Rock*")
- Atterberg Limits (ASTM D4318, "*Liquid Limit, Plastic Limit, and Plasticity Index of Soils*")
- Minus No. 200 Sieve Wash (ASTM D1140, *"Amount of Material in Soils Finer Than the No. 200 (75-µm) Sieve")*

Laboratory test results are presented on the boring logs in Appendix B and tabulated in Appendix C.

Moisture content tests were used to evaluate the existing moisture condition of the soils. The Atterberg limits and Minus No. 200 sieve tests were used to help classify the soils under the Unified Soils Classification System. The Atterberg limits were also used to evaluate the plasticity characteristics of the soils.

The following data summarize our laboratory test results. We used these data to develop the allowable bearing values, anticipated settlements, and other geotechnical design criteria for the project.

- Natural Moisture Content ..... 2.3 to 25.1%
- Liquid Limit ..... 31 to 40
- Plastic Limit ..... 15 to 16
- Plasticity Index ..... 15 to 24
- Percent Passing the No. 200 Sieve ..... 40.9 to 43.6%
- Standard Penetration Test (SPT 'N' blows per foot) ..... 7 to 25

Based on the results of this testing program, we reviewed and supplemented the field logs to arrive at the final logs as presented in Appendix B. The final logs represent our interpretation of the field logs and reflect the additional information obtained from the laboratory testing. Stratification boundaries indicated on the boring logs were based on observations made during drilling, an extrapolation of information obtained by

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evaluating samples from the borings, and comparisons of similar engineering characteristics. Locations of these boundaries are approximate and the transitions between soil types may be gradual rather than clearly defined.

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5. CONCLUSIONS AND RECOMMENDATIONS

5.1 General Geotechnical Considerations

The soils we encountered in the test borings are generally capable of supporting the anticipated loads on shallow foundations. We did not encounter groundwater within the depth of expected excavation.

The near-surface clayey sand and lean clay soils we encountered at the site generally exhibit low plasticity and limited shrink/swell potential. These soils may be used for direct support of floor slabs or pavements, if properly moisture conditioned and compacted as outlined later in this report.

5.2 Earthwork

5.2.1 Site Preparation

We recommend that any existing utilities within the proposed building area be relocated to avoid passing beneath the new structure. Abandoned utility pipes that cannot be removed must be plugged with grout to reduce the potential for future collapse or moisture migration into the subgrade soils. Excavations resulting from utility removal must be replaced with engineered structural fill as outlined in Section 5.2.5.

Trees within the areas to be prepared for development must be removed. The root-balls and surrounding soils containing observable organic material must also be removed. We expect the root-balls will extend to substantially greater depths than the topsoil stripping depth. The root-ball excavations must be filled with an engineered structural fill that is placed, moisture conditioned and compacted in accordance with Section 5.2.4.

In preparing the site for construction, surface vegetation and topsoil containing a significant percentage of organic matter should be removed from the areas beneath structures and any other areas that are to be paved, cut or receive fill. The removal depth for this site is expected to be approximately 6 inches. However, the removal depth should be monitored during stripping and adjusted as required. This material should either be removed from the site or stockpiled for later use in landscaping of unpaved or non-structural areas.

Prior to fill placement, the top 9 inches of the ground surface in fill areas should be scarified, moisture conditioned and recompacted in accordance with Section 5.2.4 to eliminate a plane of weakness along the contact surface.

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The subgrade should be proof rolled with a loaded tandem axle dump truck or equivalent (loaded water truck, loaded concrete mixer or motor grader with a minimum weight of 20 tons). A proof-roll is considered acceptable if no ruts greater than one inch deep appear behind the loaded vehicle, and no pumping or weaving is observed as the wheels pass over the area. Any soft or unsuitable areas should be compacted or removed and replaced with stable fill material similar in composition to the surrounding soils. If necessary, clean materials such as crushed concrete or crushed stone may be used to stabilize areas where wet soil or water is present. Geogrid or structural geotextile may be used in conjunction with crushed concrete or stone to provide additional stabilization.

Whether in cut or fill, the final subgrade surface must be maintained in a stable condition at the moisture content and level of compaction identified in Section 5.2.4. Verification and maintenance of the completed subgrade may require scarification, moisture conditioning, recompaction, and proof rolling.

5.2.2 General Structural Fill

General structural fill may be used for mass site grading, landscaping applications or as utility trench backfill outside of building areas. General structural fill may also be used to within 9 inches of the base of any granular cushion beneath floor slabs and to within 9 inches of the base of any vehicular or pedestrian pavements. In the former applications, low volume change materials are required immediately below the floor slabs or pavements (low volume change material is discussed in the following section).

General structural fill may comprise cohesive or granular material but should be free from organic matter or debris. Granular materials used as general structural fill should be well graded, have a maximum particle size of 1.5 inches, and meet KDOT freeze/thaw durability and sulfate soundness requirements.

Off-site material used as general structural fill should have a liquid limit (LL) of less than 50 and a plastic index (PI) of less than 30.

If free of organic matter or debris, the on-site soils may be reused as general structural fill within the areas outlined above.

5.2.3 Low Volume Change Material (LVC)

Low volume change (LVC) material as specified for use below floor slabs and pavements must consist of granular material or cohesive soil with a liquid limit (LL) less than 40 and a plasticity index (PI) between 10 and 20.

Granular material used as LVC must have sufficient cohesion to form a compactable, uniform, and stable subgrade. This typically translates to a material with greater than 15 percent fines (percent passing the No. 200 sieve) and a maximum particle size of 1.5 inches. Silty gravel (such as KDOT AB-3), crushed concrete with a maximum particle size of 1.5 inches, or limestone screenings are also acceptable LVC materials. Granular materials with less than 15 percent fines may be used within confined areas such as within foundation stem walls. LVC materials should be free of organic matter or debris.

The on-site clayey sand and lean clay soils may be considered LVC material as defined in this section, if properly moisture conditioned and recompacted in place as outline in Section 5.2.4 of this report.

5.2.4 Compaction of Engineered Structural Fills

Unless otherwise noted, fill materials should be placed in loose lifts not to exceed 9 inches and be compacted to a minimum of 95 percent of the maximum dry unit weight obtained from ASTM D698 (Standard Proctor). Moisture content at the time of compaction should be controlled to between optimum and 4 percent above optimum moisture content.

Granular fill materials which produce a definable moisture-density curve when tested according to ASTM D698 should be compacted to a minimum of 95 percent of the maximum dry unit weight obtained from ASTM D698. Granular fill materials which do not produce a definable moisture-density curve should be compacted to a minimum of 75 percent relative density (ASTM D4253, *"Maximum Index Density and Unit Weight of Soils Using a Vibratory Table"* and ASTM D4254, "*Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density"*). Granular materials should be placed at a moisture content that will achieve the desired densities. Please note that relative density and standard Proctor tests measure different parameters and are not interchangeable.

In general, proper compaction of cohesive soils can be achieved with sheepsfoot or pneumatic-type compactors, while compaction of granular soils can be achieved with smooth-drum or smooth-plate vibratory compactors. Water flooding is not an acceptable compaction method for any soil type.

5.2.5 Utility Trench Backfill

As a minimum, utility trench backfill material should meet the requirements of general structural fill as defined in Section 5.2.2. Where utility trenches pass beneath the structure, pavements or flatwork, the upper foot of utility backfill should meet the requirements of LVC material as defined in Section 5.2.3.

Backfill soils in utility trenches must be placed in lifts of 6 inches or less in loose thickness and be compacted in accordance with Section 5.2.4.

Controlled low strength material (CLSM) or flowable fill may also be used for utility backfills. We recommend designing flowable fill with a compressive strength between 50 and 300 pounds per square inch (psi). CLSM with a maximum compressive strength less than 300 psi can be readily excavated with a backhoe. The intent for the CLSM is to provide a backfill that can be placed in a single lift, without personnel entering the excavation and without the need for compaction equipment.

Where used beneath pavements, flatwork or the structure, CLSM should be terminated a minimum of one foot below the structure, floor slab or pavement subgrade elevation. To provide uniform support beneath pavements, flatwork, and the structure, the fill placed over the CLSM should be of similar composition as the surrounding bearing materials and be constructed as moisture-conditioned and compacted engineered structural fill in accordance with Section 5.2.4.

5.2.6 Foundation Backfill

As a minimum, backfill soils for formed foundations should meet the requirements of general structural fill as defined in Section 5.2.2. However, we recommend fill around foundations meet the requirements of LVC material as defined in Section 5.2.3. The use of LVC material to backfill foundations is intended to help reduce lateral swell pressures on the foundation wall and reduce desiccation cracking adjacent to the structure, which can provide a pathway for water to infiltrate the foundation subgrade. If other cohesive materials are used to backfill foundations, the risk of differential movements caused by water infiltration into the foundation subgrade may be increased.

We also recommend the upper 18 inches of exterior foundation backfill have sufficient cohesion to direct surface water away from the structure. Granular materials such as sand and gravel are not suitable for use as exterior foundation backfill in the surficial 18 inches.

Backfill soils around formed foundations must be placed in lifts of 6 inches or less in loose thickness and be moisture conditioned and compacted in accordance with Section 5.2.4. Care should be exercised during compaction to avoid applying excessive stress to the foundation surfaces. Where both sides of a foundation wall are backfilled, the fill should be placed simultaneously in uniform lifts on both sides of the wall to reduce unbalanced lateral loads.

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5.2.7 Correction of Unsuitable Foundation Soils

If soft, loose, or otherwise unsuitable soils are encountered at the base of any foundations, an over-excavation and replacement/recompaction procedure will be required. The unsuitable soils beneath the foundations should be removed to the required depth, with the excavation extending laterally 9 inches in all directions for each vertical foot of over-excavation. Structural fill for the over-excavated areas should be of similar composition as the surrounding materials or meet the requirements of LVC material as defined in Section 5.2.3. Backfill material should be compacted in accordance with Section 5.2.4. CLSM, as defined in Section 5.2.5 may also be used to backfill over-excavated areas.

5.2.8 Excavation Slopes

Vertical cuts and excavations may stand for short periods of time, but should not be considered stable in any case. All excavations should be sloped back, shored, or shielded for the protection of workers. As a minimum, trenching and excavation activities should conform to federal and local regulations.

The clayey sand and lean clay with varying amounts of sand soils we encountered in the test borings generally classify as a type "C" soil according to OSHA's Construction Standards for Excavations. In general, the maximum allowable slope for shallow excavations of less than 20 feet in a type "C" soil is 1.5H:1.0V, although other provisions and restrictions may apply. If different soil types are encountered, the maximum allowable slope may be different.

The Contractor is responsible for designing any excavation slopes or temporary shoring. The Contractor must also be aware that slope height, slope inclination, and excavation depths (including utility trench excavations) should in no case exceed those specified in federal, state, or local safety regulations, such as OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations.

The information presented in this section is solely for our client's reference. **UES assumes no responsibility for site safety or the implementation of proper excavation techniques.**

5.3 Shallow Foundations

Based on the subsurface conditions revealed by the boring and testing program, this site appears suitable for use of a shallow foundation system. The selection of an allowable soil bearing pressure for shallow foundation elements must fulfill two requirements. First, the foundation load must be sufficiently less than the ultimate soil bearing capacity to ensure stability. Second, the total and differential settlements must not exceed amounts which will produce adverse behavior of the superstructure.

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In order to meet the previous criteria, we have explored both the bearing capacity and the load settlement characteristics of the subsurface materials. The allowable soil bearing pressure is based on a factor of safety of three against the ultimate bearing capacity of the soil, with additional consideration given to limiting settlement to acceptable levels. In our analysis, we used a maximum allowable total vertical movement of 1 inch and a maximum allowable differential vertical movement of ¾ of an inch within 25 linear feet. These limits are generally considered acceptable for most structures.

A net allowable soil bearing pressure of 3,000 pounds per square foot (psf) may be used to size shallow foundation elements bearing on the native soils at a depth of 2 feet or greater below the existing site grade. The allowable bearing pressure is expressed in terms of the net pressure transferred to the soil. The net allowable bearing pressure is defined as the total structural dead load including the weight of the foundation elements, less the weight of the soil excavated for the foundation elements. This value may be increased by one-third for transient loading conditions such as wind or seismic forces.

All exterior and any interior foundation elements exposed to freezing conditions should be constructed at least 2.5 feet below the surrounding exterior grade to help reduce the effects of frost and seasonal moisture changes. Interior footings, which will be protected from the effects of frost, may be founded 1.5 feet below finished floor elevation.

We recommend that concrete be placed as soon as practical after footing excavation, with as little disturbance to the bearing soil as possible. Footing excavations should be free of loose soil or debris. Loose or disturbed soil must be removed or compacted prior to foundation construction. Water that collects in the excavations should be promptly removed to prevent softening of the foundation supporting soils prior to concrete placement. In addition, we recommend all excavations be observed by our geotechnical personnel prior to placement of concrete for the possible presence of unsuitable bearing soils. If unsuitable bearing soils are encountered during construction, these areas should be corrected in accordance with Section 5.2.7.

If shallow foundations are designed and constructed in accordance with the recommendations presented, total vertical movements are not expected to exceed 1 inch with differential vertical movements less than ¾ of an inch within 25 linear feet

5.4 Floor Slabs

The soils we encountered at this site generally exhibit a low swell potential. Most slabs-on-grade will experience some amount of vertical movement, which the Owner must be willing to accept. Recommendations to help reduce the risk of movement of slab are presented below.

To provide uniform support for floor slabs and reduce the potential for subgrade volume change, we recommend all floor slabs bear on a minimum of 9 inches of LVC material as defined in Section 5.2.3. The placement and compaction of the LVC material should conform to the recommendations in Section 5.2.4 of this report. Depending on final site grades, this LVC layer could comprise on-site soils that have been moisture-conditioned and recompacted in place.

By constructing a 9-inch layer of low plasticity, low volume change material immediately beneath the floor slab and closely controlling the moisture and density of the scarified soil and new fill materials, it is our opinion that the potential for detrimental floor slab movement will be sufficiently reduced. A greater thickness of low volume change material beneath the floor slab may further reduce potential slab movement. If even slight slab movements are not acceptable, please contact UES for further floor slab recommendations.

We recommend a 2- to 4-inch thick granular cushion be placed beneath the floor slab in addition to the low plasticity, low volume change material. This layer should be free-draining, well-graded and compacted by vibration prior to placing the floor slab.

We also recommend the moisture content of upper 9 inches of the subgrade be checked prior to placement of a granular base, reinforcing steel or concrete floor slab. If the moisture content of the subgrade is below optimum, we recommend the subgrade be scarified, moisture conditioned and recompacted according to Section 5.2.4.

In many construction projects, the moisture content of the floor slab subgrade is tested during grading of the site. The subgrade then remains exposed until floor slab placement occurs several weeks later. In this situation, even LVC material is subject to some swell movement if not properly moisture conditioned prior to slab placement. Periodic applications of water will help maintain the proper moisture content of subgrade soils. The risk of differential movements can be reduced by creating and properly preparing a LVC zone beneath the slab as well as ensuring proper drainage is maintained around the structure at all times.

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In finished areas, the floor covering manufacturer should be consulted regarding the use of a vapor retarder beneath floor slabs. If a vapor retarder is recommended by the floor covering manufacturer, it should conform to the manufacturer's specifications to maintain the product warranty. In other areas, vapor retarder should be placed in accordance with recommendations outlined in ACI 302.1R-15, "Guide to Concrete Floor and Slab Construction."

5.5 Pavement Recommendations

The asphalt and Portland cement concrete pavement recommendations provided below are separated into a regular duty and a heavy duty section. To perform properly, the pavement sections require that the subgrade be prepared in accordance with the recommendations in Section 5.5.1.

5.5.1 Pavement Subgrade Preparation

Pavement performance is directly affected by the degree of compaction, uniformity, and stability of the subgrade. The stability and quality of the pavement subgrade is particularly important where high traffic volume and heavy axle loads are anticipated.

If vehicular and pedestrian pavements will be placed on native soils, we recommend the top 9 inches of the subgrade be moisture conditioned and recompacted as outlined in Section 5.2.4 of this report. If off-site soils are used to raise the site grade, we recommend these materials meet the requirements of LVC material as defined in Section 5.2.3.

The top 9 inches of pavement subgrade should be compacted to a minimum of 95 percent of the maximum dry unit weight determined by ASTM D698. The moisture content should also be controlled to between optimum and 4 percent above the optimum moisture content.

To detect any localized areas of instability, the final subgrade should be proof rolled with a loaded tandem axle dump truck or equivalent (loaded water truck, loaded concrete mixer or motor grader with a minimum weight of 20 tons) immediately prior to placement of the concrete or asphalt. Unstable areas should be removed and replaced or reworked to provide a more uniform subgrade. If necessary, clean materials such as crushed concrete or crushed stone may be used to stabilize areas where wet soil or water is present. Geogrid or structural geotextile may be used in conjunction with crushed concrete or stone to provide additional stabilization.

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We also recommend the moisture content of the subgrade be checked prior to paving. If the moisture content is below optimum, we recommend the subgrade be scarified, moisture conditioned and recompacted according to Section 5.2.4.

5.5.2 Recommended Design Sections

The pavement sections for this project are based on our experience with similar pavements and a design life of 15 to 20 years. The regular duty pavement sections are intended for passenger car and light truck traffic and parking areas. The heavy duty pavement sections are intended for areas that will experience high traffic volumes or heavy axle loads such as main access drives or delivery truck routes. Portland cement concrete pavements are recommended for areas with frequent start-stop or turning traffic such as entrance and exit aprons or the parking stalls closest to buildings, as well as areas that support stationary loads such as dumpsters.

Our recommendations for full-depth asphalt and Portland cement concrete pavement sections are presented in the following tables.

Table 5.5.2-1: Full-Depth ACC Pavement Design Recommendations

	Regular Duty Section	Heavy Duty Section
KDOT BM-2 Wear Course (in.)	2.0	2.0
KDOT BM-2 Base Course (in.)	3.5	5.5
LVC Subgrade	9.0 (minimum)	9.0 (minimum)

**LVC subgrade placed and compacted in accordance with Section 5.5.1.*

Table 5.5.2-2: PCC Pavement Design Recommendations

	Thickness (Inches)		
	Sidewalks & Pedestrian Areas	Regular Duty Section	Heavy Duty Section
KDOT MA-2 Air Entrained Portland Cement Concrete (in.)	4.0	5.0	6.0
LVC Subgrade	9.0 (minimum)	9.0 (minimum)	9.0 (minimum)

**LVC subgrade placed and compacted in accordance with Section 5.5.1.*

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5.5.3 Asphaltic Cement Concrete Pavement Construction

We recommend that both the asphalt surface and base coarse aggregate gradations meet KDOT SM-12.5A with a performance graded asphalt binder meeting KDOT PG 64-22. If asphalt mixes with recycled asphalt pavement are considered, we recommend that a maximum of 15% RAP be used in the surface course and that a maximum of 20% RAP be used in the base courses. If RAP is used, the aggregate gradation should meet KDOT SR-12.5A.

Asphalt should be placed at an ambient temperature above 40 degrees Fahrenheit. Asphalt temperature at the time of compaction should be between 265 and 330 degrees Fahrenheit. We recommend the initial asphalt lift placed directly on the subgrade should be compacted to a minimum of 94 percent of the Marshall density with subsequent asphalt lifts compacted to a minimum of 96 percent of the Marshall density. Please note that recommendations regarding compaction temperature and percentage for a specific pavement design should supersede these recommendations.

All asphaltic concrete mix designs should be submitted to UES and reviewed to determine if the designs are consistent with the recommendations given in this report. We also recommend a UES representative be present during paving operations to help ensure adherence to project pavement specifications.

5.5.4 General Pavement Considerations

Pavement service life can be significantly reduced if the pavement is constructed on a poor subgrade, if poor surface or subsurface drainage is present, or if the pavement is not maintained properly. We emphasize the importance of preparing the pavement subgrade in accordance with the procedures listed in the previous sections of this report.

Drainage of surface and subsurface water is also a critical component of pavement performance. Wetting of the subgrade soils or base course will cause loss of support strength resulting in premature pavement distress. Surface drainage should be designed to remove all water from paved areas. All curbs, including those surrounding pavement islands, should be backfilled as soon as possible after construction of the pavement. Backfill should be compacted and sloped to prevent water from ponding and infiltrating under the pavement. Regular active maintenance of pavements, which includes filling of cracks and joints, is required to minimize water infiltration and lengthen pavement life.

We recommend that parking lot islands be surfaced with low permeability paving to prevent water infiltration into the pavement subgrade.

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5.6 Lateral Earth Pressures

Earth-retaining structures should be designed to withstand lateral earth pressures caused by adjacent soil and applied surcharge loads. The magnitude of the lateral earth pressure will depend on the height of the walls, stiffness of the walls, magnitude of the surcharge loads behind the walls, and the backfill and existing soil conditions behind the walls.

Table 5.6-1: Lateral Earth Pressure Coefficients

Soil Type (USCS Symbol)	Wet Unit Weight (pcf)	Drained Friction Angle (Φ')	At Rest (K_o)	Active (K_a)	Passive (K_p)
Lean Clay w/ Varying Sand	125	25	0.58	0.41	2.46
Clayey Sand (SC)	115	30	0.50	0.33	3.00
Granular Backfill* (SP, SW)	115	32	0.47	0.31	3.25
Granular Backfill* (GP, GW)	125	35	0.43	0.27	3.69

Values for material compacted in accordance with Section 5.2.4

The values provided above are empirical and are based on basic testing as well as our experience with similar materials. These values also assume a vertical wall with a horizontal retained surface behind the wall. Lateral earth pressure parameters for granular backfill may be used only if the granular backfill extends upward from the heel of the wall at a slope shallower than 1.0H:1.0V. Please contact us if different backfill materials or wall geometries are a consideration for this project.

Static surcharge loads imposed on below-grade walls may be computed by multiplying the static surcharge load (q) by the appropriate lateral earth pressure coefficient (K_a or K_o). Appropriate factors of safety should be applied to the computed lateral earth pressures.

5.7 Surface Drainage and Landscaping

The success of the shallow foundation system, slab-on-grade floor system, and pavement section is contingent upon keeping the moisture content of subgrade soils as constant as possible and not allowing surface drainage to have a path to the subsurface soils. Positive surface drainage away from structures must be maintained throughout the life of the structures. Landscaped areas should be designed and

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constructed such that irrigation and other surface water will be collected and carried away from foundation elements. Pavements should be sloped or crowned to direct surface water to storm sewer systems or detention/retention ponds.

During construction, temporary grades should be established to prevent runoff from entering excavations or footing trenches. Backfill should be placed as soon as concrete structural strength requirements are met and should be graded to drain away from the building.

The final grade of the foundation backfill and any overlying pavements should have a positive slope away from foundation walls on all sides. We typically recommend a minimum slope of one inch per foot for the first 5 to 10 feet for uncovered surfaces. However, the slope may be decreased if the ground surface adjacent to foundations is covered with concrete slabs or asphalt pavements. For other areas of the site, we recommend a minimum slope of two percent. Pavements and exterior slabs that abut structures should be carefully sealed against moisture intrusion at the joint. All downspouts and faucets should discharge onto splash blocks that extend at least five feet from the building line or be tied into the storm drain system. Splash blocks should slope away from the foundation walls.

The placement of vegetation and plantings next to foundations should be minimized. Where landscaping is required, we recommend considering plants and vegetation that require minimal irrigation. Irrigation within ten feet of the foundation should be carefully controlled and minimized.

5.8 Construction Considerations

If construction of the project is to be performed during periods of freezing temperatures, steps should be taken to prevent the soils under floor slabs, footings, or pavements from freezing. In no case should the fill materials, floor slabs, foundations, pavements, or other exterior flat work be placed on frozen or partially frozen materials. Frozen materials should be removed and replaced with a suitable material as described in earlier sections of this report.

Construction performed during periods of high precipitation may result in saturated unstable soils, and caving or sloughing of excavations. Control of soil moisture will be necessary for successful soil compaction, and to maintain soil bearing capacity.

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5.9 Construction Observation and Quality Assurance

We recommend that UES review those portions of the plans and specifications that pertain to foundations and earthwork to evaluate consistency with our findings and recommendations. UES will provide up to 2 hours of engineering support services at no charge to review project documents for adherence to our recommendations.

Site grading, including proof-rolling, replacement or recompaction of material, and placement of fill and backfill, should be observed by a quality assurance technician from UES under the direction of a registered professional engineer. The technician should perform density tests and make any other observations necessary to assure that the requirements of the specifications are being achieved.

It is the opinion of UES that construction observation by the geotechnical engineer of record or his designated representative is necessary to complete the design process. Field observation services are viewed as essential and a continuation of the design process. Unless these services are provided by UES, the geotechnical engineer will not be responsible for improper use of our recommendations or failure by others to recognize conditions which may be detrimental to the successful completion of the project.

UES will be available to make field observations and provide consultation services as may be necessary. A written proposal outlining the cost of construction testing services such as soil, concrete, steel, and pavement quality assurance can be provided upon request.

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6. CLOSING REMARKS AND LIMITATIONS

This report is presented in broad terms to provide an assessment of the subsurface conditions and their potential effect on the adequate design and economical construction of the proposed structure and pavement. The analyses, conclusions, and recommendations contained in this report are based on the site conditions existing at the time of the exploration, the project layout described herein, and the assumption that the information obtained from our 4 borings is representative of subsurface conditions throughout the site.

Any changes in the design or location of the proposed structure should be assumed to invalidate the conclusions and recommendations given in this report until we have had the opportunity to review the changes and, if necessary, modify our conclusions and recommendations accordingly. If subsurface conditions different from those encountered in the explorations are observed during construction or appear to be present beneath excavations, UES should be advised at once so that the conditions can be reviewed and recommendations reconsidered where necessary.

If there is a substantial lapse in time between the submission of this report and the start of construction, or if site conditions or the project layout have significantly changed (due to further development of grading plans, natural causes, or construction operations at or adjacent to the site), we recommend that this report be reviewed to determine the applicability of our previous conclusions and recommendations.

Our geotechnical exploration and subsequent recommendations address only the design and construction considerations contained in this report. We make no warranty for the contents of this report, neither expressed nor implied, except that our professional services were performed in accordance with engineering principles and practices generally accepted at this time and location.

The scope of services for this exploration did not include a wetlands evaluation, an environmental assessment, or an investigation for the presence of hazardous or toxic materials in the soil, surface water, groundwater, or air within or adjacent to this site. If contamination is suspected or is a concern, we recommend the scope of this study be expanded to include an environmental assessment.

This report was prepared by the firm of GSI Engineering, LLC (GSI) a UES Company (UES) under the supervision of a professional engineer registered in the State of Kansas. Report preparation was in accordance with generally accepted geotechnical engineering practices for the exclusive use of our client for evaluating the design of the project as it relates to the geotechnical aspects discussed herein.

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Recommendations are based on the applicable standards of the profession at the time of this report within this geographic area. GSI Engineering, LLC a UES Company (UES) will not be responsible for misrepresentation of this report resulting from partial reproduction or paraphrasing of its contents.

We appreciate the opportunity to be of service on this project. Please contact us if we can provide further information regarding the contents of this report or the scope and cost of additional services.

Respectfully submitted,
GSI Engineering, LLC a UES Company (UES)

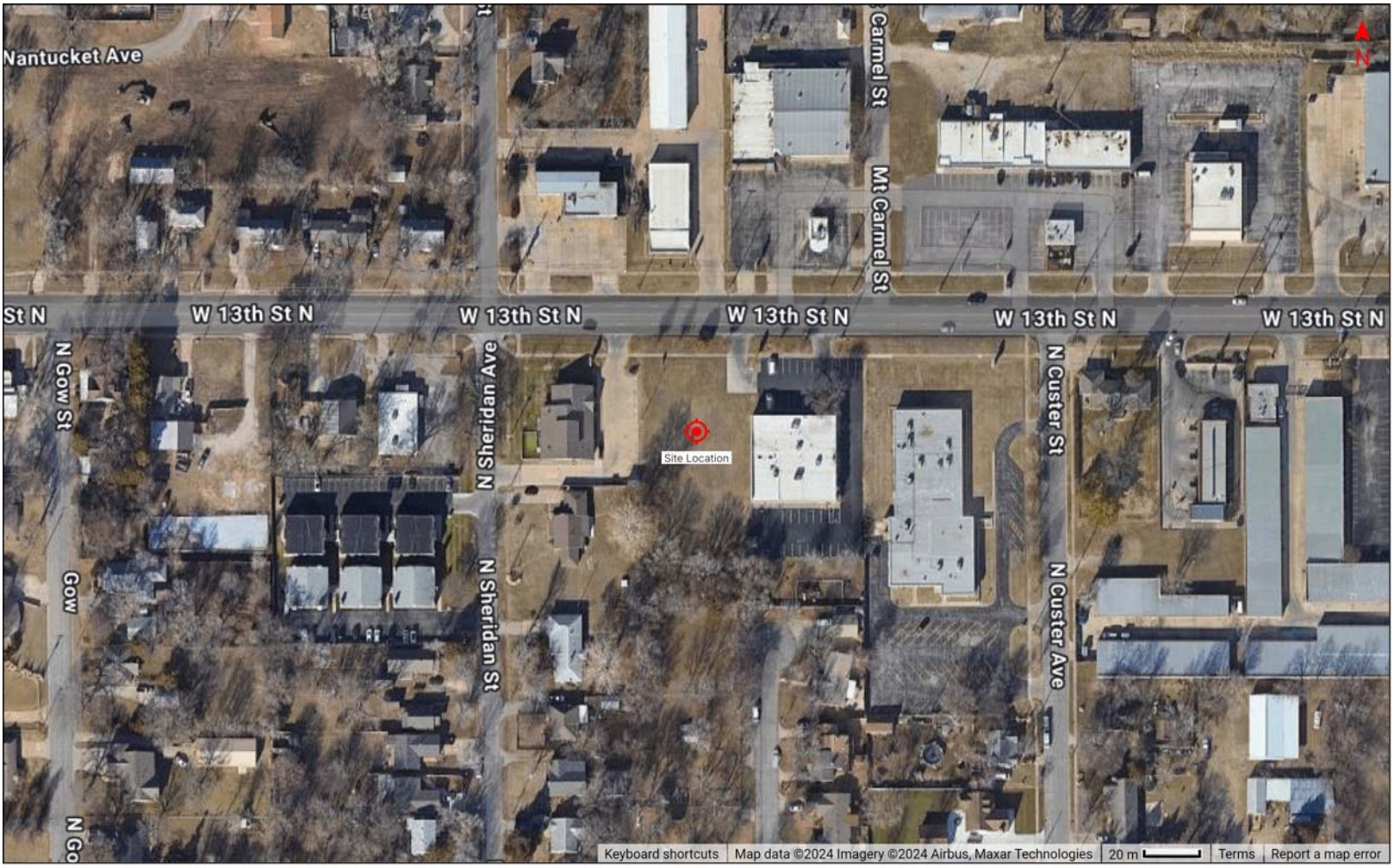
Blake L. Gronlie
Staff Geologist

Colin D. Parker, P.E.
Project Geotechnical Engineer

BLG/CDP

APPENDIX A

General Vicinity Map
Boring Location Plan



UES™	**PREPARED BY** GSI Engineering, LLC a UES Company Wichita, Kansas	**PROJECT** Name: Sedwick County EMS Post 1 Number: A24125.00762.000	**LOCATION** 37.708416, -97.379705 Wichita, KS	**SYMBOL KEY** Soil Boring

UES	**PREPARED BY** GSI Engineering, LLC a UES Company Wichita, Kansas	**PROJECT** Name: Sedwick County EMS Post 1 Number: A24125.00762.000	**LOCATION** 37.708416, -97.379705 Wichita, KS	**SYMBOL KEY** Soil Boring

APPENDIX B

Boring Logs
Keys to Symbols
Legend & Nomenclature
Unified Soil Classification System (USCS)

Sedwick County EMS Post 1

3059 W 13th St N, Wichita, KS 67203, USA

B-1

Drilling Co.:	UES	Project No.:	A24125.00762.000	Remarks:	-
Driller:	JC	Date Drilled:	09/11/2024		
Logged By:	BC	Boring Depth:	20'		
Equipment:	CME 55	Boring Elevation:	1314'		
Hammer Type:	Auto	Coordinates:	37.708548, -97.379576		
Drilling Method:	2.25-inch Inside Diameter Hollow Stem Augers	Water Level At Time Of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-in At Time Of Drilling:	N/A	Delayed Water Observation Date:	N/A

Depth (ft)	Sample Graphic	Samples: Sample ID	Samples: Uncorrected N-Value	Samples: Pocket Penetrometer (tsf)	Samples: REC (%) / RQD (%)	Graphic Log	Visual Classification	USCS	Lab: Moisture Content (%)	Lab: Wet Density (PCF)	Lab: Compressive Strength (KSF)	Lab: Percent Passing #200 Sieve	Lab: Atterberg Limits (LL-PL-PI)	Elevation (ft)
		S-1	20				TOPSOIL 0.5							
							CLAYEY SAND - dark brown, slightly moist, medium dense, fine grained, trace roots 2.5	SC	7.1			43.6		
		S-2	14				SANDY LEAN CLAY - brown, slightly moist, stiff		7.7				31-16-15	1310
5		S-3	16				- moist, else as above		17.7					
							8.5	CL						1305
		S-4	16				LEAN CLAY - grayish brown, moist, stiff		19.1					
10							13.5							1300
		S-5	20				POORLY GRADED SAND - brown, dry, medium dense, fine to coarse grained, trace clay		4.8					
15								SP						
		S-6	20				- fine to medium grained, clay lense, else as above 20.0							1295
-20							End of Boring at 20'							

Graphics Legend

- Topsoil
- SC
- CL
- CL
- SP
- Auger
- SPT - Standard Penetration Test

FIGURE

B-1

Sedwick County EMS Post 1

3059 W 13th St N, Wichita, KS 67203, USA

B-2

Drilling Co.:	UES	Project No.:	A24125.00762.000	Remarks:	-
Driller:	JC	Date Drilled:	09/11/2024		
Logged By:	BC	Boring Depth:	20'		
Equipment:	CME 55	Boring Elevation:	1314'		
Hammer Type:	Auto	Coordinates:	37.708484, -97.379896		
Drilling Method:	2.25-inch Inside Diameter Hollow Stem Augers	Water Level At Time Of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-in At Time Of Drilling:	N/A	Delayed Water Observation Date:	N/A

Depth (ft)	Sample Graphic	Samples: Sample ID	Samples: Uncorrected N-Value	Samples: Pocket Penetrometer (tsf)	Samples: REC (%) / RQD (%)	Graphic Log	Visual Classification	USCS	Lab: Moisture Content (%)	Lab: Wet Density (PCF)	Lab: Compressive Strength (KSF)	Lab: Percent Passing #200 Sieve	Lab: Atterberg Limits (LL-PL-PI)	Elevation (ft)
		S-1	11				TOPSOIL 0.5		10.3					
		S-2	13				CLAYEY SAND - dark brown, slightly moist, medium dense - as above 5.0	SC	6.7			41.1		1310
5		S-3	14				LEAN CLAY - dark brown, slightly moist, stiff, trace sand		14.1					
		S-4	16				- grayish brown, moist, else as above 13.5	CL	21.9					1305
10		S-5	25				POORLY GRADED SAND - brown, slightly moist, medium dense, fine grained		5.2					1300
15								SP						
		S-6	23				- trace clay, else as above 20.0		5.20					1295
20							End of Boring at 20'							

Graphics Legend

- Topsoil
- SC
- CL
- SP
- Auger
- SPT - Standard Penetration...

FIGURE

B-2

Sedwick County EMS Post 1

3059 W 13th St N, Wichita, KS 67203, USA

B-3

Drilling Co.:	UES	Project No.:	A24125.00762.000	Remarks:	-
Driller:	JC	Date Drilled:	09/11/2024		
Logged By:	BC	Boring Depth:	20'		
Equipment:	CME 55	Boring Elevation:	1314'		
Hammer Type:	Auto	Coordinates:	37.708345, -97.379651		
Drilling Method:	2.25-inch Inside Diameter Hollow Stem Augers	Water Level At Time Of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-in At Time Of Drilling:	N/A	Delayed Water Observation Date:	N/A

Depth (ft)	Sample Graphic	Samples: Sample ID	Samples: Uncorrected N-Value	Samples: Pocket Penetrometer (tsf)	Samples: REC (%) / RQD (%)	Graphic Log	Visual Classification	USCS	Lab: Moisture Content (%)	Lab: Wet Density (PCF)	Lab: Compressive Strength (KSF)	Lab: Percent Passing #200 Sieve	Lab: Atterberg Limits (LL-PL-PI)	Elevation (ft)
							TOPSOIL 0.5							
		S-1	7				CLAYEY SAND - dark brown, slightly moist, medium stiff, fine grained 2.5	SC	9.5					
		S-2	15				SANDY LEAN CLAY - dark brown, slightly moist, stiff, fine grained 5.0		7.8				33-15-18	1310
5		S-3	10				LEAN CLAY with SAND - dark brown, slightly moist, stiff, trace roots 8.5	CL	14.1					
		S-4	11				LEAN CLAY - dark brown, moist, stiff 13.5		25.1					1305
10		S-5	21				CLAYEY SAND - light brown, slightly moist, medium dense 18.5	SC	10.0					1300
15		S-6	15				POORLY GRADED SAND - light brown, slightly moist, medium dense 20.0	SP						1295
20							End of Boring at 20'							

Graphics Legend

- Topsoil
- SC
- CL
- CL
- SP
- Auger
- SPT - Standard Penetration Test

FIGURE

B-3

Sedwick County EMS Post 1

3059 W 13th St N, Wichita, KS 67203, USA

B-4

Drilling Co.:	UES	Project No.:	A24125.00762.000	Remarks:	-
Driller:	JC	Date Drilled:	09/11/2024		
Logged By:	BC	Boring Depth:	20'		
Equipment:	CME 55	Boring Elevation:	1312'		
Hammer Type:	Auto	Coordinates:	37.708132, -97.379753		
Drilling Method:	2.25-inch Inside Diameter Hollow Stem Augers	Water Level At Time Of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-in At Time Of Drilling:	N/A	Delayed Water Observation Date:	N/A

Depth (ft)	Sample Graphic	Samples: Sample ID	Samples: Uncorrected N-Value	Samples: Pocket Penetrometer (tsf)	Samples: REC (%) / RQD (%)	Graphic Log	Visual Classification	USCS	Lab: Moisture Content (%)	Lab: Wet Density (PCF)	Lab: Compressive Strength (KSF)	Lab: Percent Passing #200 Sieve	Lab: Atterberg Limits (LL-PL-PI)	Elevation (ft)
		S-1	9				TOPSOIL 0.5							
							CLAYEY SAND - dark brown, slightly moist, loose, trace roots 2.5	SC	11.1			40.9		1310
		S-2	11				LEAN CLAY with SAND - dark brown, moist, stiff 5.0		15.1				40-16-24	
5		S-3	7				LEAN CLAY - brown, slightly moist, medium stiff, trace silt		14.3					1305
		S-4	23				- reddish brown, moist, very stiff, trace sand, iron and calcium, else as above	CL	15.2					
10							13.5							1300
		S-5	21				POORLY GRADED SAND - light brown, dry, medium dense, fine grained, clay lense							
15								SP						1295
		S-6	19				fine to coarse grained, trace gravel, else as above 20.0		2.3					
20							End of Boring at 20'							

Graphics Legend

- Topsoil
- SC
- CL
- CL
- SP
- Auger
- SPT - Standard Penetration Test

FIGURE

B-4

Boring Log
Legend and Nomenclature

Items shown on boring logs refer to the following:

1. **Depth** - Depth below ground surface or drilling platform

2. **Sample** -Types designated by letter:

   A - Disturbed sample, obtained from auger cuttings or wash water.

   S - Split barrel sample, obtained by driving a 2-inch split-barrel sampler unless otherwise noted.

   C - California liner sample, obtained using a thick-walled liner sampler containing 2-inch-diameter liner tubes.

   U - Undisturbed sample, obtained using a thin-walled tube, 3-inch-diameter, or as noted, and open sampling head.

   Recovery - Recovery is expressed as a percentage of the length recovered to the total length pushed, driven or cored.

   Resistance - Resistance is designated as follows:

   P - Sample pushed in one continuous movement by hydraulic rig action.

   12 - The Standard Penetration Resistance is the number of blows for the last 12 inches of penetration of split spoon sampler, driven by a 140-pound hammer falling 30 inches.

   50/4" - Number of blows to drive sampler distance shown.

3. **Soil Description** - Description of material according to the Unified Soil Classification: word description giving soil constituents, consistency or density, and other appropriate classification characteristics. Geologic name or type of deposit and other pertinent information, where appropriate, is shown under Geologic Description or other Remarks. A solid line indicates the approximate location of stratigraphic change.

4. **Lab Data** – Laboratory test data.

5. **Legend**

A.D.	—	After drilling	N.A.	—	Not Applicable
A.T.D.	—	At time of drilling	N.D.	—	Not detectable due to drilling method
C.F.A.	—	Continuous flight auger			
D.W.L.	—	Drill water loss	N.E.	—	None encountered
D.W.R.	—	Drill water return	N.R.	—	Not recorded
E.D.	—	End of drilling	R.Q.D.	—	Rock quality designation
H.B.	—	Hole backfilled	R.W.B.	—	Rotary wash boring

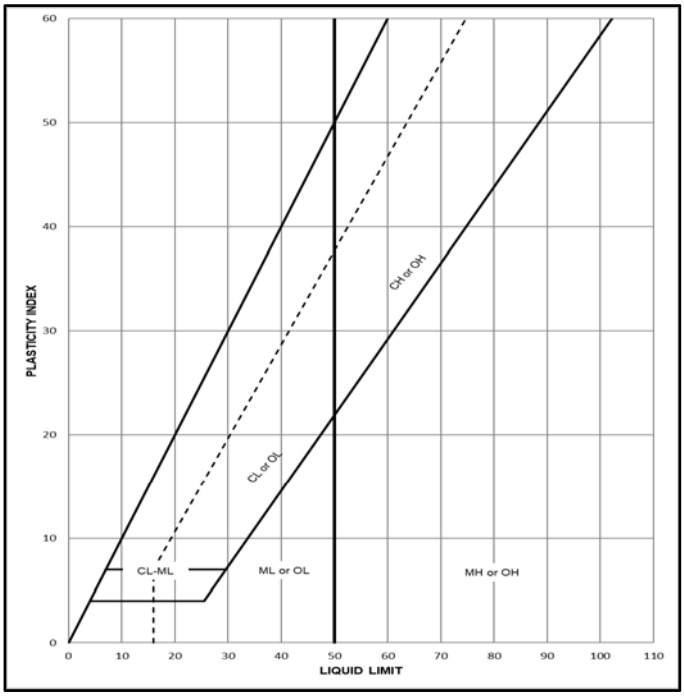
6. **Limitations** - The lines between materials shown on the boring logs represent approximate boundaries between material types and the changes may be gradual. Water level readings shown on the logs were made at the time and under the conditions indicated. Fluctuations in the water levels may occur with time. The boring logs in this report are subject to the limitations, explanations and conclusions of this report.

UNIFIED SOIL CLASSIFICATION SYSTEM

GROUP NAME	GROUP SYMBOL	SOIL DESCRIPTION	COMMENTS
Peat	Pt	Highly Organic Soils	50% or More Is Smaller than No. 200 Sieve
Fat Clay	CH	Clay - Liquid Limit => 50*	
Elastic Silt	MH	Silt - Liquid Limit => 50*	
Lean Clay	CL	Clay - Liquid Limit < 50*	
Silt	ML	Silt - Liquid Limit < 50*	
Silty Clay	CL-ML	Silty Clay*	
Clayey Sand	SC	Sands with 12 to 50 Percent Smaller than No. 200 Sieve	More than 50% Is Larger than No. 200 Sieve and % Sand > % Gravel
Silty Sand	SM		
Poorly-Graded Sand with Clay	SP-SC	Sands with 5 to 12 Percent Smaller than No. 200 Sieve	
Poorly-Graded Sand with Silt	SP-SM		
Well-Graded Sand with Clay**	SW-SC		
Well-Graded Sand with Silt**	SW-SM		
Poorly-Graded Sand	SP	Sands with Less than 5 Percent Smaller than No. 200	
Well-Graded Sand**	SW		
Clayey Gravel	GC	Gravels with 12 to 50 Percent Smaller than No. 200 Sieve	More than 50% Is Larger than No. 200 Sieve and % Gravel > % Sand
Silty Gravel	GM		
Poorly-Graded Gravel with Clay	GP-GC	Gravels with 5 to 12 Percent Smaller than No. 200 Sieve	
Poorly-Graded Gravel with Silt	GP-GM		
Well-Graded Gravel with Clay**	GW-GC		
Well-Graded Gravel with Silt**	GW-GP		
Poorly-Graded Gravel	GP	Gravels with Less than 5 Percent Smaller than No. 200	
Well-Graded Gravel**	GW		

*See Plasticity Chart for definition of silts and clays. If organic, use OL or OH.
**See definition of well-graded

PLASTICITY CHART



LEGEND OF TERMS

MOISTURE CONDITIONS
Dry, Slightly Moist, Moist, Very Moist, Wet (Saturated)

SOIL CONSISTENCY

Fine-Grained Soils

Description	SPT (N)	UCS (q_u, tsf)
Very Soft	0-2	0-0.25
Soft	2-4	0.25-0.50
Medium Stiff	4-8	0.50-1.0
Stiff	8-16	1.0-2.0
Very Stiff	16-32	2.0-4.0
Hard	>32	>4.0

Coarse-Grained Soils

Description	SPT (N)
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	>50

CLASSIFICATION OF SANDS & GRAVELS

Boulders	Cobbles	Coarse Gravel	Fine Gravel	Coarse Sand	Medium Sand	Fine Sand	Fines (Silt or Clay)
	10"	3"	3/4"	#4	#10	#40	#200

Well-Graded Sands (SW): $C_u \geq 6$ and $1 \leq C_c \leq 3$
Well-Graded Gravels (GW): $C_u \geq 4$ and $1 \leq C_c \leq 3$

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APPENDIX C

Field & Laboratory Test Results

SUMMARY OF FIELD AND LABORATORY TESTS

BORING NO.	SAMPLE NO.	SAMPLE DEPTH (ft.)	DIA. (in.)	MOISTURE CONTENT (%)	UNIT WEIGHT WET (pcf)	UNIT WEIGHT DRY (pcf)	VOID RATIO (e)	SAT. (%)	UNCONF. COMPR. STR. (ksf)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PL	ATTERBERG LIMITS PI	PASS NO. 200 (%)	SPT "N" (blows /ft)	USCS SOIL CLASS.
B-1	S-1	0.5-2.0		7.1									43.6	20	SC
	S-2	2.5-4.0		7.7						31	16	15		14	Sandy CL
	S-3	5.0-6.5		17.7										16	Sandy CL
	S-4	8.5-10.0		19.1										16	CL
	S-5	13.5-15.0		4.8										20	SP
	S-6	18.5-20.0												20	SP
B-2	S-1	0.5-2.0		10.3										11	SC
	S-2	2.5-4.0		6.7									41.1	13	SC
	S-3	5.0-6.5		14.1										14	CL
	S-4	8.5-10.0		21.9										16	CL
	S-5	13.5-15.0												25	SP
	S-6	18.5-20.0		5.2										23	SP
B-3	S-1	0.5-2.0		9.5										7	SC
	S-2	2.5-4.0		7.8						33	15	18		15	Sandy CL
	S-3	5.0-6.5		14.1										10	CL w/ Sand
	S-4	8.5-10.0		25.1										11	CL
	S-5	13.5-15.0		10.0										21	SC
	S-6	18.5-20.0												15	SP
B-4	S-1	0.5-2.0		11.1									40.9	9	SC
	S-2	2.5-4.0		15.1						40	16	24		11	CL w/ Sand
	S-3	5.0-6.5		14.3										7	CL
	S-4	8.5-10.0		15.2										23	CL
	S-5	13.5-15.0												21	SP
	S-6	18.5-20.0		2.3										19	SP

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PROJECT
Sedgwick County EMS Post 1

LOCATION
Wichita, Kansas

PROJECT NUMBER
A24125.00762

DATE
October 1, 2024

SECTION 033000

CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

1.2 Reference also "Structural General Notes" on Structural Drawings.

2. SUMMARY

2.1 This Section specifies cast-in-place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.

2.2 Related Sections include the following:

A. Division 31 Section "Earth Moving" for drainage fill under slabs-on-grade.

B. Division 32 Section "Concrete Paving" for concrete paving and walks.

3. SUBMITTALS

Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

4. QUALITY ASSURANCE

4.1 Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

4.2 Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

4.2.1 Manufacturer must be certified according to National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.

4.3 Testing Agency Qualifications: Engage at contractor's expense an independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct to testing indicated, as documented according to ASTM E 548.

4.4 ACI Publications: Comply with the following, unless more stringent than provisions are indicated:

4.4.1 ACI 301, "Specification for Structural Concrete"

4.4.2 ACI 117, "Specifications for Tolerances for Concrete Construction and Materials"

PART 2 – PRODUCTS

5. FORM-FACING MATERIALS

5.1 Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

5.2 Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch minimum.

5.3 Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

5.4 Form Ties: Factory-fabricated, removal or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

6. STEEL REINFORCEMENT

6.1 Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed

6.2 Plain-Steel Wire: ASTM A 82, as drawn

6.3 Deformed-Steel Wire: ASTM A 496

6.4 Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

7. REINFORCEMENT ACCESSORIES

7.1 Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete.

8. CONCRETE MATERIALS

8.1 Portland Cement: ASTM C 150, Type I

8.2 Portland Cement: ASTM C 150, Type III

8.3 Portland Cement: ASTM C 150, Type V
Normal-Weight Aggregate: ASTM C 33

8.4 Water: Potable and complying with ASTM C 94

9. ADMIXTURES

9.1 General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.

9.2 Air-Entraining Admixture: ASTM C 260

9.3 Water-Reducing Admixture: ASTM C 494, Type A

9.4 High-Range, Water-Reducing Admixture: ASTM C 494, Type F

9.5 Water-Reducing and Accelerating Admixture: ASTM C 494, Type E

10. WATERSTOPS

Flexible Rubber Waterstops: CE CRD-C 513, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

11. VAPOR RETARDERS

11.1 Membrane for installation beneath slabs on grade, resistant to decay when tested in accordance with ASTM E Class A.

12. CURING MATERIALS

12.1 Liquid Curing Compounds
Curing and sealing compounds: Comply with ASTM C 309, type 1, Class A or B.
Use Kure-N-Seal by Sonneborn, unless otherwise approved by the Architect.

13. CONCRETE MIXES

13.1 Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
Proportion normal-weight concrete according to ACI 211.1 and ACI 301.

13.2 Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.

13.3 Footings and Foundation Walls: Proportion normal-weight concrete mix as follows:
13.3.1 Compressive Strength (28 Days): 3000 psi (20.7 MPa)
13.3.2 Maximum Slump: 4 inches

13.4 Slab-on-Grade: Proportion normal-weight concrete mix as follows:
13.4.1 Compressive Strength (28 Days): 3000 psi (20.7 MPa)
13.4.2 Maximum Slump: 4 inches

13.5 Air Content: Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 2 to 4 percent, unless otherwise indicated.

14. FABRICATING REINFORCEMENT

14.1 Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice"

15. CONCRETE MIXING

15.1 Ready-Mixed Concrete: Measure, batch mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.
15.1.1 When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.

PART 3 – EXECUTION

16. FORMWORK

16.1 Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

16.2 Construct forms tight enough to prevent loss of concrete mortar.

16.3 Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

16.4 Chamfer exterior corners and edges of permanently exposed concrete.

16.5 Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

16.6 Clean forms and adjacents surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

16.7 Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

17. EMBEDDED ITEMS

17.1 Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

17.1.1 Install anchor bolts, accurately located, to elevations required.

18. VAPOR RETARDERS

18.1 Vapor Retarder: Place, protect, and repair vapor-retarder sheets according to ASTM E 1643 and manufacturer's written instructions.

19. STEEL REINFORCEMENT

19.1 General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

19.1.1 Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

19.2 Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.

19.3 Accurately position, support, and secure reinforcement according to AWS D1.4, where indicated.

19.4 Set wires ties ends directed into concrete, not toward exposed concrete surfaces.

19.5 Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

20. JOINTS

20.1 General: Construct joints true to line with faces perpendicular to surface plane of concrete.

20.2 Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

20.2.1 Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.

20.2.2 Form from performed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.

20.2.3 Locate joints for beams, slabs, joints, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

20.2.4 Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

20.3 Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct construction joints for a depth equal to at least one-fourth of concrete thickness, as follows:

20.3.1 Sawed Joints: Form contradiction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contradiction cracks.

21. WATERSTOPS

21.1 Flexible Waterstops: Install in construction joints as indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of Work. Field-fabricate joints in waterstops according to manufacturer's written instructions.

22. CONCRETE PLACEMENT

22.1 Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

22.2 Before placing concrete, water may be added at Project site, subject to limitations of ACI 301. Do not add water to concrete after adding high-range water-reducing admixtures to mix.

22.3 Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.

22.4 Deposit concrete in forms in horizontal layers no deeper than 24 inches, and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.

22.4.1 Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.

22.4.2 Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceeding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.

22.5 Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

22.5.1 Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

22.5.2 Maintain reinforcement in position on chairs during concrete placement.

22.5.3 Screed slab surfaces with a straightedge and strike off to correct elevations.

22.5.4 Slope surfaces uniformly to drains where required.

22.5.5 Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plan, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

22.6 Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing action, or low temperatures.

22.6.1 When air temperature has fallen to or is expected to fall below 40 degrees F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F and not more than 80 degrees F at point of placement.

22.6.2 Do not use frozen subgrade or on subgrade containing frozen materials.

22.6.3 Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemicals accelerators, unless otherwise specified and approved in mix designs.

22.7 Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:

22.7.1 Cool ingredients before mixing to maintain concrete temperature below 90 degrees F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

22.7.2 Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

22.7.3 Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

23. FORM-FACING MATERIALS

23.1 Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:

23.1.1 Cool ingredients before mixing to maintain concrete temperature below 90 degrees F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

23.1.2 Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

23.1.3 Fog-spray forms, steel reinforcement, and subgrade just before placing Concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

24. FINISHING FORMED SURFACES

24.1 Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.

24.2 Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

25. FINISHING FLOORS AND SLABS

25.1 General: Comply with recommendations in ACI 302.1R for screeding, restraitening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

25.2 Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

25.2.1 Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

25.3 Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

25.3.1 Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.

25.3.2 Finish surfaces to the following tolerances, measured within 24 hours according to ASTM E 1155 / E 1155M for a randomly trafficked floor surface.

25.3.3 Finish and measure surface so gap at any point between concrete surface and an unleveled freestanding 10-foot- long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed the following: 1/4 inch.

26. CONCRETE PROTECTION AND CURING

26.1 General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.

26.2 Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./squ. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

26.3 Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:

26.3.1 Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a secont coat. Maintain continuity of coating and repair damage during curing period.

27. FIELD QUALITY CONTROL

27.1 Testing Agency: Engage a qualified independent testing and inspecting agency to sample materials, perform test, and submit test reports during concrete placement according to requirements specified in this Article.

27.2 Testing Service: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

27.2.1 Testing Frequency: Obtain at least on composite sample for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.

27.2.2 Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.

27.2.3 Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.

27.2.4 Compression Test Specimen's: ASTM C 31 / C 31M; cast and laboratory cure one set of four standard cylinder specimens for each composite sample.

27.2.5 Compressive-Strength Tests: ASTM C 39; test two laboratory-cured specimens at seven (7) days and two at twenty-eight (28) days.

A. Test two field-cured specimens at seven (7) days and two at twenty-eight (28) days.

B. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.

Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within fourty-eight (48) hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete batch in Work, design compressive strength at twenty-eight (28) days, concrete mix proportions and materials, compressive breaking strength, and type of break for both seven (7) and twenty-eight (28) day tests.

End of Section 033000

SECTION 042200

CONCRETE MASONRY UNIT

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes:

A. Concrete Unit Masonry

B. Ground Face Architectural Masonry Units (Exterior Wall Facing)

C. Mortar and grout

D. Steel reinforcing bars

E. Masonry joint reinforcement

F. Ties and anchors

G. Embedded flashing

H. Miscellaneous masonry accessories

3. RELATED SECTIONS

Division 07 Section “Sheet Metal Flashing and Trim” for sheet metal flashing.

4. DEFINITIONS

4.1 CMU(s): Concrete masonry unit(s).

4.2 Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

5. SUBMITTALS

5.1 Product Data: For each type of product indicated.

5.2 Material Certificates: For each type and size of the following:

5.2.1 Masonry units

A. Include data on material properties.

B. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.

5.2.2 Cementitious materials. Include brand, type, and name of manufacturer.

5.2.3 Pre-blended, dry mortar mixes. Include description of type and proportions of ingredients.

5.2.4 Grout mixes. Include description of type and proportions of ingredients.

5.2.5 Reinforcing bars

5.2.6 Joint reinforcement

5.2.7 Anchors, ties, and metal accessories

5.3 Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

5.3.1 Include test reports for mortar mixes required to comply with property specification. Test according to ATSM C 1506 for water retention, and ASTM C 91 for air content.

5.3.2 Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

6. QUALITY ASSURANCE

6.1 Source Limitations for Masonry Units: Obtain exposed masonry of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

6.2 Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

6.3 Masonry Standard: Comply with ACI 530.1 / ASCE 6 / TMS 602 unless modified by requirements in the Contract Documents. General accepted construction practices must meet IBC standards and shall meet or exceed ASTM specifications and shall be installed in accordance with the standards and methods of the Masonry Institute of America.

7. DELIVERY, STORAGE, AND HANDLING

7.1 Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides and stack with waterproof sheeting, securely tied. If units became wet, do not install until they are dry.

7.2 Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

7.3 Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

7.4 Deliver pre-blended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store pre-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in dry location or in covered weatherproof dispensing silos.

7.5 Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

8. PRODUCT CONDITIONS

8.1 Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

8.1.1 Extend cover a minimum of 24 inches down both sides of walls and hold cover securely in place.

8.2 Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three (3) days after building masonry walls or columns.

8.3 Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

8.3.1 Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.

8.3.2 Protect sills, ledges, and projections from mortar droppings.

8.3.3 Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.

8.3.4 Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

8.4 Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1 / ASCE 6 / TMS 602.

8.4.1 Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 degrees F and higher, and will remain so until masonry has dried, but not less than seven (7) days after completing cleaning.

8.5 Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1 / ASCE 6 / TMS 602.

PART 2 – PRODUCTS

9. MASONRY UNITS, GENERAL

Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

10. CONCRETE MASONRY UNITS

10.1 Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

10.1.1 Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

10.1.2 Provide bullnose units for outside corners and window sills unless otherwise indicated.

10.1.3 The Concrete Masonry Units shall be scored to look like 8” x 8” units. This is only required where the finished block is visible.

10.2 CMUs: ASTM C 90:

10.2.1 Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi.

10.2.2 Density Classification: Light weight.

10.2.3 Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.

10.3 Ground Face Architectural Masonry Units (Exterior Wall Facing):

10.3.1 Trendstone premium ground face architectural masonry units

10.3.2 Manufacturer: Trenwyth Industries, Morris, Illinois (800) 358-3003

10.3.3 Size: As indicated on drawings

11. MASONRY LINTELS

11.1 Provide one of the following:

11.1.1 Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs with reinforcing bars place as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

12. MORTAR AND GROUT MATERIALS

12.1 Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

12.2 Hydrated Lime: ASTM C 207, Type S

12.3 Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.

12.4 Aggregate for Mortar: ASTM C 144

12.4.1 For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.

12.4.2 For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

12.5 Aggregate for Grout: ASTM C 404

12.6 Cold-Weather Admixture: Non-chloride, non-corrosive, accelerating admixture comply with ASTM C 494 / C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

12.6.1 Products: Subject to compliance with requirements, provide one of the following:

A. Euclid Chemical Company (The); Accelguard 80

B. Grace Construction Products, W.R. Grace & Co. – Conn.; Morset

C. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA

12.7 Water: Potable

13. REINFORCEMENT

13.1 Uncoated Steel Reinforcing Bars: ASTM A 615 / A 615M or ASTM A 996 / A 996 M, Grade 60 (Grade 420)

13.2 Masonry Joint Reinforcement, General: ASTM A 951 / A 951M

A. Interior Walls: Hot-dip steel

B. Exterior Walls: Hot-dip steel

C. Wire Size for Side Rods: 0.148-inch diameter

D. Wire Size for Cross Rods: 0.148-inch diameter

E. Wire Size for Veneer Ties: 0.148-inch diameter

F. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.

G. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units

13.3 Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

14. MISCELLANEOUS ANCHORS

14.1 Anchor Bolts: L-shaped bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153 / A 153M, Class C; of dimensions indicated.

14.1.1 Load Capacity: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

14.1.2 Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5 unless otherwise indicated.

15. EMBEDDED FLASHING MATERIALS

15.1 Metal Flashing: Provide metal flashing complying with Division 07 Section “Sheet Metal Flashing and Trim” and as follows:

15.1.1 Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.

15.1.2 Fabricate through-wall flashing with snap-lock receiver on exterior face where indicated to receive counter flashing.

15.1.3 Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.

15.1.4 Fabricate through-wall flashing with sealant stop where indicated. Fabricate by bending metal back on itself 3/4 inch at exterior face of wall and down into joint 1/4 inch to form a stop for retaining sealant backer rod.

15.1.5 Fabricate metal drip edges for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending at least 3 inches into wall with hemmed inner

edge to receive ribbed flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam will shed water.

15.2 Flexible Flashing: Use one of the following unless otherwise indicated:

15.2.1 Copper-Laminated Flashing: 5 oz. / squ. ft. copper sheet bonded between two (2) layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.

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

1) Advanced Building Products, Inc.; Copper Fabric Flashing

2) Dayton Superior Corporation, Dur-O-Wal Division; Copper Fabric Thru-Wall Flashing

3) Hohmann & Barnard, Inc.; H & B C-Fab Flashing

4) Phoenix Building Products; Type FCC-Fabric Covered Copper

5) Sandell Manufacturing Co., Inc.; Copper Fabric Flashing

6) York Manufacturing, Inc.; Multi-Flash 500

15.2.2 Asphalt-Coated Copper Flashing: 5-oz./squ. ft. copper sheet coated with flexible asphalt. Use only where flashing is fully concealed in masonry.

A. Products: Subjects to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1) Advanced Building Products, Inc.; Cop-R-Cote

2) Dayton Superior Corporation, Dur-O-Wal Division; Copper Coated Thru-Wall Flashing

3) Hohmann & Barnard, Inc.; H & B C-Fab Flashing

4) Phoenix Building Products; ACC-Asphalt Bituminous Coated

5) Sandell Manufacturing Co., Inc.; Copper Fabric Flashing

15.2.3 Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.040 inch.

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

1) Advanced Building Products, Inc.; Peel-N-Seal

2) Carlisle Coatings & Wallerproofing; CCW-705-TWF Thru-Wall Flashing

3) Dayton Superior Corporation, Dur-O-Wal Division; Dur-O-Barrier Thru-Wall Flashing

4) Fiberweb, Clark Hammerbeam Corp.; Aquaflash 500

5) Grace Construction Products, W.R. Grace & Co. – Conn.; Perm-A-Barrier Wall Flashing

6) Heckmann Building Products, Inc.; No. 82 Rubberized-Asphalt Thru-Wall Flashing

7) Hohmann & Barnard, Inc.; Textroflash

8) W.R. Meadows, Inc.; Air-Sheild Thru-Wall Flashing

9) Polyguard Products, Inc.; Polyguard 400

10) Sandell Manufacturing Co., Inc.; Sando-Seal

11) Williams Products, Inc.; Everlastic MF-40

B. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.

5.3 Application: Unless otherwise indicated, use the following:

5.3.1 Where flashing is indicated to receive counterflashing, use metal flashing.

5.3.2 Where flashing is indicated to be turned down at or beyond the wall face, use metal flashing.

5.3.3 Where flashing is partly exposed and is indicated to terminate at the wall face, use metal flashing with a drip edge.

5.3.4 Where flashing is fully concealed, use metal flashing or flexible flashing.

5.4 Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or projects recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

15. MISCELLANEOUS MASONRY ACCESSORIES

15.1 Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene urethane or PVC.

15.2 Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 or PVC, complying with ASTM D 2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

15.3 Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

15.4 Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide designed for number or bars indicated.

15.4.1 Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, to following:

A. Dayton Superior Corporation, Dur-O-Wal Division; D/A 810, D/A 812 or D/A 817.

B. Heckmann Building Products, Inc.; No 376 Rebar Positioner

C. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner

D. Wire-Bond; O-Ring or Double O-Ring Rebar Positioner

16. MORTAR AND GROUT MIXES

16.1 General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

16.1.1 Do not use calcium chloride in mortar or grout.

16.1.2 Use Portland cement-lime mortar unless otherwise indicated.

16.1.3 For exterior masonry, use Portland cement-lime mortar.

16.1.4 For reinforced masonry, use Portland cement-lime mortar.

16.1.5 Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

16.2 Pre-blended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a pre-blended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

16.3 Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

16.3.1 For reinforced masonry, use Type S

16.3.2 For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type S.

16.3.3 For interior non-load-bearing partitions, Type O may be used instead of Type S.

16.4 Grout for Unit Masonry: Comply with ASTM with ASTM C 476.

16.4.1 Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1 / ASCE 6 / TMS 602 for dimensions of grout spaces and pour height.

16.4.2 Proportion grout in accordance with ASTM C 476, paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2500 psi.

16.4.3 Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143 / C 143M.

PART 3 – EXECUTION

17. EXAMINATION

17.1 Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

17.1.1 For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the work.

17.1.2 Verify that foundations are within tolerances specified.

17.1.3 Verify that reinforcing dowels are properly placed.

17.2 Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

17.3 Proceed with installation only after unsatisfactory conditions have been corrected.

18. INSTALLATION, GENERAL

18.1 Build chases and recesses to accommodate items specified in this and other Sections.

18.2 Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

18.3 Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, un-chipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

19. TOLERANCES

19.1 Dimensions and Locations of Elements:

19.1.1 For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.

19.1.2 For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.

19.1.3 For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

19.2 Lines and Levels:

19.2.1 For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.

19.2.2 For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.

19.2.3 For conspicuous vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.

19.2.4 For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.

19.2.5 For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.

19.2.6 For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.

20. JOINTS

20.1 For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.

20.2 For exposed bed joints, do not vary from bed-joint thickness indicated by more than plus 38 inch or minus 14 inch.

20.3 For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.

20.4 For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.

21. LAYING MASONRY WALLS

21.1 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and where possible, at other locations.

21.2 Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

21.3 Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

21.4 Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar before laying fresh masonry.

21.5 Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly and masonry around built-in items.

21.6 Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

21.7 Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

21.8 Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.

21.8.1 Install compressible filler in joint between top of partition and underside of structure above. See plans for fire rated assemblies.

21.8.2 Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.

22. MORTAR BEDDING AND JOINTING

21.1 Lay hollow CMUs as follows:

21.1.1 With face shells fully bedded in mortar and with head joints of depth equal to bed joints.

21.1.2 With webs fully bedded in mortar in all courses of piers, columns, and pilasters.

21.1.3 With webs fully bedded in mortar in grouted masonry, including starting course on footings.

21.1.4 With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

21.2 Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

21.3 Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

21.4 Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

23. MASONRY JOINT REINFORCEMENT

23.1 General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 12 inch elsewhere. Lap reinforcement a minimum of 6 inches.

23.1.1 Space reinforcement not more than 16 inches o.c.

23.1.2 Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.

23.1.3 Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond in addition to continuous reinforcement.

23.2 Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

23.2 Provide continuity at wall intersections by using prefabricated T-shaped units.

23.3 Provide continuity at corners by using prefabricated L-shaped units.

23.4 Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets column fireproofing, pipe enclosures, and other special conditions.

24. CONTROL AND EXPANSION JOINTS

24.1 General: Install control and expansion joint material in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

24.2 Form control joints in concrete masonry using one of the following methods:

24.2.1 Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout and rake out joints in exposed faces for application of sealant.

24.2.2 Install preformed control-joint gaskets designed to fit standard sash block.

24.2.3 Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.

25. LINTELS

25.1 Provide masonry lintels where shown and where openings of more than twelve (12) inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.

25.2 Provide minimum bearing of eight (8) inches at each jamb unless otherwise indicated.

26. FLASHING

26.1 General: Install embedded flashing in masonry at lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

26.2 Install flashing as follows unless otherwise indicated:

26.2.1 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed or mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

26.2.2. At lintels, extend flashing a minimum of six (6) inches at ends and turn up not less than two (2) inches to form end dams.

26.2.3 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches, or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 07 Section “Joint Sealants” for application indicated.

26.2.4 Install metal drip edges with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements of Division 07 Section “Joint Sealants” for application indicated.

26.2.5 Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.

26.2.6 Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal flashing termination.

26.2.7 Cut flexible flashing off flush with face of wall after masonry wall construction is completed.

26.3 Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer’s written instructions. Install CMU cell pans with upturned edges

located below face shells and webs of CMUs above and with weep sprouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.

26.4 Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

27. REINFORCED UNIT MASONRY INSTALLATION

27.1 Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

27.1.1 Construct formwork to provide shape, line and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

27.1.2 Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction**.**

27.2 Placing Reinforcement: Comply with requirements in ACI 530.1 / ASCE 6 / TMS 602.

27.3 Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

27.3.1 Comply with requirements in ACI 530.1 / ASCE 6 / TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

27.3.2 Limit height of vertical grout pours to not more than 48 inches.

28. REPAIRING, POINTING, CLEANING, AND WATERPROOFING

28.1 Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

28.2 Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

28.3 In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

28.4 Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

28.4.1 Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.

28.4.2 Test cleaning methods on sample wall panel; leave one-half of panel un-cleaned for comparison purposes. Obtain Architect’s approval of sample cleaning before proceeding with cleaning of masonry.

28.4.3 Protect adjacent stone non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.

28.4.4 Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.

28.4.5 Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

28.5 Waterproofing: After exterior block or brick is cleaned and moisture has left the face, the entire new exterior face shall be coated with a clear, aqueous silane/polysiloxane blend, penetrating type waterproofing. Product formula shall be specialized for type units. Apply in accordance with manufacturer's instructions.

29. MASONRY WASTE DISPOSAL

29.1 Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

29.2 Excess Masonry Waste: Remove excess clean masonry waste that cannot be used and legally dispose of Owner's property.

End of Section 042200

SECTION 042550

BRICK MASONRY

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes:

A. Face brick

B. Mortar and grout

C. Ties and anchors

D. Embedded flashing

E. Miscellaneous masonry accessories

2.2 Related Sections:

A. Division 03 Section "Cast-in-Place Concrete"

B. Division 05 Section "Metal Fabrication" for furnishing steel lintels and shelf angles for brick masonry.

C. Division 07 Section "Sheet Metal Flashing and Trim" for sheet metal flashing and for furnishing manufactured reglets installed in masonry joints.

3. SUBMITTALS

3.1 Product Data: For each type of product indicated.

3.2 Samples for Selection and Verification:

3.2.1 Unit masonry samples showing the full range of colors for each masonry unit specified.

3.2.2 Submittal is for information only. Neither receipt of list nor approval of mock-up constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of the Architect and approved in writing.

3.3 Material Certificates: For each type and size of the following:

3.3.1 Masonry Units

A. Include data on material properties.

B. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.

C. For exposed brick, include test report for efflorescence according to ASTM C 67.

3.3.2 Cementitious materials. Include brand, type, and name and manufacturer. Pre-blended, dry mortar mixes. Include description of type and proportions of ingredients. Grout mixes. Include description of type and proportions of ingredients. Anchors, ties, and metal accessories.

3.4 Cold-Weather and Hot-Weather Procedures: Details description of methods, materials, and equipment to be used to comply with requirements.

4. QUALITY ASSURANCE

4.1 Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges acceptable for these characteristics, from single source from single manufacturer for each product required.

4.2 Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

4.3 Masonry Standard: Comply with ACI 530.1 / ASCE 6 / TMS 602 unless modified by requirements in the Contract Documents.

4.4 Mock-ups: Build mock-ups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

4.4.1 Build mock-up of typical wall area as shown on Drawings.

4.4.2 Build mock-ups for each type of exposed until masonry construction in sizes approximately 48 inches high by 60 inches long by full thickness, including accessories.

A. Provide a sealant-filled joint at least 16 inches long for approval.

B. Include through-wall flashing installed with a 12-inch length of flashing left exposed to view (omit masonry above half of flashing).

C. Include metal studs, sheathing, building wrap, building paper, sheathing joint-and-penetration treatment, veneer anchors, flashing, cavity drainage material, and weep holes in mock-up.

4.4.3 Where masonry is to match existing, erect mock-ups adjacent and parallel to existing surface.

4.4.4 Clean exposed faces of mock-ups with masonry cleaner as indicated.
Protect accepted mock-ups from the elements with weather-resistant membrane.
Approval of mock-ups is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetics qualities of workmanship.

A. Approval of mock-ups is also for other material and construction qualities specifically approved by Architect in writing.

B. Approval of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless such deviations are specifically approved by Architect in writing.

4.4.5 Approved mock-ups may become part of the completed Work if undisturbed at time of Substantial Completion.

5. DELIVERY, STORAGE, AND HANDLING

5.1 Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

5.2 Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

5.3 Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

5.4 Deliver pre-blended, dry mortar mix in moisture-resistant containers designed to use with dispensing silos, Store pre-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.

5.5 Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

6. PROJECT CONDITIONS

6.1 Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

6.1.1 Extend cover a minimum of 24 inches down both sides of walls and hold cover securely in place.

6.2 Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come into contact with such masonry.

6.2.1 Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.

6.2.2 Protect sills, ledges, and projections from mortar droppings.

6.2.3 Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.

6.2.4 Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

6.3 Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1 / ASCE 6 / TMS 602.

6.3.1 Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 degrees F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

6.4 Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1 / ASCE 6 / TMS 602.

PART 2 – PRODUCTS

7. MASONRY UNITS, GENERAL

7.1 Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

7.2 Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

8. BRICK

8.1 General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units.

8.1.1 For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.

8.1.2 Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at corners, movement joints, bond beams, sashes and lintels.

8.1.3 Provide special shapes for application requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.

8.1.4 Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

8.2 Face Brick: Facing brick complying with ASTM C 216.

8.2.1 Products: Subject to compliance with requirements, provide the following:
Terra Cotta Velour, modular, as manufactured by Cloud Ceramics.
8.2.2 Grade:
8.2.3 Type:
8.2.4 Initial Rate of Absorbtion: Less than xx...
8.2.3 Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated “not efflorescenced”.
8.2.3 Application: Use where brick is exposed unless otherwise indicated.

9. MORTAR MATERIALS

9.1 Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

9.2 Hydrated Lime: ASTM C 207, Type N above grade and Type S below grade.

9.3 Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.

9.4 Aggregate for Mortar: ASTM C 144
For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

9.5 Cold-Weather Admixture: Non-chloride, non-corrosive, accelerating admixture complying with ASTM C 494 / C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

9.5.1 Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

A. Euclid Chemical Company (The); Accelguard 80

B. Grace Construction Products, W. R. Grace & Co. – Conn.; Morset

C. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA

9.6 Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with concrete masonry units, containing integral water repellent by same manufacturer.

9.6.1 Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

A. ACM Chemistries, Inc.; RainBloc for Mortar

B. BASF Aktiengesellschaft; Rheopel Mortar Admixture

C. Grace Construction Products, W. R. Grace & Co. – Conn.; Morset

10. REINFORCEMENT

10.1 Masonry Joint Reinforcement, General: ASTM A 951 / A 951M

10.2 Masonry Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.187-inch- diameter, hot-dip galvanized, carbon steel continuous wire.

11. TIES AND ANCHORS

11.1 Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

11.1.1 Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 1008 / A82M, Commercial Steel, with ASTM A 153 / A 153M, Class B coating.

11.1.2 Steel Sheet, Galvanized after Fabrication: ASTM A 1008 / A 1008M, Commercial Steel, with ASTM A 153 / A 153M, Class B coating.

11.2 Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through the veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend two (2) inches parallel to face of veneer.

11.3 Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

11.4 Adjustable Masonry-Veneer Anchors:

11.4.1 General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over concrete or concrete block, and as follows:

A. Structural Performance Characteristics: Capable of withstanding a 100 lbf (445-N) load in both tension and compression without deforming or developing play in excess of 0.05 inch.

11.4.2 Contractor's Option: Unless otherwise indicated, provide any of the following types of anchors:

11.4.3 Masonry-Veneer Anchors: Units consisting of a wire tie and metal anchor section.

A. Products: Subject to compliance with requirements, provide one of the following:

1) Dayton Superior Corporation, Dur-O-Wal Division; D/A 210 / A 700
2) Heckman Building Products, Inc.; 132/316
3) Hohman & Bernard, Inc.; DW 10-HS

B. Fabricate sheet metal anchor sections and other sheet metal parts from 0.078-inch thick, steel sheet, galvanized after fabrication.

C. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.25-inch diameter, hot-dip galvanized steel wire.

12. EMBEDDED FLASHING MATERIALS

12.1 Metal Flashing: Provide metal complying with Division 07 Section "Sheet Metal Flashing and Trim", and as follows:

12.1.1 Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.

12.1.2 Fabricate through-wall metal flashing embedded in masonry with ribs at 3-inch intervals along length of flashing to provide an integral mortar bond.

A. Products: Subject to compliance with requirements, availability products that may be incorporated into the Work include, but are not limited to, the following:

1) Cheney Flashing Company; Cheney Flashing or Cheney 3-Way Flashing (Sawtooth)

2) Keystone Flashing Company, Inc.; Keystone 3-Way interlocking Thruwall Flashing

3) Sandell Manufacturing Co., Inc.; Mechanically Keyed Flashing

12.1.3 Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counter flashing.

12.1.4 Fabricate through-wall flashing with drip edge unless otherwise indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.

12.1.5 Fabricate through-wall flashing with sealant stop where indicated. Fabricate by bending metal back on itself 34 inch at exterior face of wall and down into joint 14 inch to form a stop for retainging sealant backer rod.

12.1.6 Fabricate metal drip edges for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending.

12.2 Flexible Flashing: Use one of the following unless otherwise indicated:

12.2.1 Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.030 inch.

A. Products: Subject to compliance with requirements, provide one of the following:

1) Advanced Building Products, Inc.; Peel-N-Seal

2) Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing

3) Dayton Superior Corporation, Dur-O-Wal Division; Dur-O-Barrier Thru-Wall Flashing

4) Fiberweb; Clark Hammerbeam Corp.; Aquaflash 500

5) Grace Construction Products, WR Grace & Co. –

Conn.; Perm-A-Barrier Wall Flashing

6) Heckmann Building Products, Inc.; No. 82 Rubberized-Asphalt Thru-Wall Flashing

7) Hohmann & Barnard, Inc.; Textroflash

8) W. R. Meadows, Inc.; Air-Sheild Thru-Wall Flashing

9) Polyguard Products, Inc.; Polyguard 300

10) Sandell Manufacturing Co., Inc.; Sando-Seal

11) Williams Products, Inc.; Everlastic MF-40

B. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.

13. MISCELLANEOUS MASONRY ACCESSORIES

13.1 Compressible Filler: Pre-molded filler strips complying with ASTM D 1056, Grade 2A1; Compressible up to 35 percent; of width and thickness indicated; formulated from neoprene urethane or PVC,

13.2 Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

13.3 Weep / Vent Products: Use the following unless otherwise indicated:

13.3.1 Wicking Material: Absorbent rope, made from cotton or UV-resistant synthetic fiber, 14 to 38 inch in diameter, in length required to produce 2-inch exposure on exterior and 18 inches in cavity. Use only for weeps.

13.4 Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

13.4.1 Products: Subject to compliance with requirements, provide one of the following:

A. Dayton Superior Corporation, Dur-O-Wal Division; Mortar Net

B. Mortar Net USA, Ltd.; Mortar Net

13.4.2 Provide one of the following configurations:

A. Strips, full-depth of cavity and 10 inches high, with dovetail shaped notches 7 inches deep that prevent clogging with mortar droppings.

14. MASONRY CLEANERS

14.4 Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar / grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

14.4.1 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. Diedrich Technologies, Inc.

B. EaCo Chem, Inc.

C. ProSoCo, Inc.

15. MORTAR MIXES

15.4 General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

15.4.1 Do not use calcium chloride in mortar.

15.4.2 Use Portland cement-lime mortar unless otherwise indicated.

15.4.3 Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

PART 3 – EXECUTION

16. EXAMINATION

16.4 Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

16.5 Proceed with installation only after unsatisfactory conditions have been corrected.

17. INSTALLATION, GENERAL

17.1 Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

17.2 Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces, and where possible, cut edges concealed.

17.3 Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

17.6.1 Mix units from several pallets or cubes as they are packed.

17.4 Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

17.5 Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g / 30 sq. in. Per minute when tested per ASTM C 67. Allow units to absorb water so that they are damp but not wet at time of laying.

18. TOLERANCES

18.1 Dimensions and Locations of Elements

18.1.1 For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.

18.1.2 For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.

18.1.3 For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height, or 1/2 inch total.

18.2 Lines and Levels

18.2.1 For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.

18.2.2 For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.

18.2.3 For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.

18.2.4 For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.

18.2.5 For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.

18.2.6 For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.

18.2.7 For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

18.3 Joints

18.3.1 For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch; do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.

18.3.2 For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.

18.3.3 For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

19. LAYING MASONRY WALLS

19.1 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thickness and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

19.2 Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond pattern and as indicated on Drawings; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

19.3 Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

19.4 Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

19.5 Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

20. MORTAR BEDDING AND JOINTING

20.1 Lay hollow brick as follows:

20.1.1 With face shells fully bedded in mortar and with head joints of depth equal to bed joints.

20.1.2 With entire units, including areas under cells, fully bedded in mortar at starting course on footings.

20.2 Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

20.3 Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

21. ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:

21.1 Provide a space not less than 3 inch wide between masonry and concrete or block unless otherwise indicated. Keep open space free of mortar.

21.2 Anchor masonry with anchors embedded in masonry joints and attached to structure.

22. ANCHORING MASONRY VENEERS

Anchor masonry veneers to concrete back-up with masonry-veneer anchors to comply with the following requirements:

22.1 Fasten anchors to concrete back-up with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.

22.2 Embed tie sections in masonry joints. Provide not less than 1 inches of air space between back of masonry veneer and face of rigid insulation.

22.3 Locate anchor sections to allow maximum vertical differential movement ties up and down.

22.4 Space anchors as indicated, but not more than 18 inches o.c. vertically and 24 inches o.c. horizontally, with not less than 1 anchor for each 2 sq. ft. of wall area. Install additional anchors with 12 inches of openings and at intervals, not exceeding 8 inches, around perimeters.

23. EXPANSION JOINTS

23.1 General: Install expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span expansion joints without provision to allow for in-plane wall or partition movement.

23.2 Form expansion joints in brick as follows:

23.2.1 Build flanges of metal expansion strips into masonry. Lap each joint 4 inches direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.

23.2.2 Build flanges of factory-fabricated, expansion-joint units into masonry.

23.2.3 Build in compressible joint fillers where indicated.

23.2.4 Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch for installation of sealant and backer rod specified in Division 07 Section "Joint Sealants".

23.3 Provide horizontal, pressure-relieving joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Joint Sealants".

23.3.1 Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

24. EXPANSION JOINTS

24.1 General: Install expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span expansion joints without provision to allow for in-plane wall or partition movement.

24.2 Form expansion joints in brick as follows:

24.2.1 Build flanges of metal expansion strips into masonry. Lap each joint 4 inches in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.

24.2.2 Build flanges of factory-fabricated, expansion-joint units into masonry.

24.2.3 Build in compressible joint fillers where indicated.

24.2.4 Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch for installing sealant and backer rod specified in Division 07 Section "Joint Sealants", but not less than 3/8 inch.

24.3 Provide horizontal, pressure-relieving joints by either leaving an air space, or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Joint Sealants", but not less than 3/8 inch.

24.3.1 Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

25. LINTELS

25.1 Install galvanized steel lintels where indicated.

25.2 Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

26. FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

26.1 General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

26.2 Install flashing as follows unless otherwise indicated:

26.2.1 Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed or mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

26.2.2 At masonry-veneer walls, extend flashing through veneer, across air space behind veneer, and up face of sheathing at least 8 inches; with upper edge tucked under building paper or building wrap, lapping at least 4 inches.

26.2.3 At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.

26.2.4 Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 07 Section “Joint Sealants” for application indicated.

26.2.5 Install metal drip edges and sealant stops with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Division 07 Section “Joint Sealants” for application indicated.

26.2.6 Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.

26.2.7 Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal flashing termination.

26.2.8 Cut flexible flashing off flush with face of wall after masonry wall construction is completed.

26.3 Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

26.4 Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:

26.4.1 Use specified weep to form weep holes.

26.4.2 Use wicking material to form weep holes above flashing under brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.

26.4.3 Space weep holes 24 inches o.c. unless otherwise indicated.

26.4.4 Trim wicking material flush with outside face of wall after mortar has set.

26.5 Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.
26.5.1 Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

27. FIELD QUALITY CONTROL

26.1 Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspection. Retesting of materials that fail to meet specified requirements shall be done at Contractor's expense.

26.2 Inspections: Level 1 special inspections according to the "International Building Code".
26.2.1 Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.

26.3 Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.

28. REPAIRING, POINTING, AND CLEANING

28.1 Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

28.2 Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

28.3 In-Progress Cleaning: Cleaning unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

28.4 Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
28.4.1 Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

28.4.2 Test cleaning methods on sample wall panel; leave one-half of panel un-cleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

28.4.3 Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.

28.4.4 Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.

28.4.5 Clean brick by bucket-and-brush hand-cleaning method described in "BIA Technical Notes 20".

28.4.6 Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

28.4.7 Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

28.4.8 Clean stone trim to comply with stone supplier's written instructions.

28.4.9 Clean limestone units to comply with recommendations in ILI's "Indiana Limestone Handbook"

28.5 Brick Sealant: Specified in Painting Section 099123.

29. MASONRY WASTE DISPOSAL

29.1 Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

29.2 Excess Masonry Waste: Remove excess clean masonry waste and other masonry waste, and legally dispose of off Owner's property.

End of Section 042500

SECTION 015200

STRUCTURAL STEEL FRAMING

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 This Section includes structural steel.

2.2 Related Sections: The following Sections contain requirements that relate to this Section:

2.2.1 Division 9 Section "Painting" for surface preparation and priming requirements.

2.2.2 Division 14 Section "Hydraulic Elevators" for attachment plates, angle brackets, and other preparation of structural steel for fastening guide-rail brackets.

2.2.3 Structural-steel shapes for subsills that are part of steel frame.

3. SUBMITTALS

3.1 General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

3.2 Shop Drawings detailing fabrication of structural steel components.

3.2.1 Include details of cuts, connections, splices, camber, holes, and other pertinent data.

3.2.2 Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.

3.2.3 Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify high-strength bolt slip-critical, direct-tension, or tensioned shear/bearing connections.

4. QUALITY ASSURANCE

4.1 Installer Qualifications: Engage an experienced Installer who has completed structural steel work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

4.2 Fabricator Qualifications: Engage a firm experienced in fabricating structural steel similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the Work.

4.3 Comply with applicable provisions of the following specifications and documents:

4.3.1 AISC's "Specification for Allowable Stress Design of Single-Angle Members"

4.3.2 AISC's "Specification for Load and Resistance Factor Design of Single-Angle Members"

4.3.3 AISC A 6 "Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use"

4.3.4 Research Council on Structural Connections (RCSC) "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts"

4.4 Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code-Steel"

5. DELIVERY, STORAGE, AND HANDLING

5.1 Deliver structural steel to Project site in such quantities and at such times to ensure continuity of installation.

5.2 Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.

5.2.1 Store fasteners in a protected place. Clean and relubricate bolts and nuts that become dry or rusty before use.

5.2.2 Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

6. SEQUENCING

Supply anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

PART 2 – PRODUCTS

7. MATERIALS

7.1 Structural Steel Shapes, Plates, and Bars: As follows:
Carbon Steel: ASTM A 36

7.2 Cold-Formed Structural Steel Tubing: ASTM A 500, Grade B (Fy = 46 ksi)

7.3 Anchor Rods, Bolts, Nuts, and Washers: As follows:

7.3.1 Headed Bolts: ASTM A 307, Grade A; carbon-steel, hex-head bolts; and carbon-steel nuts.

7.3.2 Headed Bolts: ASTM A 325, Type 1, heavy hex steel structural bolts and heavy hex carbon-steel nuts.

7.3.3 Washers: ASTM A 36

8. PRIMER

Primer: SSPC-Paint 15, Type I, red oxide.

9. FABRICATION

9.1 Fabricate and assemble structural steel in shop to the greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.

9.1.1 Camber structural steel members where indicated.

9.1.2 Mark and match-mark materials for field assembly.

9.1.3 Fabricate for delivery a sequence that will expedite erection and minimize field handling priming operations.

9.1.4 Complete structural steel assemblies, including welding of units, before starting shop-priming operations.

9.1.5 Comply with fabrication tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.

9.2 Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
9.2.1 Plane thermally cut edges to be welded.

9.3 Finishing: Accurately mill ends of columns and other members transmitting loads in bearing.

9.4 Steel Wall Framing: Select true and straight members for fabricating steel wall framing to be attached to structural steel framing. Straighten as required to provide uniform, square, and true members in completed wall framing.

9.5 Welded Door Frames: Select true and straight members for fabricating steel wall framing to be attached to structural steel framing. Straighten as required to provide uniform, square, and true members in completed wall framing.

9.6 Holes: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on Shop Drawings.
9.6.1 Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.

9.6.2 Weld threaded nuts to framing and other specialty items as indicated to receive other work.

10. SHOP CONNECTIONS

10.1 Shop install and tighten high-strength bolts according to RCSC's, "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts"

10.2 Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
10.2.1 Assemble and weld built-up sections by methods that will maintain true alignment of axes without warp.

11. SHOP PRIMING

11.1 Shop prime steel surfaces, except the following:
11.1.1 Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of two (2) inches.

11.1.2 Surfaces to be field welded.

11.1.3 Surfaces to be high-strength bolted with slip-critical connections.

11.1.4 Surfaces to receive sprayed-on fireproofing.

11.2 Surface Preparation: Clean surfaces to be painted. Remove loose rust, loose mill scale, and spatter, slag, or flux deposits. Prepare surfaces according to SSPC specifications as follows:
11.2.1 SSPC-SP 6 "Commercial Blast Cleaning"

11.3 Priming: Immediately after surface preparation, apply primer according to manufacturer's instructions and at rate recommended by SSPC to provide a dry film thickness of not less than 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

PART 3 – EXECUTION

12. EXAMINATION

12.1 Before erection proceeds, and with the steel erector present, verify elevations of concrete and masonry bearing surfaces and locations of anchorages for compliance with requirements.

12.2 Do not proceed with erection until unsatisfactory conditions have been corrected.

13. PREPARATION

13.1 Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads in equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place, unless otherwise indicated.

13.1.1 Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

14. ERECTION

14.1 Set structural steel accurately in locations and to elevations indicated and according to AISC specifications referenced in this Section.

14.2 Base and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.

14.2.1 Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.

14.2.2 Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.

14.2.3 Pack grout solidly between bearing surfaces and plates so no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.

A. Comply with manufacturer's instructions for proprietary grout materials.

14.3 Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

14.3.1 Level and plumb individual members of structure.

14.3.2 Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.

14.4 Splice members only where indicated.

14.5 Do not use thermal cutting during erection.

15. FIELD CONNECTIONS

15.1 Install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts".

15.2 Weld Connections: Comply with AWS D1.1 for procedures, appearance of quality of welds and methods used in correcting welding work.

15.2.1 Comply with AISC specifications referenced in this Section for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

16. CLEANING

16.1 Touch-up Painting: Cleaning and touch-up painting of field welds, bolted connections, and abraded areas of shop paint on structural steel are included in Division 9 Section "Painting".

End of Section 015200

SECTION 054100

COLD FORMED METAL FRAMING

PART 1 – GENERAL

1. QUALITY ASSURANCE

1.1 Welding: Qualify welding procedures and each welder in accordance with American Welding Society (AWS) D1.3, "Structural Welding Code – Sheet Steel"

1.1.1 Performance Requirements

A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.

B. Design Loads: As indicated.

C. Defection Limits: Design framing systems to withstand design loads without deflections greater than the following:

1) Interior wall framing: Horizontal deflection of 1/240 of the wall height under a horizontal load of 5 lbf/sq. ft.

2) Exterior Non-Load Bearing Framing: Horizontal deflection of 1/1600 of the wall height.

3) Exterior Non-Load Bearing Framing: (Masonry veneer conditions) Deflection limit of L/720, with metal studs to be 16 gauge.

PART 2 – PRODUCTS

2. COLD FORMED METAL FRAMINGS

2.1 Fabricate metal framing units from ASTM A 446, A 570, or A 611 steel sheet.

2.1.1 Finish: Galvanized (zinc-coated), Class G60, minimum.

2.2 C-Shaped Studs: Provide load-bearing studs fabricated from steel and sized as indicated; C-shaped in cross section, 1.625-inch flange, with flange return lip.

2.2.1 Exterior wall studs: 18-gauge steel sheet (Ref Structural drawings)

2.2.2 Interior wall studs: 25 gauge steel sheet type unless noted otherwise

2.3 Framing Accessories: Fabricate from minimum 16-gage steel sheet of the type and finish used for framing members.

2.3.1 Track channel

2.3.2 Vertical slide track

2.3.3 Flatt strapping

3. ACCESSORY MATERIALS

3.1 Welding Materials: Conform to requirements of AWS Code.

3.2 Fasteners:

3.2.1 Threaded Fasteners: ASTM A 90, hot-dip galvanized.

3.2.2 Anchorage Devices: Hot-dip galvanized steel or stainless steel. Acceptable types include:
A. Powder actuated fasteners
B. Power-driven anchor screws
C. Drilled expansion bolts

3.3 Sheathing: Gypsum sheathing, complying with ASTM C 79.
3.3.1 Type: Densglass Gold Exterior Sheathing Type-X
3.3.2 Thickness: See drawings and Section 07450
3.3.3 Fasteners: ASTM C 954; self-drilling, self-tapping, bugle head galvanized, or cadmium-plated steel screws.

3.4 Building Paper: ASTM D 226, Type I, asphalt-saturated organic felt, without perforations, 15 lb. nominal weight. See also Section 07450.

PART 3 – INSTALLATION

4. INSTALLATION – GENERAL

4.1 Comply with requirements of ASTM C 1007 except where exceeded by other requirements.

4.2 Install framing accessories such as web stiffeners, diagonal bracing, and bridging as indicated or required.

4.3 Fastening: Join components by welding or by using screws or bolts, as recommended by framing component manufacturer for members to be joined.
4.3.1 Wire tying of framing elements is prohibited.

5. WALL SHEATHING

5.1 Install sheathing so that long edges are parallel to studs. Center edges over studs.

5.2 Provide solid wood blocking or metal framing to support horizontal edges which do not bear on horizontal framing members.

5.3 Attach sheathing to each support, spacing screws at 4 inches on center at edge and end supports, and eight (8) inches on center at supports in field of sheathing board.

5.4 Coordinate installation of flashings, anchors, and similar items necessary to construct and weatherproof wall systems.

5.5 Apply vapor barrier over sheathing, lapping ends and edges three (3) inches, minimum. Use galvanized steel fasteners.

5.6 Install with a maximum allowable tolerance variation from plumb, and true to line of 1/8 inch in 10 feet.

End of Section 054100

SECTION 055210

PIPE AND TUBE RAILINGS

PART 1 – GENERAL

1. SUMMARY

Section Includes:

1.1 Pipe and tube railings

1.2 Shop coatings

2. PERFORMANCE REQUIREMENTS

2.1 Structural Performance Requirements: Where complete sizes or dimensions of structural members, connections, or fasteners of any item are not indicated, design the item to produce strength appropriate to the use intended.

2.2 Handrails: Design to resist the loads specified by applicable building code(s).

2.3 Guardrails: Design to resist loads specified by applicable building code(s).

3. SUBMITTALS

3.1 Shop Drawings

4. QUALITY ASSURANCE

4.1 Where fabrications are specified to comply with specific structural performance requirements, provide design certified by a registered professional engineer.

PART 2 – PRODUCTS

5. MATERIALS – METAL

5.1 Steel Shapes

5.1.1 Pipe: ASTM A 53 (black steel and hot-dip galvanized).
Galvanizing: ASTM A 53, (G185 nominal)

6. MATERIALS – MISCELLANEOUS

6.1 Grout: Non-shrink, factory blended and packaged; comply with ASTM C 1107.

6.2 Concrete Inserts: Style as required for application.

6.3 Fasteners: Use fasteners suitable for the material being fastened and for the type of connection required.

6.3.1 For exterior use or built into exterior walls: Nonferrous stainless steel, zinc coated or cadmium plated.

6.3.2 Use fasteners or same material as items being fastened unless otherwise indicated.

6.3.3 Bolts and studs: ASTM A 307

6.3.4 Nuts: ASTM A 563

6.3.5 Plain washers: FS FF-W-92

6.3.6 Lock washers: FS FF-W-84

6.3.7 Expansion shields: FS FF-S-325

6.4 Shop Primer: Fabricator's standard primer.

7. FABRICATION – GENERAL

7.1 Fabricate and shop-assemble in largest practical sections for delivery to site.

7.1.1 Prepare and reinforce fabrications as required to receive applied items.

7.1.2 Fabricate items with joints tightly fitted and secured.

7.1.3 Make exposed joints tight, flush, and hairline.

7.2 Fasteners: Use concealed fasteners if possible.
Exposed fasteners: Flathead, countersunk type unless otherwise indicated.

7.3 Anchors: Fabricate to suit conditions indicated; use anchors of same material and finish as item except where specifically indicated otherwise.

7.4 Welding

7.4.1 Welding of steel: Comply with AWS D1.1 recommendations.

7.4.2 Provide continuous welds at welded corners and seams.

7.4.3 Exposed welds: Grind flush and smooth.

7.5 Joints Exposed to Weather: Fabricate to keep water out, or provide adequate drainage of water that penetrates.

8. FABRICATION – RAILINGS

8.1 Railings – General: Construct as indicated.

8.1.1 Pre-assemble in shop to maximum extent practicable.

8.1.2 Bending of members: Use jigs to make each similar configuration the same; make neat bends without other deformation.

8.1.3 Close exposed open ends of members using same material as used in member.

8.1.4 Toeboards: 4-inch by 18 inch thick plate; provide for railings around floor openings and at open-sided floors.

8.1.5 Provide all components necessary for assembly of railings and for attachment to other work.

A. For attachment to concrete or masonry: Provide inserts for installation into concrete or masonry, or provide other type of anchorage.

B. For anchoring to steel: Use fittings bolted to structure unless otherwise indicated.

C. For anchoring to solid masonry: Use fittings bolts and expansion shields unless otherwise indicated.

D. Fasten fittings to railings in same manner as railings connections.

8.1.6 Exterior Railings
Provide weep holes or other means for evacuation of water trapped in hollow members.

8.2 Steel Pipe / Tube Railings
8.2.1 Black steel pipe, Schedule 40, standard weight

8.2.2 Shop prime

8.2.3 Connections: Welded and ground

8.2.4 Welding: Fill joints completely and grind off flush

8.2.5 Elbows: Bent or mitered

8.2.6 Tee and cross intersections: Coped and welded

8.2.7 Exposed ends: Close with prefabricated fittings or with 3/16-inch-thick steel plate fully welded.

8.3 Removable Railing Sections: Provide sockets to receive posts; provide removable tamper-proof socket covers.

9. FABRICATION – SHOP COATINGS

9.1 Shop prime all iron and steel fabrications

9.2 Prepare surfaces to be coated as follows:
9.2.1 Solvent-clean in accordance with SSPC-SP 1.

9.2.2 Exterior fabrications: Clean in accordance with SSPC-SP 5, SSPC-SP 6, SSPC-SP 8, or SSPC-SP 10.

9.2.3 Interior fabrications: Clean in accordance with SSPC-SP 3, SSPC-SP 5, SSPC-SP 6, SSPC-SP 8, or SSPC-SP 10.

9.3 Shop Priming: Comply with SSPC-PA 1
9.3.1 Apply primer immediately following surface preparation.

9.3.2 Do not prime surfaces to be welded.

9.3.3 Do not prime surfaces in direct contact bond with concrete.

9.3.4 Apply extra coat to corners, welds, edges, and fasteners.

9.4 Shop Painting: Comply with SSPC-PA 1

PART 3 – EXECUTION

10. INSTALLATION – GENERAL

10.1 Anchor metal fabrications to substrates indicated; provide all fasteners required.

10.2 Perform all field fabrication required for installation.

10.2.1 Fit joints tightly.

10.2.2 Weld joints as indicated.

A. Weld in accordance with AWS code.

B. Exposed welds: Grind flush smooth.

10.3 Install items in correct location, plumb, and level, without rack or warp.

10.4 Cut cored holes for posts.

11. CLEANING AND TOUCH-UP

11.1 Touch up shop paint immediately after erection.

End of Section 055210

SECTION 061600

SHEATHING

PART 1 – GENERAL

1. SUBMITTALS

1.1 Product Data: Submit manufacturer's specifications, installation instructions, and general recommendations. Include data substantiating that products to be furnished comply with requirements of the contract documents.

1.2 Verification Samples: To verify compliance with requirements of contract documents, submit complete sets of sample, illustrating full range of color and texture to be expected in the completed work. Provide samples of minimum size as follows:
1.5 inches by 7 inches

1.3 Certificates: Submit manufacturer's test data certifying compliance with specified performance requirements.

1.4 Certificates: Submit manufacturer's certification that products comply with requirements of the contract documents.

PART 2 – PRODUCTS

2. EXTERIOR SHEATHING

The design is based on the following product: 5/8-inch thick DensGlass Gold Exterior Sheathing with water-resistant core and paperless, glass-mat facings on both sides.

2.1 Manufacturer: Georgia-Pacific Gypsum, LLC, or approved equal.

2.2 Substitutions: Other products may be submitted for approval.

PART 3 – EXECUTION

3. EXAMINATION

Inspect substrates and conditions under which the work of this section will be performed, and verify that installation properly may commence. Do not proceed with the work until unsatisfactory conditions have been resolved fully.

4. INSTALLATION

4.1 General: Comply with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.

4.2 Tolerances: Install products of this section to within the following tolerances:
Width of vertical and horizontal joints: 1/16 inch to 1/8 inch.

End of Section 061600

SECTION 064023

INTERIOR ARCHITECTURAL WOODWORK

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

This Section includes the following:

2.1 Plastic-laminate cabinets

2.2 Solid surface countertops

3. SUBMITTALS

3.1 Product Data: For each type of product indicated, including cabinet hardware and accessories, handrail brackets, and finishing materials and processes.

3.2 Shop Drawing: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

3.2.1 Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.

3.2.2 Show locations and sizes of cut-outs and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.

3.2.3 Show veneer with grain direction.

3.3 Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.

3.3.1 Plastic laminates

3.3.2 Solid surface countertops

4. QUALITY ASSURANCE

4.1 Installer Qualifications: An experienced installer who has completed architectural woodwook similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

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

4.3 Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers.

4.4 Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.

4.5 Authorities Having Jurisdiction: Identify with appropriate markings of applicable testing and inspecting agency in the form of separate paper label, or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

5. DELIVERY, STORAGE, AND HANDLING

Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

6. PROJECT CONDITIONS

6.1 Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature between 60 and 90 degrees F, and relative humidity between 25 and 55 percent during the remainder of the construction period.

6.2 Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

6.2.1 Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.

6.2.2 Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

7. COORDINATION

Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 – PRODUCTS

8. MATERIALS

8.1 General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

8.2 Solid Surface Countertops:

8.2.1 Manufacturer: DuPont Corian

8.2.2 Color: Deep Storm for bidding purposes. Actual color selected by owner within similar price range. Group 3

8.2.3 Thickness: 1/2-inch

8.3 Wood Products: Comply with the following:

8.3.1 Medium-Density Fiberboard: ANSI A208.2, Grade MD-Exterior Glue

8.3.2 Softwood Plywood: DOC PS 1, Medium Density Overlay

8.3.3 Hardwood Plywood and Face Veneers: HPVA HP-1

8.4 Thermoset Decorative Overlay (cabinet interiors): Particle-board complying with ANSI A208.1, Grade M-2, or medium-density fiberboard complying with ANSI A208.2, Grade MD, with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

8.5 High-Pressure Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.
- 8.5.1 Available Manufacturers: Provide one of the following:
  - A. Wilsonart
  - B. Formica
  - C. Nevamar
  - D. Pionite

8.6 Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
- 8.6.1 Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

9. CABINET HARDWARE AND ACCESSORIES

9.1 Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.

9.2 Frameless Concealed Hinges (European Type): BHMA A156.9, BHMA A1602, 170 degrees of opening, self-closing, Blum 71T6580 with Blum No. 175H7100 mounting plate.

9.3 Back-mounted Pulls: BHMA A156.9, B0211

9.4 Cabinet Pulls: Hafele 117.05.600 with Stainless Steel Matte Finish. Overall 5 5/8 length.

9.5 Catches: Magnetic catches, BHMA A 156.9, B03141.

9.6 Drawer Slides: Blum #230 single extension and Blum # 430e full extension.

9.7 Shelf Rests: KV 233ZC standards and KV 256ZC clips.

9.8 Heavy Duty Storage Shelf Supports: KV 87ANO standards and KV 187LLANO brackets.

9.9 Grommets for Cable Passage through Countertops: 2-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
- 9.9.1 Product: Subject to compliance with requirements, provide “OG or SG series” by Doug Mockett and Co., Inc.

9.10 Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A 156.18 for BHMA finish number indicated.

9.11 For concealed hardware, provide manufacturer’s standard finish that complies with product class requirements in BHMA A 156.9

10. INSTALLATION MATERIALS

10.1 Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.

10.2 Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

10.3 Handrail Brackets: Cast from stainless steel with wall flange drilled and tapped for 3/8-inch concealed hanger bolt and with support arm for screwing to underside of rail. Sized to provide 1-3/4-inch clearance between handrail and wall.
10.3.1 Equal to Julius Blum & Co., Inc. Carlstadt, NJ, #270, Stainless Steel.

11. FABRICATION, GENERAL

11.1 Interior Woodwork Grade: Provide Custom grade interior woodwork complying with the referenced quality standards.

11.2 Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

11.3 Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
11.3.1 Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4-inch thick or less: 3mm radius.

11.3.2 Edges of Rails and Similar Members More than 3/4-inch thick: 3 mm radius

11.4 Complete fabrication, including assembly, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

11.5 Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to product accurately sized and shaped openings. Sand edges of cut-outs to remove splinters and burrs.
11.5.1 Seal edges of openings in countertops with a coat of varnish.

11.6 Install glass to comply with applicable requirements in Division 8 Section “Glazing” and in GANA’s “Glazing Manual”. For glass in hollow metal frames, secure glass with removable stops.

12. PLASTIC-LAMINATE CABINETS

12.1 Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.

12.2 Grade: Custom

12.3 AWI Type of Cabinet Construction: Flush overlay

12.4 Materials for Concealed Surfaces: Provide surface materials indicated below:

12.4.1 Horizontal Surfaces Other than Tops: Thermoset decorative overlay. Color: "White"

12.4.2 Vertical Surfaces: Thermoset decorative overlay. Color: "White"

12.4.3 Surfaces other than Drawer Bodies: Solid-hardwood lumber or Thermoset. Color: "White"

12.4.4 Drawer Sides and Backs: Solid hardwood lumber or 9-ply baltic birch plywood.

12.4.5 Drawer Bottoms: Thermoset decorative overlay. Color: "White"

12.4.6 Cabinet interiors with trash opening: Color: "Black"

12.5 Colors, Patterns, and Finishes: Provide materials and products that result in colors, and textures of exposed laminate surfaces complying with the following requirements:

12.5.1 Provide Architect's selections from laminate manufacturer's full range of colors and finishes.

12.5.2 High Pressure Plastic Laminate (HPPL) at cabinets: Manufacture: Wilsonart, Color: Pinnacle Walnut, Style: 7992-38 for bidding purposes.

12.5.3 High Pressure Plastic Laminate (HPPL) at lockers: Manufacturer: Formica, Color: Graphite Grafix, Style: 515 for bidding purposes.

PART 3 – EXECUTION

13. PREPARATION

13.1 Condition woodwork to average prevailing humidify conditions in areas before installation.

13.2 Before installing architectural woodwork, examine shop-fabricated.

14. INSTALLATION

14.1 Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.

14.2 Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

14.3 Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.

14.4 Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finished screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

14.5 Cabinets: Install without distortion so doors and drawers fit openings properly are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

14.5.1 Install cabinets with no more than 1/8-inch in 96-inch sag, bow, or other variation from a straight line.

14.5.2 Maintain veneer sequence matching of cabinets with transparent finish.

14.5.3 Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips.

14.6 Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

14.6.1 Install countertops with no more than 18 inch in 96-inch sag, bow, or other variation from a straight line.

14.6.2 Secure backsplashes to countertops with concealed fastening methods. Seal all joints by setting backsplash into continuous bead of silicone sealant prior to attachment.

14.6.3 Caulk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants".

14.7 Refer to Division 9 Sections for final finishing of installed architectural woodwork. Contractors Option to provide factory or field finish.

15. ADJUSTING AND CLEANING

15.1 Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

15.2 Clean, lubricate, and adjust hardware.

15.3 Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

End of Section 064023

SECTION 072100

THERMAL INSULATION

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 This Section includes the following:

A. Insulation under slabs-on-grade

B. Foundation wall insulation

C. Concealed building insulation

2.2 Related Sections include the following:

A. Division 3 Section "Cast-in-Place Concrete"

B. Division 6 Section "Rough Carpentry" for foam-plastic board sheathing over wood framing.

3. SUBMITTALS

3.1 Product Data: For each type of product indicated.

4. QUALITY ASSURANCE

4.1 Source Limitations: Obtain each type of building insulation through one source.

4.2 Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

A. Surface-Burning Characteristics: ASTM E 84

B. Fire-Resistance Ratings: ASTM E 119

C. Combustion Characteristics: ASTM E 136

5. DELIVERY, STORAGE, AND HANDLING

5.1 Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

5.2 Protect plastic insulation as follows:

5.2.1 Do not expose to sunlight, except to extent necessary for period of installation and concealment.

5.2.2 Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.

5.2.3 Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 – PRODUCTS

6. INSULATING MATERIALS

6.1 Extended-Polystyrene Board Insulation: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indices of 75 and 450, respectively: Type X, 1.30 lb.

6.2 Faced Mineral-Fiber Blanket Insulation: ASTM C 655, Type II (blankets with kraft faced membrane facing), Class C; Category 1 (membrane is a vapor barrier); consisting of fibers manufactured from glass, slag wool, or rock wool.

6.3 Unfaced Mineral-Fiber Blanket Insulation: ASTM C665, Type 1, passing ASTM E 136 Combustion Test requirements.

6.4 Total R-value – Walls – R-19 and R-25.

7. AUXILIARY INSULATING MATERIALS

7.1 Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

7.2 Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide cross ventilation between insulated attic spaces and vented eaves.

8. INSULATION FASTENERS

8.1 Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates indicated without damaging insulation, fasteners, and substrates.

8.2 Eave Ventilation Troughs: Preformed rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide cross ventilation between insulated attic spaces and vented eaves.

PART 3 – EXECUTION

9. EXAMINATION

9.1 Examine substrates and conditions, with Installer present, for compliance with requirements for Sections in which substrates and related work are specified and other conditions affecting performance.

9.2 Proceed with installation only after unsatisfactory conditions have been corrected.

10. PREPARATION

Clean substrates of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

11. INSTALLATION – GENERAL

11.1 Comply with insulation manufacturer's written instructions applicable to products and application indicated.

11.2 Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice and snow.

11.3 Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

11.4 Water-Piping Coordination: If water piping is located on inside of insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.

11.5 Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

12. INSTALLATION OF GENERAL BUILDING INSULATION

12.1 Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

12.2 Set vapor-retarder-faced units with vapor retarder to warm side of construction, unless otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.

12.2.1 Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

12.3 Install mineral-fiber blankets in cavities formed by framing members according to the following requirements:

12.3.1 Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.

12.3.2 Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

12.4 For wood-framed construction, install mineral-fiber blankets according to ASTM C 1320 and as follows:

12.4.1 With faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides of framing members.

12.4.2 With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to produce airtight installation after concealing finish material is in place.

12.5 Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:

12.5.1 Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application indicated.

12.5.2 Apply insulation standoffs to each spindle to create cavity width indicated between concrete substrate and insulation.

12.5.3 After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation below indicated thickness.

12.5.4 Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.

13. PROTECTION

Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

End of Section 072100

SECTION 072500

WEATHER BARRIERS

PART 1 – GENERAL

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

2. SUMMARY
Section Includes:

2.1 Building paper

2.2 Building wrap

2.3 Flexible flashing

3. ACTION SUBMITTALS
3.1 Product Data: For each type of product:
For building wrap, include data on air and water-vapor permeance based on testing according to referenced standards.

4. INFORMATIONAL SUBMITTALS
Evaluation Reports: For water-resistive barrier and flexible flashing, from ICC-ES.

PART 2 – PRODUCTS

5. WATER-RESISTIVE BARRIER
5.1 Building Paper: ASTM D 226, Type 1 (No. 15 asphalt-saturated organic felt), unperforated.

5.2 Building Paper: Water-vapor-permeable, asphalt-saturated kraft building paper.

5.2.1 Water vapor transmission not less than 35 g/sq. m x 24 hr per ASTM D 779.

5.2.2 Water resistance not less than 1 hour per ASTM F 1249.

5.3 Building Wrap: ASTM E 1677, Type I air barrier; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.

5.3.1 Products: Subject to compliance with requirements, provide one of the following or approved equal:

A. Dow Chemical Company (The); Styrofoam Weathermate Plus Brand Housewrap

B. DuPont (EI du Pont Nemours and Company); Tyvek Commercial Wrap

C. Ludlow Coated Products

D. Pactiv, Inc.; GreenGuard

E. Raven Industries, Inc.; Fortress Pro Weather Protective Barrier

F. Reemay, Inc.; Typar HouseWrap

5.3.2 Water-Vapor Permeance: Not less than 28 for Construction Grade Tyvek used for quality

5.3.3 Air Permeance: Not more than 0.004 cfm/sq. ft. at 0.3-inch wg when tested according to ASTM E 2178

5.3.4 Allowable UV Exposure Time: Not less than three months.

5.4 Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.

6. MISCELLANEOUS MATERIALS

6.1 Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spun-bonded polyolefin to produce an overall thickness of not less than 0.040 inch.

6.1.1 Products: Subject to compliance with requirements, provide one of the following or approved equal:

A. DuPont (E I du Pont de Nemours and Company); DuPont Flashing Tape

B. Grace Construction Products, a unit of W. R. Grace & Co. – Conn.; Vycor Butyl Self-Adhered Flashing

C. Protecto Wrap Company; BT-25 XL

D. Raven Industries, Inc.; Fortress Flashshield

E. Advanced Building Products, Inc.; Wind-o-wrap

F. Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing

G. Fiberweb, Clark Hammerbeam Corp.; Aquaflash 500

H. Fortifiber Building Systems Group; Fortiflash 40

I. Grace Construction Products, a unit of W. R. Grace & Co. – Conn.; Vycor V40 Self-Adherring Flashing

J. MFM Building Products, Corp.; Window Wrap

K. Polyguard Products, Inc.

L. Sandell Manufacturing Co., Inc.; Presto-Seal

6.1.2 Primer for Flexible Flashing: Product recommended by manufacturer of flexible flashing for substrate.

6.1.3 Nails and Staples: ASTM F 1667

7. WATER-RESISTIVE BARRIER INSTALLATION

7.1 Cover exposed exterior surface of sheathing with water-resistive barrier securely fastened to framing immediately after sheathing is installed.

7.2 Cover sheathing with water-resistive barrier as follows:

7.2.1 Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.

7.2.2 Apply barrier to cover vertical flashing with a minimum of 4-inch overlap unless otherwise indicated.

7.3 Building Paper: Apply horizontally with a 2-inch overlap and a 6-inch end lap; fasten to sheathing.

7.4 Building Wrap: Comply with manufacturer's written instructions
- 7.4.1 Seal seams, edges, fasteners, and penetrations with tape.
- 7.4.2 Extend into jambs of openings and seal corners with tape.

8. FLEXIBLE FLASHING INSTALLATION

8.1 Apply flexible flashing where indicated to comply with manufacturer's written instructions.
- 8.1.1 Prime substrates as recommended by flashing manufacturer
- 8.1.2 Lap seams and juncture with other materials at least four (4) inches except that at flashing flanges of other construction, laps need not exceed flange width.
- 8.1.3 Lap flashing over water-resistive barrier at bottom and sides of openings.
- 8.1.4 Lap water-resistive barrier over flashing at heads of openings.
- 8.1.5 After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.

End of Section 072500

SECTION 074180

STEEL WALL PANELS

PART 1 – GENERAL

1. PERFORMANCE REQUIREMENTS

Comply with performance requirements specified as determined by testing manufacturers' standard assemblies similar to those indicated for this Project, by a qualified testing and inspecting agency.

1.1 Air Infiltration: Not more than 0.06 cfm/sq. ft. of wall area when tested according to ASTM E 283 at a static-air-pressure difference of 6.24 lbf/sq. ft.

1.2 Water Penetration: None when tested according to the following standards at 20 percent of inward-acting, wind-load design pressure but not less than 6.24 lbf/sq. ft. and not more than 12 lbf/sq. ft.

A. Static Pressure: ASTM E 331

B. Dynamic Pressure: AAMA 501.1

2. STRUCTURAL PERFORMANCE

Capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated, based on testing according to ASTM E 330.

2.1 Wind Loads: Determine loads based on minimum design wind pressures acting inward or outward as indicated under Building Summary on the Drawings.

2.2 Deflection Limits: Withstand test pressures with following maximum deflection and no evidence of material failure, structural distress, or permanent deformation exceeding 0.2 percent of the clear span.

A. Test Pressures: 150 percent of inward and outward wind-load design pressures.

B. Maximum Deflection: 1/175 of the span for individual panels

C. Maximum Deflection: 1/60 of the span for individual panels

D. Design system to accommodate 3/8 differential vertical live load movement of the floors.

3. SEISMIC PERFORMANCE

Provide panel assemblies capable of withstanding the effects of earthquake motions determined according to applicable code requirement and Building Summary on Drawings.

4. THERMAL MOVEMENTS

Allow for noiseless thermal movements resulting from range in ambient termperatures of minus 20 to plus 180 degrees farenhetight, and that prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.

5. INFILTRATED AND CONDENSATION WATER MANAGEMENT

System design shall incorporate provisions for guttering and weeping infiltrated and condensate water out of system to the exterior. Coordinate with other adjacent exterior wall components.

6. PRODUCT DATA

Submit construction details, material, descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

7. SHOP DRAWINGS
Submit fabrication and installation layouts of panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Distinguish between factory- and field-assembled work.

8. SAMPLES
Submit sample panel, 6 inch x 6 inch, in the color and texture indicated. Include clips, caps, battens, fasteners, closures, and other exposed panel accessories.

9. PRODUCT TEST REPORTS
Indicate compliance of panel assemblies and materials with performance and other requirements based on comprehensive testing of current products.

10. INSTALLER QUALIFICATIONS
Engage an experienced installer who has completed metal wall panel projects similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

11. FABRICATOR QUALIFICATIONS
Certified by panel manufacturer to fabricate and install manufacturer's wall panel system.

12. SAMPLE MOCK-UP
Provide 18 inch by 18 inch sample mock up of typical horizontal and vertical panel joint intersection with attachment condition and sealant. Include sample mock-up of any unusual condition.

13. SPECIAL FINISH WARRANTY
Submit a written warranty, signed by manufacturer, covering failure of the factory-applied exterior finish on metal wall panels within warranty period of 20 years from date of Substantial Completion, and agreeing to repair finish or replace wall panels that show evidence of finish deterioration.

PART 2 – PRODUCTS

14. STEEL PANEL SYSTEMS (Exterior Wall MP-1)
Manufacturer: AEP SPAN or approved equal
Profile: Mini-V-Beam
Color: Cool ZACtique II
Size: See drawings
Material: Pre-finished coil coated G-90 galvanized steels

15. TOLERANCES

15.1 Panel Thickness: Plus or minus 0.024 inches
Panel Squareness: 0.2 inch maximum

15.2 Panel Bow: Maximum 0.8% of panel dimension in width and length

15.3 Panel Flatness: 1/8-inch in 5 ft.-0 in. panel in any direction for assembled units (non-accumulative)

16. SYSTEM CHARACTERISTICS

Plans, evaluations, details, characteristics, and other requirements indicated are based upon standards by one manufacturer. System must provide a wet seal (caulked) reveal joint or an aluminum extrusion with integral weather-stripping as indicated.

16.1 Fabricate panel system to dimension, size, and profile indicated based on a design temperature of 70 degrees F.

16.2 Installation shall be such that the panels remain flat regardless of temperature change and at all times remain air and water tight.

16.3 Field fabrication shall be kept to an absolute minimum. All fabrication shall be done under controlled shop conditions to greatest extent possible.

16.4 Panel lines, breaks, and angles shall be sharp, true, and surfaces free from warp and buckle.

16.5 Fabricate panels with panel stiffeners, as required to comply with deflection limits, attached to back of panels with structural silicone sealant or bond tape.

16.6 Fabricate panels with sharply cut edges, with no displacement of face sheets or protrusion of core material.

16.7 Provide removable plastic film on exposed finish side of panel to protect the surface from damage.

17. ACCESSORIES

Extrusions, formed members, sheet, and plate shall conform to ASTM B 209 and recommendations of the panel manufacturer.

17.1 Panel Stiffeners: Secured to rear face of panel with silicone of sufficient size and strength to maintain panel flatness.

17.2 Exposed Sealants: Comply with requirements specified in Division 7 Section “Joint Sealants”

17.3 Concealed Sealants and Gaskets: Manufacturer’s standards to meet performance requirements.

17.4 Flashing Materials: 0.030” minimum thickness aluminum sheet painted to match the adjacent panel system where exposed.

17.5 Fasteners: As recommended by panel manufacturer. Do not expose fasteners except where unavoidable, and then match finish of adjoining metal.

17.6 Bitminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat.

17.7 Panel Support and Anchorage: Girls, furring channels, angles, plates, bracing, and other secondary framing members complying with ASTM C 645 requirements for metal and ASTM A 653, G40 hot-dip galvanized zinc coating.

A. Subgirts: C- or Z-shaped sections 0.0598-inch- base steel thickness, galvanized cold-formed steel sheet.

B. Hat-Shaped Furring Channels: 0.0312-inch- base metal thickness, galvanized

17.8 Metal Wall Panel Accessories, General: Provide complete metal wall panel assembly incorporating trim, copings, fascia, parapet caps, soffits, sills inside and outside corner, and misc. flashings. Provide manufacturer's factory-formed clips, shims, flashings, gaskets, lap tapes, closure strips, and caps for a complete installation. Fabricate and install accessories in accordance with SMACNA Manual.

17.9 Extruded Trim: Manufacturer's complementary aluminum extrusions for head, jamb, sill, base, flush, reveal, inside and outside corner, endwall and expansion joint details. Finish to match wall panels.

17.10 Mitered Corners: Structurally-bonded horizontal interior and exterior trimless corners matching metal wall panel material, profile, and factory-applied finish, fabricated and finished by metal panel manufacturer.

A. Welded, riveted, fastened, or field-fabricated corners do not meet the requirements of this specification.

PART 3 – EXECUTION

18. EXAMINATION

Examine substrates and conditions under which work will be installed. Do not proceed until unsatisfactory conditions have been corrected. Starting work will be construed as applicator's acceptance of substrate conditions.

19. PREPARATION

Coordinate panels with flashing; trim; and construction of other adjoining work to provide a leak-proof, secure, and noncorrosive installation. Install girts, angles, and other secondary structural panel support members and anchorage.

20. INSTALLATION

Comply with panel manufacturer's written instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the Work securely in place, with provisions for thermal and structural movement.

20.1 Attach panels to allow for the free and noiseless vertical and horizontal thermal movement due to expansion and contraction of material.

20.2 Fabrication, assembly, and erection procedure shall account for the ambient temperature at the time of the respective operation.

20.3 Conform to panel fabricator's instructions for installation of concealed fasteners.

20.4 Do not install component parts which are defective, including warped, bowed, dented, abraised, and broken members.

20.5 Do not cut, trim, weld, or braize component parts during erection which would damage the finish, decrease strength, or result in visual imperfection, or a failure in performance.

21. JOINT SEALERS

Install gaskets, joint fillers, and sealants where required for weatherproof performance of panel assemblies. Provide types of gaskets, fillers, and sealants recommended by panel manufacturer.

21.1 Install weatherseal to prevent air and moisture penetration. Flash and seal panels at ends and intersections with other materials with closures to exclude weather.

21.2 Prepare joints and apply sealants to comply with requirements of Division 7 Section "Joint Sealants"

22. DISSIMILAR METALS

Separate by painting each metal surface in area of contact with a bituminous coating or by other permanent separation as recommended by manufacturers of dissimilar metals.

23. INSTALLATION TOLERANCES

Shim and align panel units within installed tolerance of 1/4 inch in 20 feet, non-accumulative, on level, plumb, and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

24. DAMAGED UNITS

Replace panels and other components of the Work that have been damaged or have deteriorated beyond successful repair by finish touch-up or similar minor repair procedures.

25. CLEANING

Remove temporary protective coverings and strippable films, as soon as each panel is installed. On completion of panel installation, clean finished surfaces as recommended by panel manufacturer and maintain in a clean condition during construction.

End of Section 074180

SECTION 076200

SHEET METAL FLASHING AND TRIM

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes;

2.1.1 Manufactured Products:
Manufactured through-wall flashing and counter-flashing.

2.1.2 Formed Products:
Formed roof drainage sheet metal fabrications.

2.2 Related Sections
Division 06 Section "Rough Carpentry" for wood nailers, curbs, and blocking.

3. PERFORMANCE REQUIREMENTS

3.1 General: Sheet metal flashing and trim assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

3.2 Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements from ambient and surface temperature changes.

3.2.1 Temperature Change (Range): 120 degrees F; ambient material surfaces

4. QUALITY ASSURANCE

4.1 Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

4.2 Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Mental Manual" unless more stringent requirements are specified or shown on Drawings.

5. DELIVERY, STORAGE, AND HANDLING

5.1 Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

5.2 Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim insulation.

PART 2 – PRODUCTS

6. SHEET METALS

6.1 General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.

6.2 Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.

6.2.1 Clear Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

6.2.2 Color Anodic Finish, Coil Coated: AAMA 611, AA-M12C22A44, Class I, 0.018 mm or thicker.

A. Color: Dark bronze.

6.2.3 Color: As selected by Architect from manufacturer's full range.

7. UNDERLAYMENT MATERIALS

7.1 Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, non-perforated.

8. MISCELLANEOUS MATERIALS

8.1 General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation, and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

8.2 Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

8.2.1 General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

A. Exposed Fasteners: Heads matching color of sheet metal using plastic caps for factory-applied coating.

B. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.

C. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

8.3 Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape, 1/2 inch wide and 1/8 inch thick.

8.4 Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; low modulus; of type grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

9. FABRICATION, GENERAL

9.1 General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.

9.1.1 Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

9.1.2 Obtain field measurements for accurate fit before shop fabrication.

9.1.3 Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.

9.1.4 Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

9.2 Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing".

9.3 Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

9.4 Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with butyl sealant concealed within joints.

9.5 Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" and by FMG Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.

9.6 Seams: Fabricate nonmoving seam with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength. Verify exposed rivet locations with architect prior to installation.

9.7 Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength. Verify exposed rivet locations with architect prior to installation.

9.8 Do not use graphite pencils to mark metal surfaces.

10. ROOF DRAINAGE SHEET METAL FABRICATIONS

10.1 Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch long sections. Furnish flat-stock gutter spacers and gutter brackets fabricated from same metal as gutters, of size recommended by SMACNA, but not less than twice the gutter thickness. Fabricate expansion joints, expansion joints, expansion-joint covers, gutter bead reinforcing bars, and gutter accessories from same metal as gutters.

10.1.1 Gutter Style: Reference drawings

10.1.2 Expansion Joints: Lap type or Built in

10.1.3 Accessories: Continuous removable leaf screen with sheet metal frame and hardware cloth screen, wire ball downspout strainer, and valley baffles.

10.1.4 Gutter with Girth up to 15 inches: Fabricate from the following materials:
Aluminum: 0.032 inch thick
Stainless Steel: 0.016 inch thick
Zinc-Tin Alloy-Coated Stainless Steel: 0.015 inch thick
Zinc-Tin Alloy-Coated Copper: 0.016 oz./sq. ft.
Galvanized Steel: 0.022 inch thick
Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick
Zinc: 0.039 inch thick

10.1.5 Gutter with Girth 16 to 20 inches: Fabricate from the following materials:
Aluminum: 0.040 inch thick
Stainless Steel: 0.019 inch thick
Zinc-Tin Alloy-Coated Stainless Steel: 0.018 inch thick
Zinc-Tin Alloy-Coated Copper: 0.016 oz./sq. ft.
Galvanized Steel: 0.028 inch thick
Aluminum-Zinc Alloy-Coated Steel: 0.028 inch thick
Zinc: 0.048 inch thick

10.2 Downspouts: Fabricate regulare downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors.
10.2.1 Fabricate from the following materials:
Aluminum: 0.024 inch thick

10.3 Drip Edges: Fabricate from the following materials:
Aluminum: 0.032 inch thick

10.4 Eave, Rake [Ridge, and Hip] Flashing: Fabricate from the following materials:
Aluminum: 0.032 inch thick

PART 3 – EXECUTION

11. EXAMINATION

11.1 Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
11.1.1 Verify compliance with requirements for installation tolerances of substrates.

11.1.2 Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

12. UNDERLAYMENT INSTALLATION

12.1 Felt Underlayment: Install felt underlayment with adhesive for temporary anchorage to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than two (2) inches.

13. INSTALLATION – GENERAL

13.1 General: Anchor sheet metal flashing and trim, and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

13.1.1 Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.

13.1.2 Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shape and dimensions of surfaces to be covered before fabricating sheet metal.

13.1.3 Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.

13.1.4 Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

13.1.5 Install sealant tape where indicated.

13.1.6 Torch cutting of sheet metal flashing and trim is not permitted.

13.1.7 Do not use graphite pencils to mark metal surfaces.

13.1.8 Coat back side of uncoated aluminum and/or stainless steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.

13.1.9 Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.

13.2 Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, from expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.

13.3 Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches for nails and not less than 3/4 inches for wood screws.

13.4 Rivets: Rivet joints in uncoated aluminum or zinc where indicated and where necessary for strength as approved by the architect.

14. ROOF DRAINAGE SYSTEM INSTALLATION

14.1 Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave of fascia to firmly anchored gutter brackets or straps spaced not more than 36 inches apart. Provide end closures and seal watertight with sealant. Slope to downspouts.

14.1.1 Fasten gutter spacers to front and back of gutter.

14.1.2 Loosely lock straps to front gutter bead and anchor to roof deck.

14.1.3 Anchor and loosely lock back edge of gutter to continuous cleat, eave, or apron flashing.

14.1.4 Anchor back of gutter that extends onto roof deck with cleats spaced not more than 24 inches apart.

14.1.5 Anchor gutter with spikes and ferrules spaced not more than 24 inches apart.

14.1.6 Install gutter with expansion joints as required, but not exceeding, 50 feet apart. Install expansion-joint caps.

14.1.7 Install continuous gutter screens on gutters with noncorrosive fasteners, removable or hinged to swing open for cleaning gutters.

14.2 Hanging Gutters: Join sections with riveted and soldered joints with lapped joints sealed and sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored gutter brackets or straps spaced not more than 36 inches apart. Provide end closures and seal watertight with sealant. Slope to downspouts.

14.2.1 Fasten gutter spacers to front and back of gutter.

14.2.2 Loosely lock straps to front gutter bead and anchor to roof deck.

14.2.3 Anchor and loosely lock back edge of gutter to continuous cleats spaced not more than 24 inches apart.

14.2.4 Anchor back of gutter that extends onto roof deck with cleats spaced not more than 24 inches apart.

14.2.5 Anchor gutter with spikes and ferrules spaced not more than 24 inches apart.

14.2.6 Install gutter with expansion joints as required, but not exceeding, 50 feet apart. Install expansion-joints caps.

14.2.7 Install continuous gutter screens on gutters with noncorrosive fasteners, removable or hinged to swing open for cleaning gutters.

15. ROOF FLASHING INSTALLATION

15.1 General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual". Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

15.2 Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual", and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at 16-inch centers.

15.3 Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substate at 16-inch centers.

16. ERECTION TOLERANCES

16.1 Installation Tolerances: Shim and align metal flashing and trim within installed tolerances of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

16.2 Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specifications for Residential Metal Roofing".

17. CLEANING AND PROTECTION

17.1 Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

17.2 Clean and neutralize flux materials. Clean of excess solder.

17.3 Clean off excess sealants.

17.4 Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.

17.5 Replace sheet metal flashing and trim that have been damaged or that deteriorated beyond successful repair by finish touch-up or similar minor repair procedures.

End of Section 076200

SECTION 079200

JOINT SEALANTS

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes:

2.1.1 Polyurethane joint sealants

2.1.2 Preformed joint sealants

2.2 Related Sections

2.2.1 Division 04 Section "Unit Masonry" for masonry control and expansion joint fillers and gaskets.

2.2.2 Division 07 Section "Expansion Control" for building expansion joints.

2.2.3 Division 08 Section "Glazing" for glazing sealants.

2.2.4 Division 09 Section "Gypsum Board" for sealing perimeter joints.

2.2.5 Division 09 Section "Tiling" for sealing tile joints.

2.2.6 Division 32 Section "Concrete Paving Joint Sealants" for sealing joints in pavements, walkways, and curbing.

3. SUBMITTALS

3.1 Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

3.2 Warranties: Sample of special warranties.

4. QUALITY ASSURANCE

4.1 Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

4.2 Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

5. PROJECT CONDITIONS

5.1 Do not proceed with installation of joint sealants under the following conditions:

5.1.1 When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 degrees F.

5.1.2 When joint substrates are wet.

5.1.3 Where joint widths are less than those allowed by joint-sealants manufacturer for applications indicated.

5.1.4 Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

6. WARRANTY

Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

6.1 Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.

6.2 Disintegration of joint substrates from natural causes exceeding design specifications.

6.3 Mechanical damage caused by individuals, tools, or other outside agents.

6.4 Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 – PRODUCTS

7. MATERIALS – GENERAL

7.1 Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

7.2 Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classification for type, grade, class, and uses related to exposure and joint substrates.

7.2.1 Suitability for Immersion in Liquids. Where sealants are indicated for Use for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

7.3 Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

7.4 Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

7.5 Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

8. POLYURETHANE JOINT SEALANTS

8.1 Single-Component, Low-Modulus, Nonsag, Elastomeric, Hybrid Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT, M, A, and O.

8.1.1 Products: Subject to compliance with requirements, provide one of the following, or approved equal.

A. SIKA 15LM System (Specified for quality)

8.2 Multi-component, Self-Leveling, Polyurethane Joint Sealant: ASTM C 920, Type M, Grade P, Class 25, for Use T, NT, M, A, O, I.

8.2.1 Products: Subject to compliance with requirements, provide one of the following, or approved equal.

A. SIKA 1CSL System (Specified for quality)

9. PREFORMED JOINT SEALANTS

9.1 Preformed Silicone Joint Sealants: Manufacturer's standard sealant consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.

9.1.1 Products: Subject to compliance with requirements, provide one of the following, or approved equal:
Dow Corning Corporation; 123 Silicone Seal
GE Advanced Materials – Silicones; UltraSpan US1100
May National Association, Inc.; Bondaflex Silbridge 300
Pecora Corporation; Sil-Span
Seallex, Inc.; ImmerSeal

9.2 Preformed Foam Joint Sealant: Manufacturer's standard preformed, precompressed, open-cell foam sealant manufactured from urethane foam with minimum density of 10 lb./cu. ft. and impregnated with a non-drying, water-repellent agent. Factory produce in precompressed sizes in roll or stick form to fit joint widths indicated; coated on one side with a pressure-sensitive adhesive and covered with protective wrapping.

9.2.1 Products: Subject to compliance with requirements, provide one of the following, or approved equal:
Dayton Superior Specialty Chemicals; Polytite Standard
EMSEAL Joint Systems, Ltd.; Emseal 25V
Sandell Manufacturing Co., Inc.; Polyseal
Schul International, Inc.
Wilseal USA, LLC

10. JOINT SEALANT BACKING

10.1 General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

10.2 Cylindrical Sealant Backings: ASTM C 1330, as approved in writing by joint-sealant manufacturer for joint application indicated, and size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

PART 3 – EXECUTION

11. EXAMINATION

11.1 Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

11.2 Proceed with installation only after unsatisfactory conditions have ben corrected.

12. PREPARATION

12.1 Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

12.1.1 Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

12.1.2 Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

A. Concrete

B. Masonry

C. Unglazed surfaces of ceramic tile

D. Exterior insulation and finish systems

12.1.3 Remove laitance and form-release agents from concrete.

13. INSTALLATION OF JOINT SEALANTS

13.1 General: Comply with joint-sealant manufacturer's written instructions for products and applications indicated, unless more stringent requirements apply.

13.2 Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

13.3 Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capacity.

13.3.1 Do not leave gaps between ends of sealant backings.

13.3.2 Do not stretch, twist, puncture, or tear sealant backings.

13.3.3 Remove absorbent sealing backings that have become wet before sealant application and replace them with dry materials.

13.4 Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

13.5 Install sealants using proven techniques that comply with the following, and at the same time backings are installed:

13.5.1 Place sealants so they directly contact and fully wet joint substrates

13.5.2 Completely fill recesses in each joint configuration

13.5.3 Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

13.6 Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below, to form smooth contact of sealant with sides of joint.

13.6.1 Remove excess sealant from surfaces adjacent to joints.

13.6.2 Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

13.6.3 Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

13.6.4 Provide flush joint profile where indicated in ASTM C 1193.

13.7 Installation of Preformed Silicone-Sealant System: Comply with the following requirements:

13.7.1 Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8 inch. Hold edge of sealant bead 1/4 inch inside masking tape.

13.7.2 Within ten (10) minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.

13.7.3 Complete installation of sealant system in horizontal joints before installing in vertical joints. Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.

13.8 Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping. Do not pull or stretch material. Produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures, apply heat to sealant in compliance with sealant manufacturer's written instructions.

14. FIELD QUALITY CONTROL

Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

15. CLEANING

Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and products in which joints occur.

16. PROTECTION

Protect joint sealants during and after curing period from contact with containing substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and removed damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

17. JOINT-SEALANT SCHEDULE

17.1 Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

17.1.1 Joint Locations

A. Isolation and contradiction joints in cast-in-place concrete slabs

B. Tile control and expansion joints

17.1.2 Polyurethane Joint Sealant: Single-component, nonsag, traffic grade.

17.1.3 Polyurethane Joint Sealant: Multi-component, nonsag, traffic grade.

17.1.4 Preformed Joint Sealant: Preformed foam sealant.

17.1.5 Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

17.2 Joint-Sealant Application
Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

17.2.1 Joint Locations:

A. Construction joints in cast-in-place concrete.

B. Joints between different materials listed above.

C. Perimeter joints between materials listed above and frames of doors and windows.

17.2.2 Silicone Joint Sealant: Single component, nonsag, neutral curing, Class 100/50

17.2.3 Urethane Joint Sealant: Nonsag, Class 100/50

17.2.4 Polysulfide Joint Sealant

17.2.5 Preformed Joint Sealant

17.2.6 Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

17.3 Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

17.3.1 Joint Locations
Isolation joints in cast-in-place concrete slabs.

17.3.2 Polyurethane Joint Sealant: Single component, nonsag, traffic grade.

17.3.3 Polyurethane Joint Sealant: Multicomponent, nonsag, traffic grade

17.3.4 Preformed Joint Sealant: Preformed foam

17.3.5 Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

End of Section 079200

SECTION 079500

EXPANSION CONTROL

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 This Section includes the following:
Architectural joint systems for building exteriors.

2.2 Related Sections include the following:

2.2.1 Division 03 Section "Cast-in-Place Concrete" for cast-in architectural-joint-system frames furnished, but not installed, in this Section.

2.2.2 Division 04 Section "Stone Masonry" for masonry in wall joint systems.

2.2.3 Division 07 Section "Sheet Metal Flashing and Trim" for sheet metal wall joint systems.

2.2.4 Division 07 Section "Joint Sealants" for liquid-applied joint sealants.

3. DEFINITIONS

3.1 Maximum Joint Width: Widest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.

3.2 Minimum Joint Width: Narrowest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.

3.3 Movement Capability: Value obtained from the difference between widest and narrowest widths of a joint opening typically expressed in numerical values (mm or inches), or a percentage (plus or minus) a nominal value of joint width.

3.4 Nominal Joint Width: The width of the linear opening specified in practice and in which the joint system is installed.

4. SUBMITTALS

4.1 Samples for Verification: For each type of architectural joint system indicated.

4.1.1 Full width by 6 inches long, for each system required.

4.2 Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for current products.

5. QUALITY ASSURANCE

5.1 Installer Qualifications: An employer of workers trained and approved by manufacturer.

5.2 Source Limitations: Obtain architectural joint systems through one source from a single manufacturer.

5.3 Product Options: Drawings indicated size, profiles, and dimensional requirements of architectural joint systems and are based on the specific systems indicated. Refer to Division 01 Section "Product Requirements".

5.3.1 Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

5.4 Fire-Test-Response Characteristics: Where indicated, provide architectural joint system and fire-barrier assemblies identical to those of assemblies tested for fire resistance per UL 2079 or ASTM E 1966 by a testing and inspecting agency acceptable to authorities having jurisdiction.

6. COORDINATION

6.1 Coordinate installation of exterior wall and soffit joint systems with root expansion assemblies to ensure that wall transitions are watertight. Roof expansion assemblies are specified in Division 07.

PART 2 – PRODUCTS

7. MATERIALS

7.1 Elastomeric Seals: Preformed elastomeric membranes or extrusions to be installed in metal frames.

7.2 Fire Barriers: Any material or material combination, when fire tested after cycling designated to resist the passage of flame and hot gases through a movement joint and to meet performance criteria for required rating period.

7.3 Accessories: Manufacturer's standard anchors, clips, fasteners, set screws, spacers, and other accessories compatible with material in contact, as indicated or required for complete installations.

8. ARCHITECTURAL JOINT SYSTEMS – GENERAL

8.1 General: Provide architectural joint systems of design, basic profile, materials, and operation indicated. Provide units with capability to accommodate variations in adjacent surfaces.

8.1.1 Furnish units in longest practicable lengths to minimize field spacing. Install with hairline-mitered corners where joint changes direction or abuts other materials.

8.1.2 Include factory-fabricated closure materials and transition pieces, tee-joints, corners, curbs, cross-connections, and other accessories as required to provide continuous joint systems.

8.2 Design architectural joint systems for the following size and movement characteristics:

A. Nominal Joint Width: 1/4 inch
B. Maximum Joint Width: 1/2 inch
C. Minimum Joint Width: 1/4 inch
D. Movement Capacity: Plus or minus 100 percent
E. Type of Movement: Thermal

9. ARCHITECTURAL JOINT SYSTEMS FOR BUILDING EXTERIORS

9.1 Manufacturers: Subject to compliance with requirements, provide products by one of the following, or approved equal:

Architectural Art Mfg., Inc.
Balco, Inc.
Capital Services
Construction Specialties, Inc.
EMSEAL Joint Systems, Ltd.
E-Poxy Engineered Materials, LLC
Erie Metal Specialties
JointMaster / InPro Corp.
LymTal International, Inc.
Michael Rizza Company, LLC
MM Systems Corporation
Nystrom, Inc.
RJ Watson, Inc.
Schul International, Inc.
Stellar-Mark, Inc.
Thermal-Chem
Tremco Sealant / Weatherproofing Division
Watson Bowman Acme Corp.
Williams Products, Inc.

9.2 Architectural Joint Systems for Exterior Walls and Soffits:
Type: Flat Seal

9.2.1 Seal Material: Silicone
Color: As selected by Architect from manufacturer's full range.

9.2.2 Secondary Seal: Manufacturer's standard extruded-elastomeric seal designed to prevent water and moisture infiltration.

9.2.3 Pantograph Mechanism: Manufacture's standard nylon pantographic wind-load support mechanism with stainless-steel fasteners.

10. FINISHES

10.1 Comply with NAAMM's "Metal Finishes for Architectural and Metal Products" for recommendations for applying and designating finishes.

10.2 Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

10.3 Appearance of Finished Work: Noticeable variations in same piece are not acceptable.

PART 3 – EXECUTION

11. EXAMINATION

11.1 Examine surfaces and blockouts where architectural joint systems will be installed for installation tolerances and other conditions affecting performance of work.

11.1.1 Proceed with installation only after unsatisfactory conditions have been corrected.

12. PREPARATION

12.1 Prepare substrates according to architectural joint system manufacturer's written instructions.

12.2 Repair concrete slabs and blockouts using manufacturer's recommended repair grout of compressive strength adequate for anticipated structural loadings.

12.3 Coordinate and furnish anchorages, settings, drawings, and instructions for installing joint systems. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of joint systems.

13. INSTALLATION

13.1 Comply with manufacturer's written instructions for storing, handling, and installing architectural joint assemblies and materials unless more stringent requirements are indicated.

13.2 Seals in Metal Frames: Install elastomeric seals and membranes in frames to comply with manufacturer's written instructions. Install with minimum number of end joints.

13.2.1 Provide in continuous lengths for straight sections.

13.2.2 Seal transitions according to manufacturer's written instructions. Vulcanize or heat-weld field-spliced joints, as recommended by manufacturer.

13.2.3 Installation: Mechanically lock seals into frames, or adhere to frames with adhesive or pressure-sensitive tape as recommended by manufacturer.

13.3 Terminate exposed ends of joint assemblies with field- or factory-fabricated termination devices.

14. PROTECTION

14.1 Do not remove protective covering until finish work in adjacent areas is complete. When protective covering is removed, clean exposed metal surfaces to comply with manufacturer's written instructions.

14.2 Protect the installation from damage by work of other Sections. Where necessary, due to heavy construction traffic, remove and properly store cover plates or seals, and install temporary protection over joints. Reinstall cover plates or seals prior to Substantial Completion of the Work.

End of Section 079500

SECTION 081113

HOLLOW METAL DOORS AND FRAMES

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes:

2.1.1 Standard and custom hollow metal doors and frames.

2.1.2 Steel sidelight, borrowed lite, and transom frames.

2.1.3 Louvers installed in hollow metal doors.

2.1.4 Light Frames and glazing installed in hollow metal doors.

2.2 Related Sections:

2.2.1 Division 04 Section “Unit Masonry” for embedding anchors for hollow metal work into masonry construction.

2.2.2 Division 08 Section “Flush Wood Doors”

2.2.3 Division 08 Section “Glazing” for glass-view panels in hollow metal doors.

2.2.4 Division 08 Section “Door Hardware”

2.2.5 Division 09 Sections “Exterior Painting” and “Interior Painting” for field painting hollow metal doors and frames.

2.2.6 Division 28 Section “Access Control” for access control devices installed at door openings and provided as part of a security access control system.

2.3 Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

2.3.1 ANSI/SDI A250.8 – Recommended Specifications for Standard Steel Doors and Frames

2.3.2 ANSI/SDI A250.4 – Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcing

2.3.3 ANSI/SDI A250.6 – Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames

2.3.4 ANSI/SDI A250.10 – Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames

2.3.5 ANSI/SDI A250.11 – Recommended Erection Instructions for Steel Frames

2.3.6 ASTM A1008 – Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

2.3.7 ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process

2.3.8 ASTM A924 – Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process

2.3.9 ASTM C 1363 – Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus

2.3.10 ANSI/BHMA A156.115 – Hardware Preparation in Steel Doors and Frames

2.3.11 ANSI/SDI 122 – Installation and Troubleshooting Guide for Standard Steel Doors and Frames

2.3.12 ANSI/NFPA 80 – Standard for Fire Doors and Fire Windows; National Fire Protection Association

2.3.13 ANSI/NFPA 105 – Standard for the Installation of Smoke Door Assemblies

2.3.14 FEMA P-361 2015 – Design and Construction Guidance for Community Safe Rooms

2.3.15 ICC 500 – 2014 ICC/NSSA Standard for the Design and Construction of Storm Shelters

2.3.16 NFPA 252 – Standard Methods of Fire Tests of Door Assemblies

2.3.17 UL 10C – Positive Pressure Fire Tests of Door Assemblies

2.3.18 UL 1784 – Standard for Air Leakage Tests of Door Assemblies

3. SUBMITTALS

3.1 Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.

3.2 Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.

3.3 Shop Drawings: Include the following:

3.3.1 Elevations of each door design

3.3.2 Details of doors, including vertical and horizontal edge details and metal thicknesses.

3.3.3 Frame details for each frame type, including dimensioned profiles and metal thicknesses.

3.3.4 Locations of reinforcement and preparations for hardware.

3.3.5 Details of anchorages, joints, field splices, and connections.

3.3.6 Details of accessories.

3.3.7 Details of moldings, removable stops, and glazing.

3.3.8 Details of conduit and preparations for power, signal, and control systems.

3.4 Samples for Verification:
Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

4. QUALITY ASSURANCE

4.1 Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.

4.2 Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/ SDI A 250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".

4.3 Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL10C (neutral pressure at 40 degrees above sill) or UL 10C.

4.3.1 Oversize Fire-Rated Door Assemblies Construction: For units exceeding sizes of tested assemblies, attach construction label certifying doors are built to standard construction requirements for tested and labeled fire rated door assemblies except for size.

4.3.2 Temperature-Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 degrees F (250 degrees C) above ambient after 30 minutes of standard fire-test exposure.

4.3.3 Smoke Control Door Assemblies: Comply with NFPA 105
Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.

4.4 Fire-Rated Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Provide labeled glazing material.

4.5 Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

5. DELIVERY, STORAGE, AND HANDLING

5.1 Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

5.2 Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

5.3 Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.

5.3.1 Provide minimum 14-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

6. PROJECT CONDITIONS

6.1 Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

7. COORDINATION

Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

8. WARRANTY

8.1 Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

8.2 Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 – PRODUCTS

9. MANUFACTURERS

Subject to compliance with requirements, provide steel doors and frames from a SDI Certified manufacturer:

A. CECO Door Products (C)
B. Curries Company (CU)
C. Steelcraft (S)

10. MATERIALS

10.1 Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

10.2 Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

10.3 Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

11. HOLLOW METAL DOORS

11.1 General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.

11.2 Exterior Doors: Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60. Provide doors complying with requirements indicated below by reference ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

11.2.1 Design: Flush panel.

11.2.2 Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.

11.2.3 Hinge Reinforcement: Minimum 7 gauge (3/16 inch) plate 1-1/4 inch x 9 inch, or minimum 14-gauge continuous channel with pierced holes, drilled and tapped.

11.2.4 Hardware Reinforcements: Fabricate according to ANSI / SDI A250.6 with reinforcing plates from same material as door face sheets.

11.3 Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/ A 1008M. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

11.3.1 Design: Flush panel

11.3.2 Core Construction: Manufacturer's standard kraft-paper honeycomb, or one-piece polystyrene core, securely bonded to both faces.

11.3.3 Level/Model: Level 2 and Physical Performance Level B (Heavy Duty), Minimum 18 gauge (0.042-inch – 1.0 mm) thick steel, Model 2.

11.3.4 Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.

11.3.5 Hinge Reinforcement: Minimum 7 gauge (3/16 inch) plate 1-1/4 inch x 9 inch or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.

11.3.6 Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

11.4 Manufacturers Basis of Design

11.4.1 CECO Door Products (C) Honeycomb Core – Regent Series

11.4.2 CECO Door Products (C) Energy Efficient – Trio-E Series

11.4.3 Curries Company (CU) – Polystyrene – 707 Series

12. HOLLOW METAL DOORS FOR STORM SHELTERS

12.1 General: Provide complete door and frame shelter assemblies constructed to resist the design wind pressures for components and cladding and missile impact loads as described in ICC 500 – 2014, ICC/NSSA Standard for the Design and Construction of Storm Shelters. Only single opening and paired opening doors and their frames constructed to resist calculated design wind pressures and laboratory tested missile impacts are acceptable.

12.1.1 Door systems, both single doors and paired openings, tested and complying with ICC 500 – 2014 and FEMA P-361 (2015), Design and Construction Guidance for Community Safe Rooms and supported by third party test results.

12.1.2 Sheets fabricated on exterior openings from commercial quality hot dipped zinc coated steel complying with ASTM A924 A60. Gauges to be in accordance with manufacturers tested assemblies.

12.1.3 Vertical Edges: Vertical edges to have the face sheets joined by a continuous weld extending the full height of the door. Welds are to be ground, filled and dressed smooth. Beveled Lock Edge, 18 inch in 2 inches.

12.1.4 Top Edge: Reinforce top of doors with a continuous steel channel extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached and welded in place with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.

12.1.5 Hinge Reinforcement: Minimum 7 gauge (316 inch) plate 1 14 inch x 9 inch.

12.2 Manufacturers Basis of Design:
12.2.1 CECO Door Products (C) – StormPro Series

12.2.2 Curries Company (CU) – StormPro Series

13. HOLLOW METAL FRAMES

13.1 General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.

13.2 Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/ A653M, Coating Designation A60.
13.2.1 Fabricate frames with mitered or coped corners. Profile as indicated on drawings.

13.2.2 Manufacturers Basis of Design
A. CECO Door Products (C) – SU Series

B Curries Company (C) – M Series

13.3 Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/ A 1008M.
13.3.1 Fabricate frames with mitered or coped corners. Profile as indicated on drawings.

13.3.2 Frames: Minimum 16 gauge (0.053-inch -1.3 mm) thick steel sheet.

13.3.3 Manufacturers Basis of Design:
A. CECO Door Products (C) – SU Series

B. Curries Company (C) – M Series

13.4 Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.

13.5 Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

14. FRAMES FOR STORM SHELTERS

General: Subject to the same compliance standards and requirements as standard hollow metal frames, provide complete shelter assembly resistant door and frame assemblies, for both single doors and paired openings, tested and labeled as complying with ICC 500 – 2014 and FEMA P-361 (2015) and supported by third party test results.

14.1 Fabricate exterior frames from 14 gauge hot dipped zinc coated steel that complying with ASTM designations A924 A60.

14.2 Manufacturers Basis of Design:
14.2.1 CECO Door Products (C) – StormPro Series

14.2.2 Curries Company (C) – StormPro Series

15. FRAME ANCHORS

15.1 Jamb Anchors:

15.1.1 Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.

15.1.2 Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.

15.1.3 Compression Type for Drywall Slip-on (Knock-Down) Frames: Adjustable compression anchors.

15.1.4 FEMA 361 Storm Shelter Anchors: Masonry T-shaped, wire masonry type, or existing opening type anchors.

15.2 Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.

15.3 Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

16. LIGHT OPENINGS AND GLAZING

16.1 Stop and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator's shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.

16.2 Molding for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.

16.3 Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure of interior doors and frames.

16.4 Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

17. ACCESSORIES

17.1 Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

17.2 Grout Guards: Formed from same material as frames, not less than 0.016 inches thick.

18. FABRICATION

18.1 Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

18.2 Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

18.3 Hollow Metal Doors:

18.3.1 Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.

18.3.2 Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.

18.3.3 Astragals: Provide overlapping astragals as noted in door hardware sets in Division 08 Section "Door Hardware" on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.

18.3.4 Continuous Hinge Reinforcement: Provide welded continuous 12 gauge strap for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".

18.4 Hollow Metal Frames:

18.4.1 Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

18.4.2 Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

A. Welded frames are to provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.

18.4.3 Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.

18.4.4 High Frequency Hinge Reinforcement: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.

18.4.5 Continuous Hinge Reinforcement: Provide welded continuous 12 gauge straps for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".

18.4.6 Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removeable stops, provide security screws at exterior locations.

18.4.7 Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.

18.4.8 Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.

18.4.9 Jamb Anchors: Provide number and spacing of anchors as follows:

A. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
   1) Two anchors per jamb up to 60 inches high
   2) Three anchors per jamb from 60 to 90 inches high

B. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
   1) Three anchors per jamb up to 60 inches high
   2) Four anchors per jamb from 60 to 90 inches high

C. Severe Storm Shelter Openings: Provide jamb, head, and sill anchors in accordance with manufacturer's tested and approved assemblies.

18.4.10 Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".

18.5 Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware".

18.5.1 Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8

18.5.2 Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.

18.5.3 Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.

18.5.4 Coordinate locations of conduit and wiring boxes for electrical connections with Divisions 26 Sections.

19. STEEL FINISHES

19.1 Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.

19.1.1 Shop Primer: Manufacturer's standard, fast-curing lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

PART 2 – PRODUCTS

20. EXAMINATION

20.1 Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

20.2 General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.)

20.3 Proceed with installation only after unsatisfactory conditions have been corrected.

21. PREPARATION

21.1 Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired are smooth, flush, and invisible on exposed faces.

21.2 Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.

21.3 Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames"

21.4 Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

22. INSTALLATION

22.1 General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawing and manufacturer's written instructions.

22.2 Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire-rated openings.

22.2.1 Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.

22.2.2 Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.

22.2.3 Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.

22.2.4 Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.

22.3 Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

22.3.1 Non-Fire-Rated Standard Steel Doors:

A. Jambs and Head: 1/8 inch plus or minus 1/16 inch.

B. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.

C. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.

D. Between Bottom of Door and Top of Finsh Floor (No Threshold): Maximum 3/4 inch.

22.3.2 Fire-Rated Doors: Install doors with clearances according to NFPA 80.

23. ADJUSTING AND CLEANING

23.1 Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

23.2 Remove grout and other bonding material from hollow metal work immediately after installation.

23.3 Prime-Coat and Painted Finish Touch-up: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touch-up of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

End of Section 081113

SECTION 081416

FLUSH WOOD DOORS

PART 1 – GENERAL

1. SUBMITTALS

1.1 Shop Drawings:

1.1.1 Dimensions and location of each product specified.

1.1.2 Elevation for each distinct door configuration.

1.1.3 Construction details for each distinct product type.

1.1.4 Dimensions and location of blocking for hardware.

2. QUALITY ASSURANCE

2.1 Flush Doors: Comply with the following, hereinafter referred to as referenced standard(s): "Architectural Woodwork Quality Standards, Guide Specifications and Quality Certifications Program" including Section 1300, "Architectural Flush Doors," Architectural Woodwork Institute (AWI).

3. WARRANTIES

3.1 Warranty:

Solid core wood-faced interior doors: 2 years.

PART 2 – PRODUCTS

4. FLUSH SOLID CORE WOOD-FACED DOORS

4.1 Description:

4.1.1 Interior door, customer facing areas.

4.1.2 Faces: Veneers for transparent finish.

A. Species: Red Oak

B. Cut: Quarter Sawn

C. Color: TBD

4.1.3 Finish: Sheen to be 35%

4.1.4 Grade: Premimum, 5-ply construction, architectural wood doors.

4.1.5 Construction: Manufacturer's standard.

4.1.6 Core: Bonded particle board to stiles and rails, sanded.

4.1.7 Wood stops, to match door faces.

4.2 Manufacturer

Provide products complying with requirements of the contract documents and made by the following: VT Industries, or approved equal.

5. DOOR FRAMES

5.1 Fabricate frames in accordance with AWI Section 900 and casings in accordance with AWI Section 200.

5.1.1 Grade: Same as door.

5.2 Door and frame sets may be shipped separately or pre-hung, at the Contractor's option.

6. FABRICATION

6.1 Doors: Fabricate to provide consistent clearances as indicated.

6.1.1 Hinge and lock edges: Provide standard (1/8-inch in 2 inches) bevel at edges, unless standard bevel would not precisely match hardware bevel; provide proper bevel for hardware.

6.2 Openings: Cut, trim, and seal openings in doors at the factory.

PART 3 – EXECUTION

7. INSTALLATION

7.1 Install doors in accordance with manufacturer's recommended procedures and requirements of referenced standards.

7.2 Fitting of Doors
Accurately align and fit doors for trouble free operation throughout range of door swing,

7.3 Clearances

7.3.1 Clearance between door edge and head: 1/8 inch

7.3.2 Clearance between door edge and jamb: 1/8 inch

7.3.3 Clearance between door bottom edge and top surface of threshold: 1/4 inch

7.3.4 Clearance between door bottom edge and floor covering surface or finish (where threshold is not indicated): 1/8 inch

7.5 Clearance between meeting edges at pairs of doors: 1/8 inch.

End of Section 081416

SECTION 083640

OVERHEAD DOORS

PART 1 – GENERAL

1. SUMMARY

1.1 Section Includes:

1.1.1 Aluminum sectional overhead doors

1.1.2 Steel sectional overhead doors

1.1.3 Locations for sectional overhead doors are indicated on the drawings and schedules

1.2 Products Furnished but Not Installed under This Section

1.2.1 Anchors installed in masonry for support of overhead door units

1.2.2 Furnish setting drawings, templates, and manufacturer's instructions for anchor installation to trades executing the work

2. REFERENCES

2.1 ASTM A 446/A 446M-93 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality; 1993

2.2 ASTM A 525-93 – Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process; 1993

2.3 ASTM A 526/A 526M-90 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality; 1990

2.4 NAGDM 102-1988 – Specifications for Sectional Overhead Type Doors; National Association of Garage Door Manufacturers; 1988

2.5 NEMA ICS 6-1993 – Enclosures for Industrial Control and Systems; National Electrical Manufacturers Association; 1993

2.6 NEMA 1-1993 – Motors and Generators, National Electrical Manufacturers Association; 1993

2.7 UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Underwriters Laboratories, Inc.; 1986 (Revised 1998)

3. SYSTEM DESCRIPTION

Design Requirements

Wind Loading: Sectional overhead doors shall comply with NAGDM 105 wind loading criteria

4. SUBMITTALS

4.1 Shop Drawings: Fully dimensioned and detailed drawings showing complete installation with components, materials, and finishes, and accessories indicated.

4.2 Contract Close-out Submittals

Operation and Maintenance Data: Door operation instructions and maintenance data for each door type

5. QUALITY ASSURANCE

5.1 Furnish sectional overhead door units by one manufacturer for entire project, unless noted otherwise.

5.2 Regulatory Requirements
Automatic reversing: Doors with motor operators shall comply with requirements of UL 325.

6. SEQUENCING AND SCHEDULING

Schedule the building in of masonry anchors for support of overhead sectional doors with masonry work.

7. WARRANTY

Manufacturer's Product Warranty: Submit manufacturer's standard 2-year limited product warranty signed by the manufacturer's authorized official, guaranteeing to correct failures in product which may occur during the warranty period, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents.

PART 2 – PRODUCTS

8. MANUFACTURERS

8.1 Sectional Overhead Doors
Provide products complying with requirements of the contract documents and made by one of the following:

A. Clopay Building Products Company/Garage Door Division

B. Martin Door Manufacturing, Inc.

C. Overhead Door Corporation

D. McKee Door, Inc.

E. Raynor Garage Door Company

F. Windsor Door, A United Dominion Company

G. Haas Door (specified for quality)

9. MATERIALS

9.1 Galvanized Steel
Structural quality carbon steel, ASTM A 446/Class A, or commercial quality steel sheets. ASTM A 526; minimum yield point, 33,000 pounds per square inch; gauge as indicated.

9.2 Paint

9.2.1 Metal Primer: Manufacturer's standard epoxy primer

9.2.2 Field Painted: Color as shown on drawings

10. MANUFACTURED UNITS

10.1 Haas Door CHT-732 Series commercial or approved equal (Type VIII doors)

10.1.1 Door Panels: Pre-finished steel insulated panels, held in place by rigid vinyl moulding.

10.2 Glazing: DS glass

10.3 Door Finish: Manufacturer's standard
Color: White Finish

10.4 Core: High Density CFC-Free polyurethane foam

10.5 R-Value-R14.55

10.6 Counterbalancing mechanism: Torsion Spring type

10.7 Rollers: Case-hardened steel single rollers

10.8 Installation: Vertical lift
Automatic reversing device: Wire control station for continuous pressure on the close cycle.

10.9 Accessories: Head and jamb weatherstripping

10.10 Operators: Lift Master Individual Duty Electric Hoist Model H – Provide controls next to doors.

11. COMPONENTS

11.1 Tracks

11.1.1 Manufacturer's standard galvanized steel tracks and accessories designed to accommodate door size, weight, and clearances indicated from adjacent construction.

11.1.2 Accessories: Provide brackets and reinforcing for rigid support of roller guides, for door type and size.

11.1.3 Fabricate vertical track sections with slots for door drop safety device at two inches (2") on center.

11.1.4 Tilt tracks from vertical to achieve closure at jambs when sectional door is closed. Weld or bolt to track supports.

11.2 Track Support

11.2.1 Support tracks with manufacturer's standard anchors and brackets for size and weight of door, to provide strength and rigidity, and smooth and continuous operation.

11.2.2 Wall Support: Provide continuous angle anchored to wall and welded to track in accordance with manufacturer's instructions.

11.3 Counter-balancing Mechanisms

11.3.1 Torsion Spring

A. Tempered steel torsion springs mounted on and secured to a hardened tubular steel shaft, with cable drums attached at each end of shaft.

B. Cable Drums: Grooved cast aluminum or gray iron castings, wrapped with cable attached to door.

C. Counter-balance Supports
One ball-bearing bracket at each end of shaft and a midpoint, for shafts up to 16-feet long. Provide two (2) additional brackets at third points to support shafts over 16-feet long.

D. Emergency Door Stop: Spring-loaded steel or bronze cam secured to bottom door rollers at each track.

E. Cushion Door Stop: Spring bumper attached at end of each horizontal track.

11.4 Weather Seals
Continuous rubber, neoprene, or flexible vinyl adjustable weatherstrip gasket at head and jambs of overhead door for weather gasket as head and jambs of overhead door, for weathertight installation.

11.5 Vision Panels
A. Metal Framed Doors: Install vision panels with manufacturer's standard dry glazing gasket.

B. Glazing Stops: Removable; made from door section frame material.

12. ACCESSORIES

12.1 Hardware
12.1.1 Heavy duty hardware, made from noncorrosive metal and provided with noncorrosive fasteners, as required for door type.

12.2 Hinges
12.2.1 Heavy steel hinges at each end and intermediate stile, of type recommended by manufacturer for size of overhead door.

12.2.2 Thru-bold hinges to door sections ata stiles and rails using lock washers and nuts, or rivets where access to nuts is not available.

12.3 Rollers
12.3.1 Heavy duty ball-bearing rollers, in steel races. Mount rollers with projections from door surface, as required to suit slope of track.

12.3.2 Roller tires: Type indicated; 3-inch diameter tires for 3-inch track, 2-inch diameter tires for 2-inch track, track sizes as recommended by door manufacturer for required door size.

13. FABRICATION

13.1 Steel Door Sections
13.1.1 Fabricate from galvanized steel sheet, maximum 24-inch-high section, nominal two (2) inches deep, and profile indicated on the drawings.

13.1.2 Section end closures and reinforcing: Provide 16-gage galvanized steel channel end closures, and intermediate 16 gage channel reinforcing at 48 inches on center, maximum along interior surface of section.

13.1.3 Bottom section reinforcements: Continuous channel or angle matching section profile.

13.1.4 Section reinforcing: Continuous horizontal and diagonal steel reinforcing, as necessary to comply with wind loading performance criteria.

13.2 Insulation
Type: Manufacturer's standard expanded polystyrene insulation.

13.3 Factory Finishing
Steel Door Sections
13.3.1 Pretreatment: Clean zinc-coated steel and apply zinc phosphate conversion coat.

13.3.2 Factory Paint System: Apply prime and finish coats to interior and exterior surfaces of door faces.

PART 3 – EXECUTION

14. EXAMINATION
Verification of Conditions
Examine openings to receive sectional overhead doors for conditions that will prohibit proper installation. Correct unacceptable conditions before start of installation.

15. PREPARATION
Prepare surfaces at openings where sectional overhead doors will be installed in accordance with manufacturer's recommendations.

16. INSTALLATION
16.1 Install complete overhead door assembly in compliance with manufacturer's instructions.

16.2 Anchor vertical tracks to rough opening perimeter at minimum 24-inches on center.

17. ADJUSTING
17.1 After door installation is complete, examine door performance, test operation, and adjust installation to provide smooth and quiet operation.

17.2 Adjust door operators for proper performance in accordance with manufacturer's written instruction.

18. CLEANING
Clean all door surfaces, tracks, springs, and operators, before final acceptance.

19. PROTECTION
After installation and until final acceptance, protect door, equipment, and accessories from damage, and maintain in clean condition and operating properly.

End of Section 083640

SECTION 087100

DOOR HARDWARE

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 This Section includes commercial door hardware for the following:

2.1.1 Swinging doors

2.1.2 Other doors to the extent indicated

2.2 Door hardware includes, but is not necessarily limited to, the following:

2.2.1 Mechanical door hardware

2.2.2 Electromechanical door hardware

2.2.3 Cylinders specified for doors in other sections

2.3 Related Sections

2.3.1 Division 08 Section “Door Hardware Schedule”

2.3.2 Division 08 Section “Hollow Metal Doors and Frames”

2.3.3 Division 28 Section “Access Control”

2.4 Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

2.4.1 ANSI A117.1 – Accessible and Usable Building and Facilities

2.4.2 FEMA P-361 2015 – Design and Construction Guidance for Community Safe Rooms

2.4.3 ICC 500-2014, ICC/NSSA Standard for the Design and Construction of Storm Shelters

2.4.4 ICC/IBC – International Building Code

2.4.5 NFPA 70 – National Electrical Code

2.4.6 NFPA 80 – Fire Doors and Windows

2.4.7 NFPA 101 – Life Safety Code

2.4.8 NFPA 105 – Installation of Smoke Door Assemblies

2.4.9 State Building Codes, Local Amendments

2.5 Standards: All hardware specified herein shall comply with the following industry standards:

2.5.1 ANSI/BHMA Certified Product Standards – A156 Series

2.5.2 UL10C – Positive Pressure Fire Tests of Door Assemblies

3. SUBMITTALS

3.1 Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

3.2 Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

3.2.1 Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule"

3.2.2 Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3.2.3 Content: Include the following information:

A. Type, style, function, size, label, hand, and finish of each door hardware item.

B. Manufacturer of each item

C. Fastenings and other pertinent information

D. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule

E. Explanation of abbreviations, symbols, and codes contained in schedule

F. Mounting locations for door hardware

G. Door and frame sizes and materials

H. Warranty information for each product

3.3.4 Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Product construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

3.3 Shop Drawings

Details of electrified access control hardware indicating the following:

3.3.1 Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

A. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

B. Complete (risers, point-to-point) access control system block wiring diagrams.

C. Wiring instructions for each electronic component scheduled herein.

3.3.2 Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

3.4 Proof of Qualification
Provide copy of manufacturer(s) Factory Trained Installer documentation indicating proof of status as a qualified installer of Windstorm assemblies.

3.5 Keying Schedule
After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders / cores.

3.6 Information Submittals
Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

3.7 Operating and Maintenance Manuals
Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

4. QUALITY ASSURANCE

4.1 Manufacturer Qualifications: Engage qualified manufacturers with a minimum of 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

4.2 Installer Qualifications: A minimum of 5 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

4.3 Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

4.4 Windstorm Assembly Installer Qualifications: Installers are to be factory trained for shop and field installation prior to project bid, and are responsible for commissioning, servicing, and warranting the installed equipment specified for the project. A pre-installation site inspection of the frame and floor conditions shall be conducted by the factory trained installer prior to any Windstorm assembly hardware applied to the opening.

4.5 Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

4.5.1 Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

4.5.2 Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

4.6 Severe Storm Shelter Openings: Provide complete door systems for hurricane or tornado resistant storm shelters and other areas of refuge complying and tested according to FEMA P-361 (2015), Design and Construction Guidance for Community Safe Rooms; and ICC 500 (2014), ICC/NSSA Standard for the Design and Construction of Storm Shelters.

4.7 Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

4.8 Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings". Keying conference to incorporate the following criteria into the final keying schedule document:

4.8.1 Function of building, purpose of each area and degree of security required.

4.8.2 Plans for existing and future key system expansion.

4.8.3 Requirements for key control storage and software.

4.8.4 Installation of permanent keys, cylinder cores and software.

4.8.5 Address and requirements for delivery of keys.

4.9 Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

4.9.1 Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.

4.9.2 Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.

4.9.3 Review sequence of operation narratives for each unique access-controlled opening.

4.9.4 Review and finalize construction schedule and verify availability of materials.

4.9.5 Review the required inspecting, testing, commissioning, and demonstration procedures.

4.10 At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

5. DELIVERY, STORAGE, AND HANDLING

5.1 Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

5.2 Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basis installation instructions with each item or package.

5.3 Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

6. COORDINATION

6.1 Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

6.2 Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

6.3 Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling, and access control system hardware without additional in-field modifications.

7. WARRANTY

7.1 General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

7.2 Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

7.2.1 Structural failures including excessive deflection, cracking, or breakage.

7.2.2 Faulty operation of hardware.

7.2.3 Deterioration of metals, metal finishes, and other materials beyond normal weathering.

7.2.4 Electrical component defects and failures within the systems operation.

7.3 Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

7.4 Special Warranty Periods:

7.4.1 Seven years for heavy duty cylindrical (bored) locks and latches.

7.4.2 Five years for exit hardware

7.4.3 Twenty-five years for manual surface door closer bodies.

7.4.4 Two (2) years for electromechanical door hardware.

8. MAINTENANCE SERVICE

Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions, as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 – PRODUCTS

9. SCHEDULED DOOR HARDWARE

9.1 General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

9.2 Designations: Requirements foe quantity, item, sized, finish, or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

9.2.1 Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturer's names are abbreviated in the Door Hardware Schedule.

9.3 Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the Architect, Owner, and their designated consultants.

10. HANGING DEVICES

10.1 Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.

10.1.1 Quantity: Provide the following hinge quantity, unless otherwise indicated:

A. Two Hinges: For doors with heights up to 60 inches.

B. Three Hinges: For doors with heights 61 to 90 inches.

C. Four Hinges: For doors with heights 91 to 120 inches.

D. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

10.1.2 Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

A. Widths up to 3 ft. 0 in.: 4-1/2 inch standard or heavy weight as specified.

B. Sizes from to 3 ft. 1 in. to 4 ft. 0 in.: 5 inch standard or heavy weight as specified.

10.1.3 Hinge Weight and Base Material
Unless otherwise indicated, provide the following:

A. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.

B. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

C. Tornado Resistant Assemblies: At a minimum, provide heavy weight hinges with stainless steel screws used in accordance with and specified as part of a Severe Storm Shelter Opening meeting ICC 500 and FEMA 361,

10.1.4 Hinge Options: Comply with the following:
Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

10.1.5 Acceptable Manufacturers:
A. Bommer Industries (BO)

B. Hager Companies (HA)

C. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK)

10.2 Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge, with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
10.2.1 Acceptable Manufacturers:
A. Bommer Industries (BO)

B. Hager Companies (HA)

C. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK)

D. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE)

11. POWER TRANSFER DEVICES

11.1 Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
11.1.1 Acceptable Manufacturers:
A. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE) – EL-CEPT Series

B. Securitron (SU) – EL-CEPT Series

C. Von Duprin (VD) – EPT-10 Series

11.2 Electric Door Wire Harnesses: Provide electric / data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
11.2.1 Provide one each of the following tools as part of the base bid contract:
A. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – Electrical Connecting Kit: QC-R001

B. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – Connector Hand Tool: QC-R003

11.2.2 Acceptable Manufacturers:
A. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – QC-C Series

12. CYLINDERS AND KEYING

12.1 General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

12.2 Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as lockets and exit devices, unless otherwise indicated.
12.2.1 Acceptable Manufacturers:
A. Sargent Manufacturing (SA)

12.3 Cylinders: Original manufacturer cylinders complying with the following:
12.3.1 Mortise Type: Threaded cylinders with rings and cams to suit hardware application.

12.3.2 Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.

12.3.3 Bored-Lock Type: Cylinders with tailpieces to suit locks.

12.3.4 Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.

12.3.5 Keyway: Manufacturer's Standard

12.4 Keying System: Each type of lock and cylinders to be factory keyed.
12.4.1 Conduct specified "Keying Conference" to define and document keying system instructions and requirements.

12.4.2 Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.

12.4.3 New System: Key locks to a new key system as directed by the Owner.

12.5 Key Quantity: Provide to following minimum number of keys:
12.5.1 Change Keys per Cylinder: Two (2)

12.5.2 Master Keys (per Master Key Level/Group): Five (5)

12.6 Key Registration List (Bitting List):
12.6.1 Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

12.6.2 Provide transcript list in writing or electronic file as directed by the Owner.

12.7 Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
12.7.1 Acceptable Manufacturers:
A. Lund Equipment (LU)

B. MMF Industries (MM)

C. Telkee (TK)

13. MECHANICAL LOCKS AND LATCHING DEVICES

13.1 Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.

13.1.1 Furnish with solid cast levers, standard 2-3/4 inch backset, and 1/2 (3/4 inch at rated paired openings) throw brass or stainless steel latchbolt.

13.1.2 Locks are to be non-handed and fully field reversible.

13.1.3 Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 2 million cycles.

13.1.4 Acceptable Manufacturers:

A. Corbin Russwin Hardware (RU) – CL3300 Series

B. Sargent Manufacturing (SA) – 10 Line

C. Schlage (SC) – ND Series

14. LOCK AND LATCH STRIKES

14.1 Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

14.1.1 Flat-Lip Strikes: For locks with three-piece antifriction latch-bolts, as recommended by manufacturer.

14.1.2 Extra-Long-Lip-Strikes: For locks used on frames with applied wood casing trim.

14.1.3 Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

14.1.4 Double-lipped Strikes: For locks at double-acting doors. Furnish with retractable stop for rescue hardware applications.

14.2 Standards: Comply with the following:

14.2.1 Strikes for Mortise Locks and Latches: BHMA A156.13

14.2.2 Strikes for Bored Locks and Latches: BHMA A 156.2

14.2.3 Strikes for Auxiliary Deadlocks: BHMA A156.36

14.2.4 Dustproof Strikes: BHMA A156.16

15. CONVENTIONAL EXIT DEVICES

15.1 General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

15.1.1 At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

15.1.2 Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.

15.1.3 Except on fire rated doors, provide exit devices with hex key dogging device to hold the push-bar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.

15.1.4 Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.

15.1.5 Lever Opening Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded stud for thru-bolts.

A. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.

B. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

15.1.6 Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

15.1.7 Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2-inch wide stiles.

15.1.8 Dummy Push Bar: Nonfunctioning push bar matching functional push bar.

15.1.9 Extended Cycle Test: Devices to have been cycle tested in ordinance with ANSI/BHMA 156.3 requirements to 9 million cycles.

15.1.10 Rail Sizing: Provide exit device rails factory-sized for proper door width application.

15.1.11 Through Bolt Installation: For exit devices and trim, as indicated in Door Hardware Sets.

15.2 Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA 156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

15.2.1 Acceptable Manufacturers:

A. Corbin Russwin Hardware (RU) – ED4000 / ED 5000 Series

B. Sargent Manufacturing (SA) – 80 Series

16. DOOR CLOSERS

16.1 All door closers specified herein shall meet or exceed the following criteria:

16.1.1 General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.

16.1.2 Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be UL listed for use of fire rated doors.

16.1.3 Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.

16.1.4 Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.

16.1.5 Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

16.1.6 Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

16.1.7 Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners, as specified in the hardware sets.

16.2 Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical values for closing sweep and latch speed control.

16.2.1 Acceptable Manufacturers:

A. Corbin Russwin Hardware (RU) – DC8000 Series

B. Norton Door Controls (NO) – 9500 Series

C. Sargent Manufacturing (SA) – 281 Series

17. ARCHITECTURAL TRIM

17.1 Door Protective Trim

17.1.1 General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

17.1.2 Size: Fabricate protection plates (kick, armor, or mop), not more than 2-inches less than door width (LDW) on stop side of single doors and 1-inch LDW on stop side of pairs of doors, and not more than 1-inch less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates.

17.1.3 Where plates are applied to fire rated doors with the top of the plate more than 16 inches above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.

17.1.4 Protection Plates
ANSI/BHMA A156.6 certified protection plates (kick armor mop), fabricated from the following:

A. Stainless Steel: 300 grade, 0.50-inch thick.

17.1.5 Options and Fasteners: Provide manufacturer's designated fastener type, as specified in the Hardware Sets)

17.1.6 Acceptable Manufacturers
- A. Burns Manufacturing (BU)
- B. Hager Companies (HA)
- C. Hiawatha, Inc. (HI)
- D. Rockwood Products; ASSA ABLOY Architectural Door Association (RO)

18. DOOR STOPS AND HOLDERS

18.1 General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

18.2 Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead-type stops and holders.

18.2.1 Acceptable Manufacturers
- A. Burns Manufacturing (BU)
- B. Hager Companies (HA)
- C. Hiawatha, Inc. (HI)
- D. Rockwood Products; ASSA ABLOY Architectural Door Association (RO)

18.3 Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm, and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

18.3.1 Acceptable Manufacturers
- A. Rixon Door Controls (RF)
- B. Rockwood Products; ASSA ABLOY Architectural Door Association (RO)
- C. Sargent Manufacturing (SA)

19. ARCHITECTURAL SEALS

19.1 General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

19.2 Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

19.2.1 Provide smoke labeled perimeter gasketing at all smoke labeled openings.

19.3 Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

19.3.1 Provide intumescent seals as indicated to meet UL-10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

19.4 Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

19.5 Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

19.6 Hurricane and Tornado Resistance Compliance: Architectural seals to be UL listed for windstorm assemblies where applicable. Provide the appropriate hurricane or tornado resistant products that have been independently third party tested, certified, and labeled to meet state and local windstorm building codes applicable to the project.

19.6.1 Acceptable Manufacturers:

A. National Guard Products (NG)

B. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE)

C. Reese Enterprises, Inc. (RE)

20. ELECTRONIC ACCESSORIES

20.1 Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into 1-inch diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.

20.1.1 Acceptable Manufacturers:

A. Sargent Manufacturing (SA) – 3280 Series

B. Security Door Controls (SD) – DPS Series

C. Securitron (SU) – DPS Series

21. FABRICATION

21.1 Fasteners: Provide door hardware manufacturered to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturer’s recognized installation standards for application intended.

22. FINISHES

22.1 Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

22.2 Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

22.3 Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 – EXECUTION

23. EXAMINATION

23.1 Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

23.2 Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

24. PREPARATION

24.1 Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

24.2 Wood Doors: Comply with ANSI/DHI A115-W series.

25. INSTALLATION

25.1 Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

25.1.1 Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

25.2 Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

25.2.1 Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames".

25.2.2 Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors"

25.2.3 Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities"

25.2.4 Provide blocking in drywall partitions where wall stops or other wall-mounted hardware is located.

25.3 Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

25.4 Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants".

25.5 Storage: Provide a secure lock-up for hardware delivered to the project, but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

26. FIELD QUALITY CONTROL

26.1 Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating, and adjusted.

27. ADJUSTING

27.1 Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

28. CLEANING AND PROTECTION

28.1 Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

28.2 Clean adjacent surfaces soiled by door hardware installation.

28.3 Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of owner occupancy.

29. DEMONSTRATION

29.1 Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

30. DOOR HARDWARE SETS

30.1 The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only, and should not be considered a detailed hardware schedule.. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

30.2 Manufacturer's Abbreviations:

A. MK – McKinney
B. PE – Pemko
C. SA – Sargent
D. AL – Alarm Lock Systems
E. RF – Rixson
F. RO – Rockwood
G. SU – Securitron
H. LU – Lund Equipment Co., Inc.

(Door Hardware Sets begin on following page.)

DOOR HARDWARE SETS

SET: 1.0
Doors: 01, 02, 09, 12
Description: Exterior

1	Continuous Hinge	CFMHD1 PT x Door Height		PE
1	Fail Secure Electric Lock	RX 28 10G71-24V LB MK	US26D	SA
1	Door Closer	TB 281 CPS	EN	SA
1	Kick Plate	K1050 10" X 2" LDW BEV CSK	US32D	RO
1	Door Stop	462	US2C	RO
1	Threshold	279x292AFGPK x Opening Width		PE
1	Gasketing	S773D (Head & Jambs)		PE
1	Rain Guard	346C x Overall Frame Width		PE
1	Sweep	345ANB x Door Width		PE
1	Electric Power Transfer	EL-CEPT		SU
1	ElectroLynx Harness	QC-C1500P		MK
1	ElectroLynx Harness	QC-C Length Required		MK
1	Position Switch	DPS-M-BK		SU

Notes: Card reader furnished by Owner.
Power supply furnished by the access control supplier.

SET: 2.0
Doors: 08, 10, 11, 13
Description: Exterior

Notes: All hardware furnished by the Overhead Door Supplier.

SET: 3.0
Doors: 03, 06
Description: Women, Men

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Privacy Set	28 10U65 LB	US26D	SA
1	Wall Stop	409	US32D	RO
3	Silencer	608		RO

SET: 4.0
Doors: 04
Description: Mechanical, Electrical

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Passage Set	28 10U15 LB	US26D	SA
1	Wall Stop	409	US32D	RO
3	Silencer	608		RO

SET: 5.0
Doors: 05
Description: Server Closet

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	28 10G04 LB MK	US26D	SA
1	Wall Stop	409	US32D	RO
3	Silencer	608		RO

SET: 6.0
Doors: 07
Description: Ambulance Bay

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Push Plate	70C	US32D	RO
1	Pull Plate	BF 107x70C	US32D	RO
1	Door Closer	TB 281 CPS	EN	SA
1	Kick Plate	K1050 10" x 2" LDW BEV CSK	US32D	RO
1	Threshold	279x292AFGPK x Opening Width		PE
1	Gasketing	S773D (Head & Jambs)		PE
1	Door Sweep	315CN x Door Width		PE

SET: 7.0
Doors: 14
Description: Storage (Shelter)

4	Hinge	SP3786 5" x 4-1/2"	US26D	MK
1	Multi-Point Lock	FM7325 OB MK	US26D	SA
1	Door Closer	TB 281 CPS	EN	SA
3	Silencer	608		RO

SET: 8.0
Doors: 114a
Description: Shelter (Rated)

8	Hinge, Hvy Wt.	SP3786 NRP 5" x 4-1/2"	US26D	MK
2	Surface Bolt	988	Bright Zinc	SA
1	Multi-Point Lock	LC FM7325 LNB	626	SA
1	Mortise Cylinder	2153 MK x Correct Cam	626	YA
1	Coordinator	576	BSP	RO
2	Surface Closer	TB 281 P10	EN	SA
2	Electromagnetic Holder	998M	EN	NO
1	Gasketing	S773BL (Head & Jambs)	PE	

Notes: Metal overlapping astragal furnished by Hollow Metal Door Supplier.
Doors will have a 3/8" undercut.
Bottom strikes will be mounted directly to the concrete floor.

End of Section 087100

SECTION 088000

GLAZING

PART 1 – GENERAL

1. SUMMARY

1.1 Section Includes:

1.1.1 Monolithic glass

1.1.2 Insulating glass

1.1.3 Mirror glass

1.2 Types of work in this section include work for:

1.2.1 Interior windows

1.2.2 Interior doors

1.2.3 Mirrors

2. PERFORMANCE REQUIREMENTS

2.1 Exterior Glazing: Provide glazing assemblies which will withstand normal conditions without failure, loss of weathertightness, or deterioration.

2.1.1 Design to withstand wind loading as specified by applicable code for parts/portions of buildings.

A. Statistical probability of breakage: 8 per 1000, maximum, at 60-second wind load.

2.2 Deterioration includes:

2.2.1 For insulating glass:

A. Moisture or dirt between panes

B. Development of condensation between panes

C. Damage to internal coating, if any

D. Development of other visible indication of seal failure

3. SUBMITTALS

3.1 Certification by Contractor, installer, glass fabricator, or manufacturer that glass thickness and heat treatment have been selected to provide the strength required to meet specified structural performance requirements.

3.2 Certificates from mirror adhesive manufacturer and mirror manufacturer stating that adhesive and mirror backing coating are compatible.

PART 2 – PRODUCTS

4. GLASS TYPES

4.1 Glass Types – General: Provide glass types fabricated of the glass products indicated.

4.1.1 Exterior glass thickness: 1/4 inch nominal (6 mm) minimum. (Insulating units.)

4.1.2 Interior glass thickness: 1/4 inch nominal (6 mm) minimum; unless otherwise indicated.

4.1.3 Heat treatment for exterior glass: As recommended by glass manufacturer to provide strength necessary to resist specified loads.

A. Exception: Safety glazing requirements supersede this strength requirement.

4.1.4 Where safety glazing is required by governing authorities, provide certified safety glazing.

4.1.5 Cut tempered glass to size and shape and drill holes prior to tempering.

4.1.6 Grind exposed edges smooth, using methods recommended by manufacturer.

4.2 Glass Type I – 1: Sealed insulating units. (Exterior Windows)

4.2.1 Total thickness: 1-inch, nominal.

4.2.2 Exterior Pane: Transparent float glass.

A. Fully tempered float glass.

B. Coated Low “E” glass.

C. Color: Clear

4.2.3 Interior Pane: Transparent float glass

A. Fully tempered float glass

B. Color: Reference Window Schedule

4.3 Glass Type S – 1: Float glass (Interior Windows)

4.3.1 Fully tempered: 1/4-inch glass

4.3.2 Color: Clear

4.4 Glass Type M – 1: Mirror glass

4.4.1 Annealed float glass

4.4.2 Thickness: 5/16 inch

4.4.3 Color: Clear

4.4.4 Edge Treatment: Ground

5. BASIC GLASS PRODUCTS

5.1 Sealed Insulating Units

Factory-assembled multiple panes separated by and sealed to spacers, forming air-tight, dehydrated air spaces.

5.1.1 ASTM E 774, Class A

5.1.2 Spacer Seals: Manufacturer’s Standard

5.2 Float Glass: Quality q3, unless otherwise indicated.
5.2.1 For mirrors: Quality q1 or q2

5.2.2 Annealed: ASTM C 1036, Type I

5.2.3 Heat-strengthened: ASTM C 1048, Kind HS, Type I

5.2.4 Fully tempered: ASTM C 1048, Kind FT, Type I

Tong marks are permitted if they will be concealed in glazing channel.

5.3 Mirror Glass
Float glass, with minimum 4-layer coating consisting of silver, copper, and two (2) heat-cured protective coats; tested in accordance with with FS DD-M-411.
5.3.1 Fabrication: Always use glove when handling mirror glass.
A. Fabricate in the shop; avoid mechanical and chemical damage to backing.

5.3.2 Seal edges immediately after fabrication with coating recommended by backing coating manufacturer and mirror manufacturer.

PART 3 – EXECUTION

6. INSTALLATION – GENERAL

6.1 Comply with recommendations for installation contained in the FGMA "Glazing Manual" and "Sealant Manual" except when specifically not recommended or prohibited by the glass or glazing material manufacturer; comply with manufacturer's recommendations.

6.2 Protect glazing from edge damage during handling and installation.

6.3 Do not install glass that has edge damage or defects that reduce glass strength or performance or diminish appearance.

6.4 Do not block weep holes.

7. MIRROR INSTALLATION

7.1 Install mirrors in accordance with the recommendations of the mirror manufacturer with FGMA "Glazing Manual".
7.1.1 Do not install mirrors having any damage to backing coating.

7.1.2 Do not install until all other work in the area is complete.

7.1.3 Do not install until permanent HVAV systems are in operation.

7.1.4 Do not install in areas where airborne solvents or heavy duty cleaners are being used; ventilate areas thoroughly after use before installing mirrors.

7.1.5 Do not install over recently installed plaster, masonry, concrete, or paint.

7.1.6 Install with at least 3/16-inch space between back surface of mirror and substrate.

7.1.7 Mount plumb; provide shims or spacers if required.

7.1.8 Mount adjacent pieces in the same plane.

7.2 Adhesive Installation: Comply with recommendations of adhesive manufacturer.
7.2.1 Provide temporary support for mirror until adhesive sets.

End of Section 088000

SECTION 092900

GYPSUM BOARD

PART 1 – GENERAL

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

2. SUMMARY
2.1 Section Includes:
Interior gypsum board.

2.2 Related Requirements:

3. ACTION SUBMITTALS
3.1 Product Data: For each type of product

3.2 Samples: For the following products:
3.2.1 Trim Accessories: Full-size Sample in 12-inch long length for each trim accessory indicated.

4. DELIVERY, STORAGE, AND HANDLING
Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

5. FIELD CONDITIONS
5.1 Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

5.2 Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

5.3 Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
5.3.1 Indications that panels are wet or moisture damaged include, but are not limited to: discoloration, sagging, or irregular shape.

5.3.2 Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 – PRODUCTS

6. PERFORMANCE REQUIREMENTS
STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

7. GYPSUM BOARD – GENERAL
Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

8. INTERIOR GYPSUM BOARD

8.1 Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

A. American Gypsum

B. CertainTeed Corp.

C. Georgia-Pacific Gypsum, LLC

D. Lafarge North America, Inc.

E. National Gypsum Company

F. PABCO Gypsum

G. Temple-Inland

H. USG Corporation

8.2 Gypsum Board, Type X: ASTM C 1396 / C 1396M

A. Thickness: 5/8 inch

B. Long Edges: Tapered

C. Provide moisture resistant finish in wet areas, such as Laundry, Janitor, bathrooms

9. TRIM ACCESSORIES

9.1 Interior Trim: ASTM C 1047

9.1.1 Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.

9.1.2 Shapes:

A. Corner-bead

B. Bullnose bead

C. LC-Bead: J-shaped; exposed long flange receives joint compound

D. L-Bead: L-shaped; exposed long flange receives joint compound

E. U-Bead: J-shaped; exposed short flange does not receive joint compound

F. Expansion (control) joint

G. Curved-Edge Corner-bead: with notched or flexible flanges

9.2 Exterior Trim: ASTM C 1047

9.2.1 Material: Hot-dip galvanized steel, sheet, plastic, or rolled zinc.

9.2.2 Shapes:

A. Corner-bead

B. LC-Bead: J-shaped; exposed long flange receives joint compound.

C. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removeable strip covering slot opening.

9.3 Aluminum Trim: Extruded accessories of profiles and dimensions indicated
9.3.1 Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal.
A. Fry Reglet Corp.
B. Gordon, Inc.
C. Pittcon Industries

10. JOINT TREATMENT MATERIALS

10.1 General: Comply with ASTM C 475/C 475M

10.2 Joint Tape
10.2.1 Interior Gypsum Board: Paper

10.2.2 Exterior Gypsum Soffit Board: Paper

10.2.3 Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh

10.2.4 Tile Backing Panels: As recommended by panel manufacturer

10.3 Joint Compound for Interior Gypsum Board
For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
10.3.1 Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.

10.3.2 Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping or drying-type, all-purpose compound.
A. Use setting-type compound for installing paper-faced metal trim accessories.

10.3.3 Fill Coat: For second coat, use setting-type, sandable topping or drying-type, all-purpose compound.

10.3.4 Finish Coat: For third coat, use setting-type, sandable topping or drying-type, all-purpose compound.

10.3.5 Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound or drying-type, all purpose compound.

11. AUXILIARY MATERIALS

11.1 General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

11.2 Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

11.3 Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
11.3.1 Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

11.3.2 For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

11.4 Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

11.4.1 Products are subject to compliance with requirements, provide one of the following or preferred equal.

A. Accmetric, LLC; BOSS 824 Acoustical Sound Sealant

B. Grabber Construction Products; Acoustical Sealandt

C. Pecora Corporation

D. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant

E. USG Corporation; Sheetrock Acoustical Sealant

11.5 Thermal Insulation: As specified in Division 07 Section "Thermal Insulation'

11.6 Vapor Retarder: As specified in Division 07 Section "Thermal Insulation"

PART 3 – EXECUTION

12. EXAMINATION

12.1 Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

12.2 Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

12.3 Proceed with installation only after unsatisfactory conditions have been corrected.

13. APPLYING AND FINISHING PANELS – GENERAL

13.1 Comply with ASTM C 840.

13.2 Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

13.3 Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

13.4 Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

13.5 Form control and expansion joints with space between edges of adjoining gypsum panels.

13.6 Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.) except in chases brace internally.

13.6.1 Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.

13.6.2 Fit gypsum panels around ducts, pipes, and conduits.

13.6.3 Where partitions intersect structural members projecting below underside of floor / roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4 to 3/8 inch wide joints to install sealant.

13.7 Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 14 to 12-inch wide speces at these locations and trim edges where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

13.8 Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

13.9 Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.

13.10 STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

13.11 Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

14. APPLYING INTERIOR GYPSUM BOARD

14.1 Install interior gypsum board in the following locations:

14.1.1 Wallboard Type: As indicated on Drawings

14.1.2 Type X: As indicated on Drawings

14.1.3 Ceiling Type: Future as indicated on Drawings

14.2 Single-Layer Application

14.2.1 On ceilings, apply gypsum panels before wall / partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.

14.2.2 On partitions / walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

A. Stagger abutting end joints not less than one framing member in alternate courses of panels.

B. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistant-rated assembly.

14.2.3 On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.

14.2.4 Fastening Methods: Apply gypsum panels to supports with steel drill screws.

14.3 Multi-Layer Application

14.3.1 On ceilings, apply gypsum board indicated for base layers before applying base layers on walls / partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.

14.3.2 On partitions / walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.

14.3.3 On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.

14.3.4 Fastening Methods: Fasten base layers and face layers separately to supports with screws.

14.4 Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board) comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

14.5 Curved Surfaces

14.5.1 Install panels horizontally (perpendicular to supports) and unbroken, to extent possible, across curved surface plus 12-inch long straight sections at ends of curves and tangent to them.

14.5.2 For double-layer construction, fasten base layer to studs with screws 16 inches o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 12 inches o.c.

15. APPLYING EXTERIOR GYPSUM PANELS FOR CEILINGS AND SOFFITS

15.1 Apply panels perpendicular to supports, with end joints staggered and located over supports.

15.1.1 Install with 1/4-inch open space where panels abut other construction or structural penetrations.

15.1.2 Fasten with corrosion-resistant screws.

16. INSTALLING TRIM ACCESSORIES

16.1 General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

16.2 Control Joints: Install control joints at locations according to ASTM C 840 and in specific locations approved by Architect for visual effect.

16.3 Interior Trim: Install in the following locations:
16.3.1 Corner-bead: Use at outside corners unless otherwise indicated

16.3.2 LC-Bead: Use at exposed panel edges

16.3.3 L-Bead: Use where indicated

17. FINISHING GYPSUM BOARD

17.1 General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

17.2 Prefill open joints, rounded or beveled edges, and damaged surface areas.

17.3 Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

17.4 Gypsum Board Finish Levels: Finish panels according to ASTM C 840.

18. PROTECTION

18.1 Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

18.2 Protect install products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

18.3 Remove and replace panels that are wet, moisture damaged and mold damaged.
18.3.1 Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

18.3.2 Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

End of Section 092900

SECTION 093000

TILE

PART 1 – GENERAL

1. SUMMARY
Section Includes: Ceramic Tile

2. REFERENCES
2.1 ANSI A108.5-1992 – Installation of Ceramic Tile with Dry-Set Portland Cement Mortar of Latex-Portland Cement Mortar; 1992.

2.2 ANSI A108.10-1992 – Installation of Grout in Tilework; 1992.

2.3 ANSI A118.4-1992 – American National Standard Specifications for Ceramic Tile Grouts; 1992.

2.4 ANSI A118.6-1992 – American National Standards for Ceramic Tile Grouts; 1992.

2.5 Handbook for Ceramic Tile Installation; Tile Council of America, Inc. (TCA) 1994.

3. SUBMITTALS
3.1 Product Data: Written product information which demonstrates materials to be used on the project comply with contract documents.

3.2 Samples – Initial Selection: Manufacturer's color selection boards of actual tile materials including a complete selection of available tile colors and finishes for each tile type indicated. Include samples of accessory materials requiring color selection.

3.3 Qualifications Documentation: Written confirmation that companies executing work in this section comply with experience requirements.

4. QUALITY ASSURANCE
4.1 Material Source: Furnish each type, finish, and color of tile product and accessory materials from a single supplier.

4.2 Installer: A company with not less than 20 installations of tile work similar in size and complexity to the work of this project.

5. DELIVERY, STORAGE, AND HANDLING
Deliver and store tile products and setting materials in manufacturer's sealed packages. Protect material from damage and store in dry location.

6. PROJECT CONDITIONS
6.1 Provide temperatures in tiled areas during installation and after completion as required by referenced installation standard or manufacturer's instructions, but not less than 50 degrees F.

6.2 If necessary to use temporary heaters, vent units to exterior to protect tile work from carbon dioxide accumulation.

7. MAINTENANCE

7.1 Extra Materials: Deliver supply of maintenance materials to the Owner. Furnish maintenance materials from same lot as materials installed, and enclosed in protective packaging with appropriate identifying labels.

7.1.1 If necessary to use temporary heaters, vent units to exterior to protect tile work from carbon dioxide accumulation.

PART 2 – GENERAL

8. MATERIALS – GENERAL

8.1 Tile Installation Materials Standard: ANSI standards referenced for setting and grouting materials.

8.1.1 The trim and accessories: Match color and finish of adjoining flat tile unless otherwise noted on the drawings.

8.2 Color Blending: Factory-blend tile products which have a natural color range so products taken from one box will have the same range as products from a separate box.

9. TILE PRODUCTS

See Drawings for tile product specifications.

10. SETTING MATERIALS

10.1 Latex-Portland Cement Mortar: One-compound dry grout mix, field-mixed with water; or two-component, dry grout mix and liquid latex additive, field-mixed; complying with ANSI A118.4.

10.1.1 All components premeasured and prepackaged.

10.1.2 Dry latex additive: Polyvinyl acetate or ethylene vinyl acetate.

10.1.3 Liquid latex additive: Manufacturer's standard water emulsion.

10.1.4 Mix in accordance with manufacturer's recommendations.

11. GROUTING MATERIALS

11.1 Sand-Portland Cement Grout: ANSI A 108.10.

11.1.1 Colors: Selected by Architect, after contract award, from manufacturer's standard.

12. MISCELLANEOUS MATERIALS

Tile Cleaner: Product specifically acceptable to tile manufacturer and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation of Ceramic Tile Institute.

13. MIXING MORTAR AND GROUT

Mix mortar and grout to comply with referenced standards and manufacturer's mixing procedures.

PART 3 – EXECUTION

14. EXAMINATION

Verify with the installer that substrate areas where tile is to be installed have been prepared correctly, and that all backing materials have been installed. Correct unacceptable conditions before start of tile work.

15. PREPARATION

Factory-Blending: Before start of installation verify that tile with an anticipated range of colors has been correctly blended to achieve a uniform color range from tile package to tile package.

16. INSTALLATION – GENERAL

16.1 Tile Installation Standard: ANSI A 108 series, for setting and grouting materials listed.

16.2 Installation Methods: Comply with TCA "Handbook for Ceramic Tile Installation" for type of applications indicated.

16.3 Install tile under or behind equipment and fixures.

16.4 Carefully cut, drill, and grind tile to fit around items projecting through tile surface, so that escutcheons or cover plates conceal cut edges.

16.5 Joint Patterns: Lay out tile according to patterns indicated on drawings, or if not shown, in a grid pattern with floor joints aligning with wall and trim joints. Install joints straight and uniform width.

16.6 Sealant-Filled Joints: Install expansion, control, and isolation joints where indicated on drawings. Saw-cut joints are unacceptable.
16.1.1 Expansion joint installation method: TCA EJ 171.

16.7 Grout Installaton Standards:
Ceramic tile grouts (sand-portland cement, dryset, commercial portland cement, and latex-portland cement): ANSI A108.10.

17. TILE APPLICATIONS

17.1 Interior Walls, Thin-Bed:
17.1.1 Installation method:
A. Concrete subfloor: TCA F113

B. Bond Coat: Latex-port

17.1.2 Grout: Sand-portland cement.

18. CLEANING AND PROTECTION

18.1 Clean tile surfaces after installation is complete.
Only clean unglazed tile with acid solutions when recommended by the tile manufacturer. If acid solution is and acceptable cleaner, wait minimum fourteen (14) days after installation to clean tile. Protect materials other than tile from the acid solution during cleaning process.

18.2 Replace any broken, chipped, marred, or otherwise damaged tile before final acceptance.

18.3 Protection: Apply neutral protective cleaner to tile after installation if recommended by tile manufacturer. Overlay completed tile installation with kraft paper for protection from subsequent construction activities.
18.3.1 Do not allow any traffic on completed tile floors for minimum seven (7) days after Completion.

18.3.2 Remove protection, rinse, and dry tile installations before final review and acceptance.

End of Section 093000

SECTION 095123

ACOUSTICAL LAY-IN CEILINGS

PART 1 – GENERAL

1. SUMMARY

Section Includes:

1.1 Exposed suspension system

1.2 Trim and accessories

1.3 Acoustical lay-in panels

2. REFERENCES

2.1 ASTM A 641-92 – Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 1992

2.2 ASTM C 635-94 – Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 1994

2.3 ASTM C 636-92 – Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 1992

2.4 ASTM E 84-91a – Standard Test Method for Surface Burning Characteristics of Building Materials; 1991

2.5 ASTM E 1264-90 – Standard Classification for Acoustical Ceiling Products; 1990

3. SUBMITTALS

3.1 Product Data: Submit data for each distinct suspension system and acoustical unit type indicated.

3.2 Samples: Submit the following:

3.2.1 Verification samples:

A. Acoustical Units: 12-inch-square samples of each type required

B. Exposed suspension and trim elements:
12-inch-long samples of each type and finish required.

4. QUALITY ASSURANCE

4.1 Fire Performance Characteristics

4.1.1 Surface burning characteristics:
Provide products having the following characteristics when tested in accordance with ASTM E 84:

A. Maximum flame spread: 25

B. Maximum smoke developed: 50

5. PROJECT CONDITIONS

5.1 Coordination Data: Prepare and distribute to affected installers, data necessary for coordination with related work. Include setting diagrams showing placement of attachment devices for acoustical ceiling hangers.

5.2 Within each space to receive specified products, do no begin installation until the following conditions are met:

5.2.1 Work above ceilings has been finished, tested, and approved.

5.2.2 Space to receive ceiling system is properly enclosed and protected from weather.

5.2.3 Any wet work within the space is dry.

5.3 Do not begin installation of ceiling system until building's normal operating temperature and humidity levels have been reached and will be maintained.

6. MAINTENANCE

6.1 Extra Materials: After ceiling installation has been completed, deliver to the Owner replacement materials for materials installed. Furnish products with precisely match installed products. Protect with appropriate packaging and provide clear, legible labels.

6.1.1 Acoustical lay-in panels: Furnish full-sized panels in quantities not less than 2 percent of quantity of panels installed.

PART 2 – PRODUCTS

7. ACOUSTICAL CEILING UNITS – GENERAL

Standard for Acoustical Ceiling Units: Provide units conforming to applicable requirements of ASTM E 1264 for Class A materials.

8. CEILING SUSPENSION SYSTEMS – GENERAL

8.1 Provide suspension systems conforming to specified requirements and to requirements of ASTM C 635.

8.2 Colors: Provide indicated colors. Where color is not indicated, provide colors as selected by the Architect from manufacturer's complete set of standard colors.

8.3 Finishes: Manufacturer's standard shop-applied finishes.

8.4 Attachment Devices for Suspension System:

8.4.1 Anchors and intermediate support members: Provide sizes capable of sustaining five (5) times the load-carrying capabilities shown in ASTM C 635, Table 1, "Direct Hung" column.

8.5.1 Hanger wire: Zinc-coated (galvanized) carbon steel wire, ASTM A 641, soft temper, with Class 1 coating, minimum 12 gage (0.106 inch diameter).

8.5 Edge Moldings and Trim
Extruded plastic or metal; provide profiles indicated.

9. LAY-IN ACOUSTICAL CEILING SYSTEM

9.1 Acoustical Panels: Ceiling ACT-1: Fine fissured #1732 tile as manufactured by Armstrong.

A. Size: 24 x 24 inches

B. Edge Profile: Face rabbeted for reveal grid

C. Color: White

9.2 Exposed Grid: Formed steel with painted finish.
- A. Profile: 15/16" Grid w/Shadow Molding tee
- B. Structural classification (ASTM C 635): Intermediate-Duty System
- C. Color and Texture: White
- D. Acceptable product: Armstrong or approved equal as recommended by tile manufacturer

PART 3 – EXECUTION

10. EXAMINATION
Examine substrates and conditions under which products of this section are to be installed and verify that the work properly may commence.

11. PREPARATION
Layout: Position ceiling components to maximize use of full-sized acoustical units and to provide border units which are equal in size and shape at opposing ceiling edges. Use of acoustical units which are smaller than 12 full-width is prohibited at ceiling perimeters. Conform to reflected ceiling plans to greatest extent possible.

12. SUSPENSION SYSTEM INSTALLATION
12.1 General

12.1.1 Conform to the requirements of ASTM C 636, manufacturer's installation instructions, and governing regulations.

12.1.2 Install hangers plumb and supported soley by building structure or carrying channels. Do not allow hangers to contact any objects or materials in ceiling plenum which are not actual components of ceiling system.
- A. Splay hangers only where necessary to avoid obstacles. Provide counters-playing, bracing, or other acceptable devices to compensate for lateral stresses caused by splayed hangers.

12.1.3 Splay hangers at not more than 48 inches on center and within 6 inches of ends of each direct-hung runner or carrying channel, unless indicated otherwise.

12.1.4 Space hangers at not more than 48 inches on center and within 6 inches of ends of each direct-hung runner or carrying channel, unless indicated otherwise.

12.1.5 Loop and tie wire hangers securely to building's structural members; to attachment devices indicated; or where not indicated, to devices suitable for substrate and capable of permanently supporting ceiling weight without failure or deterioration.

12.1.6 Level ceiling suspension system to tolerance of 1/8 inch in 12 feet, with cumulative tolerance not to exceed 1/4 inch. Bending or kinking of hangers is not allowed.

12.2 Exposed (Lay-in) Grid Installation: Install grid members square, with ends of members securely interlocked. Remove and replace dented, bent, or kinked members.

13. TRIM INSTALLATION

Install edge moldings and trim units at acoustical ceiling borders, at locations indicated, and where required to cover acoustical unit edges.

13.1 Molding and trim attachment: Space screws not more than sixteen inches (16") on center and within three inches (3") of ends of each trim-piece being installed. Install moldings and trim level with suspension system and within tolerance specified for suspension system.

13.2 Miter corners and align butt joints carefully to form tight hairline joints.

13.3 Face-riveting of trim and moldings is not allowed.

14. LAY-IN PANEL INSTALLATION

14.1 Panel Installation: Install acoustical panels for accurate fit with suspension system and trim members. Scribe and cut panels at ceiling perimeter and at obstructions to provide neat, precise fit.

14.1.1 Square-edge panel installation: Provide installation with panel edges which are hidden from view, by suspension members or trim.

15. ADJUST AND CLEAN

15.1 Use ceiling manufacturer's recommended methods and materials to clean and touch-up exposed components of ceiling system.

15.2 Replace ceiling system components which are discolored or damaged in any way, in a manner which results in the ceiling system showing no evidence of replacement work.

End of Section 095123

SECTION 096816

RESILIENT MATERIALS

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. WORK INCLUDED

This Contractor shall furnish all labor and materials to complete all work in connection with all floor finishes required by the drawings and/or herein specified as follows:

2.1 Preparatory work

2.2 Rubber Base

2.3 Add an additional box of material per this section for future maintenance for each color specified.

3. SUBMITTALS

3.1 Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate required.

3.2 Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

3.2.1 Wall Base and Accessories: 12-inch long Samples

3.3 Maintenance Data: For resilient materials, include in maintenance manuals specified in Division 1; include the following:

3.3.1 Methods for maintaining resilient products, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.

3.3.2 Precautions for cleaning materials and methods that could be detrimental to the resilient products installed.

4. QUALITY ASSURANCE

4.1 Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board, or who can demonstrate compliance with its certification program requirements.

4.2 Product Options: Products and manufacturers named in Part 2 establish requirements for product quality in terms of appearance, construction, and performance. Other manufacturers' products comparable in quality to named products, and complying with requirements may be considered. Refer to Division 1 Section, "Substitutions".

4.3 Include sample of resilient wall base with carpet mock-ups.

5. DELIVERY, STORAGE, AND HANDLING

5.1 General: Comply with CRI 104, Section 5, "Storage and Handling"

6. PROJECT CONDITIONS

6.1 General: Comply with CRI 104, Section 6.1 "Site Conditions; Temperature and Humidity".

6.2 Environmental Limitations: Do not install wall base or resilient accessories until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

7. WARRANTY

7.1 General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

7.2 Resilient Base and Accessories Warranty: Written warranty, signed by manufacturer agreeing to replace resilient base or accessories that do not comply with requirements or that fails within specified warranty period.

7.2.1 Warranty Period: Five (5) years from the date of Substantial Completion.

PART 2 – PRODUCTS

8. RUBBER BASE

8.1 General Contractor shall provide and install base on wall where new flooring is indicated.

8.2 Provide and install rubber bas on walls where called for by the Room Finish Schedule. Material shall be from roll stock in lieu of pre-cut 4-foot lengths. No pieces less than 24-inches long shall be installed.

8.3 Molded rubber cove base shall be ruffed back, vulcanized, 4-inch high cove as noted, complete with external and internal molded rubber base corners, and shall be as manufactured by Roppe, or the approved equal. Refer to Finish Schedule for color selection.

8.4 Outside corners to be scored to ease the pull, at toe not cut. Inside corner to be spliced at toe ends are to butt tight.

8.5 Provide and install two-piece rubber transition strips where other flooring types meet the carpeting.

8.6 Protect edges of carpeting at doorways with rubber transition strip or edge reducer strips as required. Color must match base. Refer to room finish schedule.

8.7 Base shall be laid in such a manner that the entire undersurface will be securely bonded. Base shall be tightly fitted, so that each piece is in contact with surrounding piece and all joints are in proper alignment. If walls are damaged during removal or installation, they must be patched to match existing. Patch must be approved by the Owner.

PART 3 – EXECUTION

8. EXAMINATION

8.1 Examine substrates, areas, and conditions for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions that may affect adhesion of wall base. Verify that substrates and conditions are satisfactory for resilient wall base installation and comply with requirements specified.

8.2 Proceed with installation only after unsatisfactory conditions have been corrected.

9. PREPARATION

9.1 General: Comply with CRI 104, Section 6.2 “Site Conditions”, and manufacturer’s written installation instructions for preparing substrates indicated to receive resilient wall base products.

9.3 Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents.

9.4 Clean substrates to be covered immediately before installing resilient wall base. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

10. RESILIENT ACCESSORY INSTALLATION

10.1 General
Install resilient wall base and accessories according to manufacturer’s written instructions.

10.2 Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

10.2.1 Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

10.2.2 Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

10.2.3 Do not stretch base during installation.

10.2.4 Form outside corners on job from straight pieces of maximum lengths possible, without widening at bends. Shave back of base at points where bends occur, and remove strips that are perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half of the wall base thickness.

10.2.5 Form inside corners on job, from straight pieces of maximum lengths possible, by cutting an inverted V-shaped notch in to of wall base, at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

10.3 Place resilient wall base and accessories, so that they are butted to adjacent materials, and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.

11. CLEANING AND PROTECTION

11.1 Perform the following operations immediately after installing resilient wall base:

11.1.1 Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by resilient wall base manufacturer.

11.2 Protect installed resilient wall base and to comply with CRI 1-4, Section 15, “Protection of Indoor Installations”.

11.3 Protect resilient wall base against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet manufacturer.

End of Section 096816

SECTION 099000

PAINTING

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 This Section includes surface preparation and field painting of the following:

2.1.1 Exposed exterior items and surfaces

2.1.2 Exposed interior items and surfaces

2.1.3 Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

2.2 Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted, or is to remain natural. If the paint schedules do not specifically mention an item or surface, paint the item or surface the same as similar adjacent materials, or surfaces whether or not scheduled indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.

2.2.1 Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.

2.2.2 Exposed ceiling suspension systems.

2.3 Do not paint pre-finished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

2.3.1 Pre-finished items include the following factory-finished components:

A. Architectural woodwork and casework

B. Finished mechanical and electrical equipment

C. Light fixtures

D. Distribution cabinets

2.3.2 Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:

A. Furred areas

B. Ceiling plenums

C. Pipe spaces

D. Duct shafts

2.3.3 Finished metal surfaces include the following:

A. Anodized aluminum

B. Stainless steel

C. Chromium plate

D. Copper

E. Bronze and brass

2.3.4 Operating parts include moving parts of operating equipment and the following:

A. Valve and damper operators

B. Linkages

C. Sensing devices

D. Motor and fan shafts

E. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

3. SUBMITTALS

The finished work shall match samples of colors and finishes, which will be prepared by the Contractor for the Architect's approval. Contractor shall provide 5-inch squared.

4. QUALITY ASSURANCE

4.1 Applicator Qualifications

Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.

4.2 Source Limitations

Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

4.3 Preinstallation Conference

Conduct conference at Project site with Architect prior to start of work. Contractor is to review site conditions prior to the conference and provide a written reply identifying any nonconforming conditions.

4.4 Benchmark Samples (Mock-ups)

Provide a full-coat benchmark finish sample of each type of coating and substrate required on the Project. Comply with procedures specified in PDCA P5. Duplicate finish of approved prepared samples.

4.4.1 The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate required on the Project. Comply with procedures specified in PDCA P5. Duplicate finish of approved prepared samples.

A. Wall Surfaces: Provide samples on a least 100 squ. ft. of wall surface.

B. Small Areas and Items: The Architect will designate an item or area as required.

4.4.2 After permanent lighting and other environmental services have been activated, apply coatings in this room or to each surface according to the Schedule or as specified. Provide required sheen, color, and texture on each surface.

A. After finishes are accepted, the Architect will use the room or surface to evaluate coating systems of a similar nature.

4.4.3 Final approval of colors will be from job-applied samples.

5. DELIVERY, STORAGE, AND HANDLING

5.1 Deliver materials to the Project Site in manufacturer's original, unopened packages and Containers bearing manufacturer's name and label, and the following information:

A. Product name or title of material

B. Product description (generic classification or binder type)

C. Manufacturer's stock number and date of manufacture

D. Contents by volume, for pigment and vehicle constituents

E. Thinning instructions

F. Application instructions

G. Color name and number

H. VOC content

5.2 Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 degrees F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

5.2.1 Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

6. PROJECT CONDITIONS

6.1 Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 degrees F.

6.2 Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperature are between 45 and 95 degrees F.

6.3 Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.

6.3.1 Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

7. EXTRA MATERIALS

Furnish extra paint materials from the same production run as the materials applied in the qualities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Owner.

PART 2 – PRODUCTS

8. MANUFACTURERS

8.1 Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in the paint schedules.

8.2 Manufacturers

A. Benjamin Moore & Co.

B. Sherwin-Williams Co., S-W (Basis for Specification)

C. Other as approved by Architect

9. PAINT MATERIALS – GENERAL

9.1 Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

9.2 Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

9.2.1 Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that product named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certifications of performance for proposed substitutions.

9.3 Colors: Match colors indicated by reference to manufacturer's color designations.

PART 3 – EXECUTION

10. EXAMINATION

10.1 Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.

10.1.1 Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.

10.1.2 Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

10.2 Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

10.2.1 Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

11. PREPARATION

11.1 General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.

11.1.1 After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

11.2 Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.

11.2.1 Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

11.3 Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's instructions written instructions for each particular substrate condition and as specified.

11.3.1 Provide barrier coats over incompatible primers or remove and reprime.

11.3.2 Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

A. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.

B. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.

C. When transparent finish is required, backprime with spar varnish.

D. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.

E. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.

11.3.3 Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated: remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.

A. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.

11.3.4 Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

11.4 Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

11.4.1 Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.

11.4.2 Stir material before application to produce a mixture of density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.

11.4.3 Use only thinners approved by paint manufacturer and only within recommended limits.

11.5 Tinting: Tine each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tine undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

12. APPLICATION

12.1 General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

12.1.1 Paint colors, surface treatments, and finishes are indicated in the schedules.

12.1.2 Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

12.1.3 Provide finish coats that are compatible with primers used.

12.1.4 The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.

12.1.5 Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

12.1.6 Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.

12.1.7 Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

12.1.8 Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.

12.1.9 Finish interior of wall and base cabinets and similar field-finished casework to match exterior.

12.1.10 Sand lightly between each succeeding enamel or varnish coat.

12.2 Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

12.2.1 The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.

12.2.2 Omit primer on metal surfaces that have been shop primed and touch-up painted.

12.2.3 If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corner, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

12.2.4 Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform of feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

12.3 Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

12.3.1 Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.

12.3.2 Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.

12.3.3 Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.

12.4 Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

12.5 Mechanical and Electrical Work: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

12.6 Mechanical items to be painted include, but are not limited to, the following:

12.6.1 Piping, pipe hangers, and supports

12.6.2 Accessory items

12.7 Electrical items to be painted include, but are not limited to, the following:
Conduit and fittings

12.8 Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

12.9 Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

12.10 Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.

12.10.1 Provide satin finish for final coats

12.11 Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.

12.12 Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

13. CLEANING

Clean-up: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.

14. PROTECTION

14.1 Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

14.2 Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.

14.2.1 At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

15. EXTERIOR PAINT SCHEDULE

15.1 Ferrous Metal: Provide the following finish system over exterior ferrous metal. Primer is not required on shop-primed items.

15.1.1 Enamel Finish: Finish coat over a rust-inhibitive primer.

A. Primer: Rust-inhibitive metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
   1) Primer: S-W Kern Kromik Universal Metal Primer, B50Z Series
   2) (6 mils wet, 3 mils dry)

B. Finish Coat: Semi-Gloss, alkyd, applied at spreading rate recommended by the manufacturer.
   1) Finish Coat: S-W Direct-to-Metal Enamel, B55 Series
   2) (5 mils wet, 2 mils dry per coat)

15.2 Zinc-Coated Metal: Provide the following finish system over exterior zinc-coated (galvanized) metal surfaces:

15.1.1 Enamel Finish: Finish coat over a primer.

A. Primer: Galvanized metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
   1) Primer: S-W DTM Wash Primer, B71Y1
   2) (3.4 mils wet, 0.7 mils dry)

B. Finish Coat: Semi-Gloss, alkyd, applied at spreading rate recommended by the manufacturer.
   1) S-W Direct-to-Metal Enamel, B55 Series
   2) (5 mils wet, 2 mils dry per coat)

16. INTERIOR PAINT SCHEDULE

16.1 Gypsum Board: Provide the following finish system over interior gypsum board surfaces:

16.1.1 Latex Finish: Finish coat over a primer

A. Primer: Applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
   1) Primer: S-W ProMar 200 O Voc Primer, B28W2600
   2) (4 mils wet, 1.2 mils dry)

B. Finish Coat: Semi-Gloss, applied at spreading rate recommended by the manufacturer.
   1) Finish Coat: S-W Pro Industrial Precat WB Epoxy SG
   2) (4 mils wet, 1.5 mils dry per coat)

16.2 Stained Woodwork: Provide the following finishes over interior woodwork:
16.2.1 Urethane Varnish Satin Finish: 2 finish coats of a clear varnish over an interior wood stain. Confirm application of stain before wood filler with manufacturer.
A. Stain: Interior wood stain applied at spreading rate recommended by the manufacturer.
1) Stain: S-W Sherwood Stain, Clear, S64 T 8

B. Filler Coat: Paste-wood filler applied at spreading rate recommended by the manufacturer. Color filler coat with stain as required.
1) Filler: S-W Sherwood Fast-Dry Filler, D70 Series T1

C. First and Second Finish Coats: Polyurethane varnish, as recommended by the manufacturer, applied at spreading rate recommended by the manufacturer.
1) 1st Finish Coat: S-W Polyurethane Varnish, A67F1 (reduce 15%)
2) 2nd Finish Coat: S-W Polyurethane Varnish, A67F1
3) (4 mils wet, 1.5 mils dry per coat)

16.3 Structure: Provide the following finish system over structure in ceiling cavity. Primer is not required (verify with paint manufacturer)
16.3.1 Dryfall Waterborne Systems, Flat Finish coat
A. Finish Coat: Flat, acrylic, applied at spreading rate recommended by the manufacturer for single pass coverage.
1) Finish Coat: SW Waterborne Acrylic Dryfall, Flat Finish, B42BW3

16.4 Ferrous Metal: Provide the following finish system over ferrous metal. Primer is not required on shop-primed items.
16.4.1 Enamel Finish: Finish coat over a primer
A. Primer: Quick-drying, rust-inhibitive, metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
1) Primer: S-W Kem Kromik Universal Primer, B50Z
2) (6 mils wet, 3 mils dry)

B. Finish Coat: Semi-Gloss, alkyd, applied at spreading rate recommended by the manufacturer.
1) Finish Coat: SW ProClassic Interior Alkyd Semi-Gloss, B34 Series
2) (4 mils wet, 1.7 mils dry per coat)

16.5 Zinc-Coated Metal: Provide the following finish system over zinc-coated metal:
16.5.1 Primer: Galvanized metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
A. Primer: Galvanized metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
1) Primer: SW Galvite HS. B50WZ30
2) (5 mils wet, 3 mils dry)

B. Finish Coat: Semi-Gloss, alkyd, applied at spreading rate recommended by the manufacturer.
1) Finish Coat: S-W ProClassic Interior Alkyd Semi-Gloss, B34 Series
2) (4 mils wet, 1.7 mils dry per coat)

End of Section 099000

SECTION 103500

FLAGPOLES

PART 1 – GENERAL

1. SUMMARY

Section Includes

1.1 Flagpoles:
Location of each flagpole is shown on drawings.

1.2 Related Sections:
Cast-in-place concrete: Division 3

2. PERFORMANCE REQUIREMENTS

Provide flagpole and anchorage system to comply with the following requirements:

2.1 Flagpole with flag flying: Resist minimum wind velocity of 120 mph without permanent deformation, when flying appropriately sized flag.

2.2 Flagpole without flag: Resist minimum wind velocity of 190 mph without permanent deformation.

2.3 Safety design factor: 2.5.

3. SUBMITTALS

3.1 Shop Drawings: Show configuration of flagpoles and bases. Detail jointing, anchorage, and support systems. Show finishes, and flagpole fittings and accessories.

3.2 Certificate: Submit professional structural engineer's certificate that design complies with requirements of the contract documents.

3.3 Manufacturer's Instructions: Submit for each product specified in this section. Include instructions for examination, preparation, and protection of adjacent work.

4. DELIVERY, STORAGE, AND HANDLING

4.1 Execute product manufacturer's special instructions to prevent damage to products.

4.2 Provide suitable protection for each flagpole before shipment. Spiral-wrap pole with heavy kraft paper or polyethylene material and place pole in hard protective tube.

4.3 Deliver flagpoles and accessories properly labeled and in original wrappings.

4.4 Store and handle materials in a manner which will prevent damage prior to installation.

PART 2 – PRODUCTS

5. MANUFACTURERS

5.1 Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:

A. Aabec Pole Division / Morgan-Francis Company, Inc.

B. Acme Flagpole Division / Lingo, Inc.

C. American Flagpole Division / Kearney-National, Inc.

D. Baartol Company, Inc.

E. Concord Industries, Inc.

F. EMC Division / Eder Manufacturing Corporation

G. John Ewing & Company, Inc.

6. FLAGPOLES

Description

6.1 Product

A. Concord "Sentry" Model S30000156

B. Exposed length: 30 feet

C. Shaft finish: Satin Aluminum

D. Halyard: Internal, one per flag pole

E. Flag snaps: Manufactured standard

F. Finial: Clear anodized ball, manufactures standard

G. Flag: American flag 5 x 8

6.2 Equivalent products of other manufacturers, provided they comply with requirements if the contract documents, will be considered.

7. FABRICATION

7.1 General: Provide each flagpole as a complete unit fabricated by a single manufacturer, including base, anchorage devices, fittings, and accessories as necessary for proper installation.

7.2 Fabricate and ship flagpole as a single unit, unless shipping constraints preclude this alternative. Where flagpole size dictates shipment in more than one section, provide self-aligning internal sleeve composed of metal compatible with shaft metal and properly designed to allow precise, weather tight joining during installation.

7.3 Flagpole Diameter and Wall Thickness: Six inches diameter (6") .156. Wall thickness and shaft and ratio of top diameter to butt diameter must be appropriate for metal or alloy used and for length of flagpole.

7.4 Joints and Seams: Form joints and seams which are inconspicuous.

7.4.1 Exposed welds: Grind exposed welds smooth. Finish matching flagpole shift.

8. CONCRETE MATERIALS

8.1 Provide materials for concrete flagpole foundations as indicated on drawings.

PART 3 – EXECUTION

9. EXAMINATION

9.1 Verify that conditions conform to requirements of contract documents.

9.2 Ground-Set Flagpole: Verify that foundation is in suitable condition to receive flagpole.

9.3 Do not begin flagpole installation until unsuitable conditions have been corrected. Commencement of installation indicates acceptance of conditions.

10. PREPARATION

10.1 Embedded Ground-Set Pole
Bituminous Coating: Apply protective coating of bituminous paint to section of flagpole which will be installed below grade, if not factory-applied by flagpole manufacturer prior to shipment.

11. INSTALLATION

11.1 Concrete Flagpole Foundation: Comply with requirements indicated on drawings.

11.2 Flagpole Installation – General: Install flagpole, base assembly, and fittings as indicated in contract documents and in accordance with manufacturer's instructions.

11.3 Install flagpole in erect, plumbed position.

11.4 Embedded Ground-Set Pole: Erect flagpole in foundation sleeve and plumb as necessary using hardwood wedges. Pour dry sand into foundation sleeve in successive layers, each layer six inches thick (6"). Tamp each layer before adding next layer. When last sand layer is placed, provide moisture seal over sand by applying sealant of proper thickness. Comply with sealant requirements specified in Division 7.

11.5 Electrical Grounding: Provide positive lighting ground suitable for flagpole and installation conditions.

11.6 Field Joints: Provide snug-fitting, weather tight, hairline joints.

11.7 Tolerances
Maximum variation from plumb position (90 degrees from horizontal plane): 1 inch.

12. ADJUSTING AND CLEANING

12.1 Clean surfaces

12.2 Verify smooth and proper operation of all installed fittings. Adjust as necessary.

End of Section 103500

SECTION 104416

FIRE EXTINGUISHERS AND CABINETS

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUBMITTALS

2.1 Product Data

3. QUALITY ASSURANCE

3.1 Labels: Provide only fire extinguishers which are listed and labeled by Underwriters Laboratories, Inc.

PART 2 – PRODUCTS

4. FIRE EXTINGUISHERS

4.1 Manufacturers: Provide products complying with requirements of contract documents and made by one of the following:

4.1.1 Fire Extinguishers:

A. Larsen's manufacturing company

B. J.L. Industries

4.1.2 Fire Extinguishers:

A. Rating: 2A-10BC

B. Type: Multipurpose dry chemical (ammonium phosphate), Stored pressure type.

C. Cabinet mounted.

D. Enameled steel container.

5. CABINETS AND CABINET ACCESSORIES

5.1 Cabinets

5.1.1 Product: Larsen's Manufacturing Co. Model 2409-6R
Products of other manufacturers, provided they comply with requirements of contract documents, will be considered for substitution.

5.1.2 To house one extinguisher

5.1.3 Size: Inside box dimensions: 24 inches high, 9-1/2 inches wide, 5 inches deep; 4 inches deep into wall.

5.1.4 Style: Semi-recessed mounted, protruding not more than 2-1/2 inches from face of wall; Rolled Edge trim.

5.1.5 Single Flat Door
A. Horizontal glazing panel at top of door:
Clear, Tempered glass, 1/4 inch thick.

B. Door Material: Steel, factory painted.
Color: White.

C. Surface mounted door handle, finished to match door.

D. Friction or roller catch.

5.1.6 Trim (box flange or flame): Same material and finish as door.

5.1.7 Manufacturer's standard horizontal lettering identifying contents of cabinet.
A. Die-cut vinyl letters
B. Letter color: Red

5.1.8 Box: Steel sheet, factory painted.

5.1.9 Provide wall bracket for extinguisher, inside cabinet.

5.2 Hinges: Provide hinges for each door; concealed or continuous type; allow full 180 degree opening of door.

PART 3 – EXECUTION

6. PREPARATION

Prepare installation in accordance with the manufacturer's instructions except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.

7. INSTALLATION

7.1 Perform installation in accordance with the manufacturer's instructions except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.

7.2 Install cabinets at locations indicated.

7.3 60 inches to top of cabinet

End of Section 104416

SECTION 105000

LOCKERS

PART 1 – GENERAL

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

2. SUMMARY
2.1 Section Includes: Standard duty plastic laminate lockers.

2.2 Work Not Included:
2.2.1 Padlocks: Provided by the Owner

3. DEFINITIONS
3.1 Standard Duty: This term is used to designate a particular type of locker specified in this section, regardless of individual manufacturer designations.

4. SUBMITTALS
4.1 Shop Drawings: Show layouts, dimensions, trim, fillers, and accessories.
4.1.1 Indicate installation and anchoring methods

4.1.2 Show verified field measurements.

4.1.3 Show locker numbering scheme.

4.2 Samples for Color Verification: Actual finish samples on similar sheet metal.

5. PROJECT CONDITIONS
Fit lockers neatly to actual construction; take field measurements before fabrication, unless taking of such measurements will delay the work. In that case, provide trim and filler panels as required.

6. DELIVERY, STORAGE, AND HANDLING
6.1 Do not deliver lockers until spaces to receive lockers are clean and dry.

6.2 Protect lockers from damage.

PART 2 – PRODUCTS

7. LOCKER CONFIGURATIONS AND COMPONENTS
Lockers:
A. Location: As shown on the drawings

B. Standard duty

C. Single tier

D. Height: 72 inches

E. Width: 16 inches

F. Depth: 16 inches

G. Doors: Solid

H. Sides and Vertical Dividers: Solid

I. Shelves: Solid, with coat rod

J. Door Handles

K. Ceiling hook

L. Two wall hooks

M. Provide matching filler panels.

N. Factory-supplied 4-inch base.

8. STANDARD DUTY LOCKERS

Provide all standard duty lockers and accessories from one manufacturer.

8.1 Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable.

A. Interior Steel Equipment Company

B. List Industries, Inc.

C. Lyon Metal Products, Inc.

D. Medart, Inc.

E. Penco Products

F. Republic Storage Systems Company, Inc.

G. Tennsco Corporation

8.2 Components:

A. Frame: 16 gage steel channels or 13 gage steel angles, minimum

B. Tops: 24 gage steel sheet, minimum

C. Bottoms: 24 gage steel sheet, minimum

D. Horizontal Dividers: 24 gage steel sheet, minimum

E. Sides and Vertical Dividers: 24 gage steel sheet, minimum

F. Backs: 24 gage steel sheet, minimum

G. Solid Doors: 16 gage steel sheet, minimum

H. Door Handles: Standard type

I. Latching Mechanism: Concealed in door, designed so that door can be closed while locked, with spring-loaded latches engaging beveled strikes on frame.

J. Doors between 18 and 36 inches high: Two-point latching, minimum

8.3 Miscellaneous Components and Trim: 18 gage steel sheet, minimum

8.4 Fabrication: Weld all joints between frame members.
Weld hinges to frame and fasten to door with at least two (2) fasteners which are either tamper-proof or concealed when door is closed.

8.5 Lockers to be set on legs provided by manufacturer.

9. MATERIALS

9.1 Steel Sheet: Cold-rolled, leveled mild steel.

9.2 Fasteners: Zinc-, cadmium-, or nickel-plated steel or stainless steel
- 9.2.1 Exposed bolt heads: Tamper-proof type.
- 9.2.2 For fastening moving components: Use lock washers or self-locking units.

9.3 Hinges: 5-knuckle, nonremovable-pin hinges, of loop style with two (2) full thicknesses in each leaf; minimum two (2) inches high.
- 9.3.1 Minimum of two (2) hinges per door.

9.4 Standard Door Handles: Die-cast zinc alloy or chrome-plated steel latch lifter and padlock hasp, designed so that door can be closed while locked; pry-resistant.

9.5 Interior Fittings: Cadmium- or zinc-plated steel or cast aluminum, except shelves.

9.6 Number Plates: Aluminum, zinc alloy, or stainless steel; raised or recessed numerals at least 3/8 inch high.
- 9.6.1 Number lockers as directed by the Architect
- 9.6.2 Fasten to doors, centered near the top, using two (2) fasteners.

10. FABRICATION – ALL LOCKERS

10.1 Factory-fabricate and fully assemble lockers; do not knock down for shipping.

10.2 Make lockers square with rigid joints, without dents or warped surfaces.
- 10.2.1 Exposed metal edges: Smooth off sharp edges and corners
- 10.2.2 Exposed Welds: Grind flush
- 10.2.3 Door and frame fronts: No exposed bolts or rivet heads.
- 10.2.4 Where exposed holes for built-in locks are not used, cover holes neatly using permanent materials.

10.3 Doors: Fabricate with flanged edges, reinforced if required for stiffness, and designed to open and close without springing.
- 10.3.1 Fabricate sheet steel doors of one piece.
- 10.3.2 Provide extra stiffeners for doors more than 15 inches wide.

10.4 Miscellaneous Components: Provide all parts, filler panels, legs, closures, except stainless steel, chrome, and aluminum.
- 10.4.1 Factory-finish all accessory components to match
- 10.4.2 Pretreatment: Remove scale, rust, and contaminants; chemically degrease and phosphatize.
- 10.4.3 Finish: Manufacturer’s standard baked-on enamel.
- 10.4.4 Color: As selected by the architect from manufacturer’s standard range.

PART 3 – EXECUTION

11. EXAMINATION

Examine floors and bases; report surfaces that are not satisfactory for installation.

12. PREPARATION

Clean debris from under and behind lockers before installation.

13. INSTALLATION

13.1 Install lockers plumb and level.

13.2 Anchor lockers securely to substrates in manner recommended by manufacturer.

13.2.1 Use reinforcing plates and spacers as required to prevent metal distortion.

13.2.2 Provide anchors at not more than 48 inches on center.

13.2.3 Conceal fasteners whenever possible.

13.3 Install accessory components with flush, tight joints using concealed fasteners.

14. ADJUSTING

Adjust doors and latches for smooth operation.

15. CLEANING

15.1 Clean and touch up finishes; if finish cannot be restored to original appearance, replace locker.

15.2 Use only cleaning and touch up materials recommended by manufacturer.

End of Section 105000

SECTION 108000

TOILET AND BATH ACCESSORIES

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

Section Includes:

A. Paper towel dispensers

B. Toilet paper dispensers

C. Grab bars

D. Coat hooks

E. Mirrors

F. Napkin receptacle

3. SUBMITTALS

3.1 Product Data: Written technical information for each accessory specified.

3.2 Certificates: Submit certification that work complies with requirements of contract documents.

4. DELIVERY, STORAGE, AND HANDLING

Execute product manufacturer’s special instructions to prevent damage to products.
Store products in manufacturer's original shipping containers.

5. COORDINATION

Use manufacturer's instructions and data to determine anchorage requirements for products specified.
In a timely manner, distribute the following to affected installers of related work:

5.1 Components and anchorage devices provided by toilet accessory manufacturer for incorporation into other work.

5.2 Coordination data including setting drawings, templates, instructions, etc., for cut-outs and installations.

PART 2 – PRODUCTS

6. MANUFACTURERS

All model numbers specified are products of Bradley or Donner unless noted otherwise.

7. TOILET ACCESSORIES

7.1 Paper Towel Dispenser
Bradley 2291, satin stainless steel.__

7.2 Toilet Paper Dispenser
Bradley 5412, satin stainless steel.__

7.3 Grab Bar
Bradley 6806, satin stainless steel.

7.4 Coat Hook
Doug Mockett & Company, Inc., CH23, satin stainless steel .__

7.5 Mirror with stainless steel trim
Basis of Design: Bradley 780 with angle frame mirror, satin stainless steel.__
7.5.1 Float Glass with minimum 4-layer coating consisting of silver, copper, and two (2) heat cured protective coats; tested in accordance with FS DD-M-411

7.5.2 Size to be verified with drawings

7.6 Napkin Receptacle
Bobrick B-4354, stainless steel.__

8. MATERIALS

Mounting Devices and Fasteners: Provide toilet accessory manufacturer's recommended items for substrates and conditions indicated.

9. FABRICATION

9.1 Manufacturer's Name and Model Number
For each accessory provide manufacturer's name and accessory model number on stamped plate or waterproof label securely affixed to unexposed surface of accessory.

9.2 Surface Mounted Accessories
Where possible, design accessory to provide concealed anchorage when installed. Precisely-fit seams and joints. Roll exposed edges unless indicated otherwise. Use full-length stainless steel piano-type hinges for access doors and panels.

9.3 Recess Mounted Accessories
Design accessories to provide concealed anchorage when closed. Weld all joints. Precisely miter corners where indicated. Use full-length stainless steel piano-type hinges for access doors and panels.

PART 3 – EXECUTION

10. EXAMINATION

10.1 Accessory Locations
Coordinate accessory locations with other work to avoid interference and to ensure proper operation and servicing of accessories. Notify the Architect in writing of any conflicts concerning product placement, for resolution. Do not process without resolution.

10.2 Correct unsatisfactory substrate conditions before start of accessory installation.

11. PREPARATION

Clean surfaces to receive accessories. Protect surrounding elements from damage during accessory installation.

12. INSTALLATION

12.1 Perform installation in accordance with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.

12.2 Provide plumb, level accessory installations.

12.3 Securely attach accessory installations.

12.4 Accessories Installed for Use by Handicapped Persons: Install accessories in accordance with applicable regulations.

13. ADJUSTING

Adjust accessories as required to provide smooth operation and trouble-free servicing.

14. CLEANING

Clean and polish exposed surfaces of accessories using accessory manufacturer’s recommended procedures and cleaning agents.

15. PROTECTION

Provide coverings as required to protect installed accessories.

End of Section 108000

SECTION 113100

APPLIANCES

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

Section Includes:

A. Refrigerators – Provided by Owner.
B. Microwave – Provided by Owner.
C. Coffee makers – Provided by Owner.
D. Range – Provided and installed by General Contractor.
E. Range Hood – Provided and installed by General Contractor.

3. SUBMITTALS

Product Data: Submit manufacturer's specifications, installation instructions, and general recommendations. Include data substantiating that products to be furnished comply with requirements of the contract documents.

4. QUALITY ASSURANCE

Manufacturer Qualifications

Accessories: Provide accessory items only as produced or recommended by manufacturer of primary products.

5. WARRANTY

Special Project Warranty: Submit a written warranty signed by the manufacturer, the Contractor, and the installer, guaranteeing to correct failures in materials and workmanship which occur within the warranty period, including those attributable to abnormal aging, without reducing or otherwise limiting any other rights to correction which the Owner may have under the contract documents.

5.1 The warranty shall include responsibility for removing and replacing other work as necessary to accomplish repairs or replacement of materials covered by the warranty.

5.2 Warranty Period: One (1) year full plus an additional four (4) years on sealed refrigeration system years after date of substantial completion.

PART 2 – PRODUCTS

6. REFRIGERATOR

Model: General Electric # GIE21GSHSS with Icemaker (R1)

6.1 Provide water and electrical supply lines as required.

6.2 Color: Stainless steel

6.3 Provide by Owner

7. RANGE

Model: General Electrical Model JD630SFSS (drop-in)

7.1 Color: Stainless steel

7.2 Provided by Owner, installed by General Contractor

8. RANGE HOOD

Model: Broan #89000 Series 36-inch (H1)

8.1 Color: Stainless steel

8.2 Provide and installed by general contractor

8.3 Includes connection to fire suspression system

8.4 Provided and installed by general contractor

PART 3 – EXECUTION

9. INSTALLATION

Comply with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.

10. CLEANING

Upon completion, clean all surfaces which have become soiled or coated as a result of work of this section, using proper methods which will not scratch or otherwise damage finished surfaces.

10.1 For cleaning, use only products and techniques acceptable to manufacturer of products being cleaned.

11. PROTECTION

Institute protective procedures and install protective materials as required to ensure that work of this section will be without damage or deterioration at substantial completion.

12. SUBMITTALS

12.1 Product Data: For each type of product indicated. Include rated capacities operating characteristics, dimensions, furnished accessories, and finishes for each appliance.

12.2 Product Schedules: For appliances, use same designations indicated on Drawings.

12.3 Qualification Data: For qualified installer.

End of Section 113100

SECTION 115000

RANGE TOP FIRE EXTINGUISHING SYSTEM

PART 1 – GENERAL

1. SCOPE OF WORK

1.1. Section Includes: Minimum requirements for fire extinguishing systems pre-engineered for residential kitchen range top protection.

1.2 Provide all labor, materials, equipment and miscellaneous accessories for a complete installation.

2. REFERENCES

2.1 National Fire Protection Association (NFPA) Standard No. 17A for Wet Chemical Fire Extinguishing Systems

2.2 National Fire Protection Association (NFPA) Standard 10.

2.3 Underwriters Laboratories Incorporated (UL) Standard 33. Standard for Heat Responsive Links

3. DEFINITIONS

3.1 Wet Chemical: Normally a solution of water and potassium carbonate-based chemical, potassium acetate-based chemical or a combination thereof, which forms an extinguishing agent.

3.2 Listed: Equipment or materials included in a list published by Underwriters Laboratories Incorporated (UL)

3.3 Appliance: For the purpose of this specification, appliance means a residential type kitchen range supplied by gas or electricity to power and heat range top burners.

4. SYSTEM DESCRIPTION

The fire extinguishing system shall be capable of detecting a cooking grease fire origination on the range top, extinguish the fire, and prevent re-ignition, while at the same time, shut off the gas or electric supply to the surface elements on the kitchen range top. Each system shall be provided with all means to distribute the chemical agent, fire detection components, container for storing the chemical, valve assembly with pressure gauge, mounting bracket for container, and appliance shut-off device. Except for shut off device, these components shall be provided factory assembled and ready for installation.

5. SUBMITTALS

5.1 Product Data: Provide manufacturer's literature and recommended installation procedures.

5.2 Shop Drawings: Provide shop drawings prepared by manufacturer showing dimensions, construction and mounting details, and all accessories as specified.

5.3 Contract Close-out Submittals: Each system shall be provided with a comprehensive owner's manual that shall contain procedures to follow in the event of a cooking grease fire, post clean-up procedures, parts identification, complete wiring diagram, system installation with

pictorials for step-by-step procedures, system limitation, inspection and maintenance requirements. Re-servicing / recharging procedures shall also be contained in the owner's manual or the owner's manual shall reference a recognized re-servicing publication.

6. QUALITY ASSURANCE

6.1 Certifications: The fire extinguishing system shall have a current UL listing under the category "Residential Range Top Fire Protection" in the most recent Fire Protection Equipment Directory (FPED), and must be certified to meet Federally required response times to operate and extinguish a fire within 90 seconds after auto ignition of cooking oil in a test vessel.

6.2 The exposure temperature for the detector links shall not exceed the maximum temperature as specified on Table 4.1 of UL Standard 33.

7. WARRANTY

Provide a one-year warranty against manufacturer's defects.

8. MANUFACTURERS

8.1 Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include the following:

8.1.1 Guardian III Model G300B by Guardian Safety Solutions International, Inc.

8.1.2 Others as approved by the Architect

PART 2 – PRODUCTS

9. MATERIALS

9.1 Wet Chemical: Shall conform to the requirements of NFPA Standard No. 17A for Wet Chemical Fire Extinguishing Systems.

9.2 Cylinder and Valve Assembly: The extinguisher cylinder and valve assembly shall be provided fully charged with chemical and pressurized with dry nitrogen in accordance with listed requirements. A pressure gauge attached to the valve assembly shall be positioned to allow visual inspection when installed within a kitchen cabinet. Maximum allowable height of container (including valve assembly and mounting bracket) shall not exceed 12 inches. The container and valve assembly shall be of the re-servicable type and provide maintenance requirements with that required for portable hand0held fire extinguishers, according to: National Fire Protection Association (NFPA) Standard 10. The container and valve assembly shall be provided factory assembled to the supporting frame. Assembly shall include a pre-mounted CPU control board for supporting frame. Assembly shall include a pre-mounted CPU control board for the application shut-off device, and necessary attachment for the Fire Detection Unit.

9.3 Central Processing Unit Control Board: The CPU control board is housed / attached inside the system enclosure. The control board's circuitry is powered by a 9V DC battery and has the following features:

9.3.1 Supervised Circuitry: The audible 106DB alarm on the CPU control board will "alarm" to warn of possible trouble in the electronic circuitry including the heat sensors, if there is an open circuit.

9.3.2 System Operation Light: The red "power" light will blink approximately every 45 seconds to confirm the system is operating.

9.3.3 Audible Alarm: The system 106DB alarm is designed to continuously sound once the system has been activated by a stove top fire.

9.3.4 Low Battery Warning: The audible alarm on the CPU control board will "chirp" approximately every 45 seconds when a low battery condition exists. If this condition exists, the 9V battery must be replaced immediately.

9.3.5 Auxiliary Outputs: Can be connected to automatic telephone dialers, monitored security alarm systems or other warning / protective equipment. Auxiliary outputs provide one (1) second impulses to activate above items. These connections are rated at 5 AMP at 250V AC. DC battery must be replaced immediately to ensure proper system operation.

9.4 Appliance Nozzles: Nozzles shall be constructed of brass, stainless steel, or a combination thereof. Appliance nozzles with painted surfaces shall not be accepted. Appliance nozzles shall not extend below the lowest component of the range hood. Design shall provide equal distribution of chemical agent and allow chemical to flow effectively with low velocity to avoid splattering of burning grease.

9.5 Temperature Activated Sensor Assembly: The sensor assembly shall consist of two (2) metal-housed detector assemblies containing diode-type heat sensors, affixed to the side of the magnetic nozzle bases, and connected to the CPU control board with two (2) different wire lengths.

9.6 Rigid Piping and Flexible Hose for Wet Chemical: Rigid pipe, pipe-fittings and flexible hose shall be provided factory assembled and ready for installation into the kitchen cabinet space. The use of copper tubing shall not be accepted. Pipe, pipe-fittings and flexible hose shall comply with National Fire Protection Association (NFPA) Standard No. 17A for Wet Chemical Extinguishing Systems. The combination of pipe and flexible hose shall have been investigated by Underwriters Laboratories Incorporated (UL), and listed for this service.

9.7 Each system shall be provided with a listed device to automatically shut-off the gas or electric supply to surface burners on the kitchen range top upon actuation of the fire extinguishing system. The gas or electric supply shall remain "off" until manually reset. Electrical power cut-off to kitchen range hood exhaust fan shall not be required for Underwriters Laboratories Incorporated (UL) listed for extinguishing systems.

9.7.1 Gas range shut-off: Each gas supplied kitchen range appliance shall be provided with a UL listed pneumatic operated gas valve. The shut-off is activated by pressure transmitted to the valve through a Teflon tube encased in a stainless steel braided cover that connects to the valve on one end, and to the distribution assembly on the other end. The valve shall be designed to close upon activation of the system and remain closed until manually reset. Valve pipe size shall be 3/4-inch, unless otherwise specified. Gas range shut-off devices required.

PART 3 – EXECUTION

10. FABRICATION
Except for shut-off device, all components shall be provided factory assembled and ready for installation.

11. SOURCE QUALITY CONTROL
At the completion of the project, an authorized dealer shall certify the system complete.

12. INSTALLATION
12.1 General: Install in accordance with manufacturer's published instructions.

12.2 The complete extinguisher cylinder and valve assembly shall be installed in a protected area above the range hood (normally kitchen cabinets). Installations which expose extinguisher cylinder and valve assembly to direct cooking heat and grease, will not be accepted.

12.3 Interface with range hood: Installation shall be fully concealed in the cabinets above the hood and nozzles shall be mounted above the bottom edge of the hood.

13. CLEANING
Clean installed materials and / or equipment of dirt, dust, stains, adhesive, paint, sealants, and other construction debris prior to substantial completion.

End of Section 115000

SECTION 125100

WINDOW COVERINGS

PART 1 – GENERAL

1. SUMMARY

Section includes:

1.1 Blackout window coverings

1.2 The locations of window treatment:
Windows: types A, B, C, and D.

2. SUBMITTALS

2.1 Product Data
Manufacturer's specifications describing features, colors, options, accessories, for each type of unit.

2.1.1 Include installation instructions and show how installation methods may differ for different openings and mounting substrates.

2.2 Shop Drawings

2.2.1 Window coverings: Indicate special parts and installation conditions which are not shown or dimensioned in product data.

2.2.2 Show how this work adjoins other work.

2.2.3 Show layout of window covering units, in elevation, including meeting edges and corners.

2.3 Schedule: Complete schedule with field measurements for each unit.

2.4 Samples

2.4.1 For color selection: Color charts showing full range of colors and finishes available. For each window treatment type: One sample identical with actual product to be used except overall size may be smaller.

2.5 Contract Close-out Submittals:
Operation and maintenance data: Include manufacturer's written operation and maintenance instructions.

3. QUALITY ASSURANCE

Qualifications

3.1 Manufacturer Qualifications: A company manufacturing all components of products specified in this section which have performed in a satisfactory manner for at least three (3) years.

3.2 Installer Qualifications: Company specializing in fabrication and installation of specified products, with at least two (2) years of experience fabricating and installing similar products.

4. DELIVERY, STORAGE, AND HANDLING

4.1 Deliver materials in factory packages, marked with manufacturer and product name and location of installation.

4.2 Store materials in dry area maintained at building's operating temperature and humidity.

4.3 Follow manufacturer's instructions to prevent damage.

5. SEQUENCING AND SCHEDULING

Do not install window treatment until wet and dirty work is complete.

PART 2 – PRODUCTS

6. WINDOW COVERINGS

6.1 Window Coverings:
Style: Sheerweave 7100 (blackout) as manufactured by SWF Contract or approved equal.
Color: Bone

6.2 Acceptable Products
Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:

A. SWF Contract (specified for quality)

B. Hunter Douglas

C. Draper, Inc.

D. Mecho Systems

7. FABRICATION

7.1 Fabricate to fit actual construction; take field measurements of openings before starting fabrication.

7.2 Use materials that are compatible, will not need to be lubricated, and which will not adversely affect adjacent materials,

7.3 Install window coverings between (inside) jambs, 1/2 inch less than opening width. Fill each opening completely, from head to sill, with a single window covering, unless multiple units are specifically indicated.

PART 3 – EXECUTION

8. EXAMINATION

Examine substrates at locations in which window coverings will be installed. Do not begin installation until conditions are correct.

9. INSTALLATION

9.1 Install window coverings in accordance with manufacturer's installation instructions.

9.2 Set units in correct location, plumb, and level; allow clearance for window operating hardware.

9.3 Fasten securely to substrates.

9.4 Separate metal components from concrete and masonry using plastic tape or other suitable material.

10. ADJUSTING

Adjust each window covering for proper operation and replace defective and damaged units. Protect installed work.

End of Section 125100

SECTION 131210

PRE-ENGINEERED BUILDINGS

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

Section Includes:

2.1 Design, fabrication, and erection of prefabricated building system including the following subsystems:

A. Structure

B. Roof

C. Walls (non-standard)

2.2 Interface with the following systems and components specified elsewhere:

A. Personnel Doors

B. Service Doors

C. Louvers

2.3 Related Sections:

A. Personnel Doors: Division 8

B. Service Doors: Division 8

C. Louvers: Division 10

3. PERFORMANCE REQUIREMENTS

3.1 Design Criteria: Design building structure and enclosure to withstand the following loads and environmental conditions in combinations that produce the maximum stresses in each member or component as prescribed by the "Design Standards" listed herein.

3.1.1 Basic Wind Speed: 90 mph

3.1.2 Seismic requirements:

A. Seismic Use Group: 1
Seismic Design Category: A
Seismic Site Class: D

B. Seismic / Wind Importance Factor: 1.0

3.1.3 Climatic Conditions: Maximum Hourly Rainfall: 7.2 inches

3.2 Design Standards: Comply with applicable requirements of:

3.2.1 AISC "Specification for Structural Steel Buildings – Allowable Stress Design and Plastic Design"

3.2.2 AISI "Specifications for the Design of Cold-Formed Steel Structural Members"

3.2.3 MBMA "Low Rise Building Systems Manual"

3.3 Building Code: International Building Code 2012

4. SUBMITTALS

4.1 Product Data
Manufacturer's specifications on all building components.

4.2 Foundation Data

4.2.1 Structural Data: Foundation reaction data indicating compression, tension, moment, and shear reactions at each point of connection between foundation and structural steel.

4.2.2 Anchor Bolts: Setting drawings and templates for location and spacing of anchor bolts.

4.3 Shop Drawings
Show fabrication and erection of structure, building enclosure components, and accessories.

4.4 Samples
Selection Samples
Manufacturer's standard finish and color selection materials for the following prefinished items:

A. Roofing

B. Wall Panels

5. QUALITY ASSURANCE

5.1 Manufacturer's Qualifications
A company manufacturing pre-engineered buildings which have performed in a satisfactory manner under comparable conditions for a period of five (5) years.

5.2 Installer's Qualifications

5.2.1 Approved or licensed by manufacturer of building.

5.2.2 A company regulatory engaged in installation of pre-engineered buildings and whose installations have been satisfactory for a period of five (5) years.

5.3 UL Listing
Provide roof system assembly and accessory materials which have been evaluated by Underwriters Laboratories, Inc. and listed as "Roof Deck Constructions" (TGKX) for resistance to wind uplift for the following rating: Class 90.

5.4 Welding
Comply with American Welding Society "Structural Welding Code-Steel" (AWS D1.1) for welding procedures and welder qualifications.

6. DELIVERY, STORAGE, AND HANDLING

6.1 Store materials on skids or platforms; do not store directly on ground.

6.2 Protect materials from weather with ventilated tarpaulins or other suitable covering.

6.3 Provide drainage to prevent water accumulation in stored materials.

6.4 Keep components which have finish to be exposed to view from contact with materials which might cause discoloration or corrosion.

7. WARRANTY

7.1 General: This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the contract documents.

7.2 Provide warranty agreeing to repair or replace defective materials and workmanship. Coverage shall include the following:

7.2.1 Structural framing

7.2.2 Weathertightness of the building

7.2.3 Prefinished component coatings: Defects include but are not limited to cracking, delamination, peeling, pitting, blistering, chalking, and excessive fade.

7.2.4 Warranty period, following the date of Substantial Completion:
Leaks: 10 years
Corrosion: 10 years

PART 2 – PRODUCTS

8. MANUFACTURERS

Pre-engineered Buildings:
Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:

A. American Buildings Company

B. Behlen Manufacturing Company

C. Ceco Building Systems / a Robertson Ceco Company

D. Mesco Metal Buildings

E. Varco-Pruden Buildings Division / United Dominion Industries

F. Butler Manufacturing Company

G. Star Building Systems

9. PRIMARY STRUCTURAL FRAMING

9.1 Materials

9.1.1 Hot-rolled structural shapes: ASTM A 36 or ASTM A 529

9.1.2 Tube: ASTM A 500 or ASTM A 501

9.1.3 Pipe: ASTM A 53

9.1.4 Plates and bars for built-up members: ASTM A 529, ASTM A 570, or ASTM A 572

9.1.5 Steel sheet and strip for cold formed members: ASTM A 607

9.1.6 Bolting materials: ASTM A 325

9.1.7 Bracing:
Rods: ASTM A 36
Cables: Minimum 7 strand, extra high strength, galvanized steel
Angles: ASTM A 36

9.2 Fabrication

9.2.1 Fabricate structural framing components in accordance with AISC "Specification for Structural Steel Buildings – Allowable Stress Design and Plastic Design"

9.2.2 Connections:
Shop: Welded, bolted, or riveted
Field: Bolted

9.2.3 Welding: Weld structural members in accordance with AWS D1.1

9.2.4 Provide attached and loose plates, tabs, and brackets required for bearing, erection, and attachment of secondary structure, roofing siding, and accessories.

9.2.5 Shop Finish: Clean steel surfaces in accordance with SSPC-SP 2 or SSPC-SP 3, and apply one or more coats of primer to provide a minimum dry film thickness of 10 mil.

10. SECONDARY STRUCTURAL FRAMING

10.1 Cold-Formed Members: Comply with AISI "Specifications for the Design of Cold-Formed Steel Structural Members"

10.1.1 Fabricate members from structural quality steel sheet meeting the requirements of ASTM A 607 or ASTM A 570

10.2 Members Fabricated from Plate or Bar Stock
Comply with requirements of ASTM A 529 or ASTM A 572

10.3 Shop Finish

10.3.1 Steel surfaces (members fabricated from uncoated steel): Clean and finish as specified for primary structural members above.

10.3.2 Galvanized surfaces (members fabricated from galvanized steel): Clean cut surfaces and welds. Apply galvanizing repair paint to exposed steel, surfaces, welds, and surfaces where zinc coating is damaged.

11. ROOF SYSTEM

11.1 System Type
Standing seam; insulated system consisting of roof panels with concealed attachment clips in panel seams and blanket insulation.

11.1.1 Fabricate panels from "Galvalume" steel sheet, ASTM A 792.

11.2 Insulation
Fiberglass blankets: ASTM C 991, Type 2, with the following facer material laminated to one side:

11.2.1 Nylon or fiberglass yarn reinforced vinyl (PVC) film laminate.

11.3 Minimum R-Value of Insulation
R-30 for roof at 75 degrees F as determined in accordance with ASTM C 518.

11.4 Finishes
Exterior Finish: Mill finish, baked acrylic enamel.
Color: Selected by Architect, after contract award, from manufacturer's standard selection.

12. ROOF ACCESSORIES

12.1 Flashing and Trim: Fabricate sheet metal closures, ridge caps, edge trim, and required flashings of heavy gage sheet metal of the same type used for roof panels.
12.1.1 Finish: Match roof panels

12.2 Roof Drainage: Fabricate roof drainage components as follows:
12.2.1 Sheet Metal: Same type used for roof panels.

12.2.2 Sheet Metal Gage: As shown in the SMCNA "Architectural Sheet Metal Manual" for components of size indicated or required.

12.2.3 Cross-sectional Area: In accordance with the SMACNA "Architectural Sheet Metal Manual" for rainfall intensity specified in Part 1 of this section.

12.2.4 Finish: Match roof trim.

12.3 Roof Curbs: Furnish curbs with supplemental framing members and precut, prefitted roof panel with water diverter on high side of curb opening. Fabricate curbs with height indicated but not less than eight inches (8") on high side; provide level top surface.
12.3.1 Insulated Curbs: Fabricate outer surface from minimum 0.080-inch thick mill finish aluminum sheet; insulate with minimum of 1-1/2 inch-thick rigid insulation; provide inner liner of 0.032-inch-thick aluminum sheet.

12.4 Pipe Flashings (roof jacks): Molded neoprene or EPDM rubber boots, sized to fit snuggly around pipe. Provide drawband and sealant to secure top of pipe flashing. Provide aluminum or stainless steel collar, sealants, and fasteners to provide weather-tight attachment of bottom of pipe flashing. Provide aluminum or stainless steel collar, sealants, and fasteners to provide weather-tight attachment of bottom of unit to roof panels.

13. WALL SYSTEM

13.1 System Type: Smooth steel with concealed fastener; insulated and non-insulated system consisting of wall panels, liner panels, vinyl faced blanket insulation and girts where indicated.
131.1 Manufacturer: Sharpline 701 Series, as manufactured by Industrial Building Panels (IBP), Troy, MI, or approved equal for shape, performance, and appearance.
A. Minimum thickness: 20 gage (0.040 inch)

B. See also Alternate Bid # 2

13.1.2 Exterior Finish: Kynar 500, 70% polyvinylidene (PVF2) coating, 1.0 total film thickness, 20-year warranty, color to match Benjamin Moore OC-66 Snow White (IBP: Fluropon Bone White)

13.1.3 Fabricate liner panels from galvanized steel sheet, ASTM A 446 or ASTM A 526, G90 coating.
A. Minimum thickness: 22 gage (0.034 inch)

13.1.4 Interior Finish: Match Benjamin-Moore OC-66 Snow White color where liner panels are indicated.

13.1.5 Insulation: Fiberglass blankets; ASTM C 991, Type 2, with the following facer material laminated to one side:
A. Polyethylene film, minimum 6 mils thick, unreinforced

13.1.6 Minimum R-Value of Insulaton: R-19 at 75 degrees F when tested in accordance with ASTM C 518.

PART 3 – EXECUTION

14. EXAMINATION

Verify that foundation, floor slab, utilities, and placed anchors are complete, in proper location, and ready to receive the work of this section.

15. STRUCTURAL FRAMING ERECTION

14.1 Temporary Support

Provide temporary guys, braces, falsework, cribbing, and other elements required to secure the steel framing against loads equal in intensity to those for which the structure was designed. Remove such temporary support only when permanent connections have been made and the steel framing is fully capable of supporting design loads, including any temporary construction loads.

14.2 Erection: Erect structural steel in accordance with AISC Specification.

14.2.1 Tolerances: Set members accurately to locations and elevations indicated within tolerances established by AISC Specification before making final connections.

A. Modification of structural members:

B. Thermal cutting of members is not allowed.

C. Correction of minor misfits by the use of drift pins, and moderate amounts of chipping, reaming, and saw cutting are allowed.

14.3 Columns and bearing surfaces:

14.3.1 Clean bearing and contact surfaces before assembly

14.3.2 Modification of structural members

A. Thermal cutting of members is not allowed.

B. Correction of minor misfits by the use of drift pins, and moderate amounts of chipping, reaming, and saw cutting are allowed.

D. After tightening anchor bolts and ensuring that structure is plumb, grout solidly between plates and bearing surfaces.

14.3.3 Bolting

Connect primary structural members in compliance with AISC “Specification for Structural Joints Using ASTM A325 or A490 Bolts”

A. Tighten structural bolts: Provide washers fabricated from ASTM A 36 steel plate for carbon steel anchor bolts.

14.3.4 Connections of secondary structural members: Use carbon steel bolts and nuts, ASTM A 307, high strength bolts and nuts, ASTM A 325, or self-drilling fasteners in accordance with manufacturer's standard practice for type and gage of material being fastened.

16. ROOF INSTALLATION

16.1 Second Structure
Install panel supports, taking care to align members correctly for proper engagement of panel attachment system.

16.2 Insulation
Install insulation over entire area to receive field-installed insulation. Position, trim, and secure insulation to ensure complete coverage without gaps or voids. Provide intermediate supports if indicated or if required to prevent excessive sag of blanket insulation.

A. Provide intermediate supports if indicated or if required to prevent excessive to prevent excessive sag of blanket insulation.

B. Vapor Barrier: Seal joints and penetrations of vapor barrier to ensure continuity.

16.3 Roof Panel Installation

16.3.1 Install roof panels in single continuous piece from eaves to ridge.

16.3.2 Anchor panels securely in place with provisions for thermal and structural movement.

A. Install roof panels using concealed clips in panel joints.

B. Exposed Fasteners: Use fasteners with heads finished to match panel or provide plastic caps for exposed fastener heads.

C. Field Seaming: Close seams using powered seaming tool of size and type recommended by panel fabricator. Inspect and clean tool regularly to avoid damage to finished surfaces.

16.4 Install roof accessories in locations indicated. Anchor securely.

16.5 Install gaskets, sealants, closures, and trim as the work progresses to ensure airtight and weather-tight performance of the completed installation.

16.6 Gutters and Downspouts

16.6.1 Join lengths of gutters with seams lock-formed and sealed.

16.6.2 Secure gutters to eaves. Slope gutter minimum of 1/8 inch per foot.

16.6.3 Provide bronze or stainless steel basket strainers at gutter outlet.

16.6.4 Join lengths of downspout and secure using stand-off brackets.

16.6.5 Provide splash blocks or diverters at downspout discharge.

17. WALL INSTALLATION

17.1 Secondary Structure: Install panel supports, taking care to align members correctly for proper engagement of panel attachment system.

17.2 Linear Panels: Attach liner panels to girts, taking care to avoid damage to exposed surfaces.

17.3 Insulation: Install insulation and related accessories in linear panels. Fit accurately to avoid gaps and voids.

17.3.1 Vapor Barrier: Seal joints and penetrations of vapor barrier to ensure continuity.

17.4 Wall Panel Installation

17.4.1 Install panels in single continuous piece.

17.4.2 Anchor panels securely in place with provisions for thermal and structural movement.

A. Fasten through panel laps to supports.

B. Exposed Fasteners: Use fasteners with heads finished to match panel, or provide plastic caps for exposed fastener heads.

17.4.3 Install gaskets, sealants, closures, and trim as the work progresses, to ensure airtight and weathertight performance of the completed installation.

End of Section 131210

SECTION 311000

SITE CLEARING

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

Section Includes:

2.1 Protecting existing vegetation to remain.

2.2 Removing existing vegetation.

2.3 Clearing and grubbing.

2.4 Stripping and stockpiling topsoil.

2.5 Removing above- and below-grade site improvements.

2.6 Disconnecting, capping, or sealing, and removing site utilities.

2.7 Temporary erosion- and sedimentation-control measures.

3. DEFINITIONS

3.1 Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

3.2 Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environment, the surface soil can be subsoil.

3.3 Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.

3.4 Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by a circle concentric with each tree with a radium 1.5 time the diameter of the drip line unless otherwise indicated.

3.5 Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

4. MATERIAL OWNERSHIP

Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

5. PROJECT CONDITIONS

5.1 Traffic: Minimize interference and adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

5.1.1 Do not close or obstruct streets, walks, or other adjacent occupied or used facilities during site-clearing operations.

5.1.2 Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

5.2 Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

5.3 Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

5.4 The following practices are prohibited within protection zones:
5.4.1 Storage of construction materials, debris, or excavated material.
5.4.2 Parking vehicles or equipment
5.4.3 Excavation or other digging unless otherwise indicated.
5.4.4 Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

5.5 Do not direct vehicle or equipment exhaust towards protection zones.

5.6 Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

5.7 Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry, or slightly moist.

PART 2 – PRODUCTS

6. MATERIALS

Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving"

6.1 Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 – EXECUTION

7. PREPARATION

7.1 Protect and maintain benchmarks and survey control points from disturbance during construction.

7.2 Locate and clearly identify trees, shrubs, and other vegetation, to remain each tree trunk at 54 inches above the ground.

7.3 Protect existing site improvements to remain from damage during construction.
7.3.1 Restore damaged improvements to their original condition, as acceptable to Owner.

8. TEMPORARY EROSION AND SEDIMENTATION CONTROL

8.1 Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water run-off or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having justification.

8.2 Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

8.3 Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

8.4 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

9. TREE AND PLANT PROTECTION

Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

10. EXISTING UTILITIES

10.1 Locate, identify, disconnect, and seal or cap utilities indicated to be removed.

10.2 Interrupting Existing Utilities
Do not interrupt utilities serving facilities occupied by Owner, or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

10.2.1 Notify Architect not less than two days in advance of proposed utility interruptions.

10.2.2 Do not proceed with utility interruptions without Architect's written permission.

10.3 Excavate for and remove underground utilities indicated to be removed.

11. CLEARING AND GRUBBING

11.1 Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

11.1.1 Do not remove trees – indicated to remain or to be relocated.

11.1.2 Remove roots, obstruction, and debris to a depth of 18-inches below exposed subgrade,

11.1.3 Chip removed tree branches and dispose of off-site.

11.2 Fill depressions cause by clearing and grubbing operations with satisfactory soil material unless further excavation, or earthwork is indicated.

11.2.1 Place fill material in horizontal layers not exceeding a loose depth of six inches (6"), and compact each layer to a density equal to adjacent original ground.

12. TOPSOIL STRIPPING

12.1 Remove sod and grass before stripping topsoil.

12.2 Strip topsoil to depth of six inches (6") in a manner to prevent intermingling with underlying subsoil or other waste materials.

12.2.1 Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than two inches (2") in diameter: trash, debris, weeds, roots, and other waste materials.

12.3 Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

12.3.1 Limit height of topsoil stockpiles to 72 inches,

12.3.2 Do not stockpile topsoil within protection zones.

12.3.3 Stockpile surplus topsoil to allow for respreading deeper topsoil.

12.3.4 Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.

13. SITE IMPROVEMENTS

13.1 Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

13.2 Remove slabs, paving, curbs, gutters, and aggregate base, as indicated.

13.2.1 Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement. Saw-cut faces vertically.

13.2.2 Paint cut ends of steel reinforcement in concrete to remain with two coats of anti-rust coating, following coating manufacturer's written instruction. Keep paint off surfaces that will remain exposed.

14. DISPOSAL OF SURPLUS AND WASTE MATERIALS

Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

End of Section 311000

SECTION 312000

EARTH MOVING

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

Section Includes:

2.1 Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, and plants.

2.2 Excavating and backfilling for buildings and structures.

2.3 Subbase course for concrete walks, pavements.

2.4 Subsurface drainage backfill for walls and trenches.

2.5 Excavating and backfilling trenches for utilities and pits for buried utility structures.

3. DEFINITIONS

3.1 Backfill: Soil material or controlled low-strength material used to fill an excavation

3.1.1 Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.

3.1.2 Final Backfill: Backfill placed over initial backfill to fill a trench.

3.2 Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

3.3 Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

3.4 Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

3.5 Fill: Soil materials used to raise existing grades.

3.6 Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 3/4 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows / 2 inches when tested by a geotechnical testing agency, according to ASTM D 1586.

3.7 Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

3.8 Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mis asphalt walk.

3.9 Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

3.10 Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

4. SUBMITTALS

4.1 Qualification Data: For qualified testing agency.

4.2 Material Test Reports

4.2.1 Analysis of soil materials, whether procured on or off site, and including fill, backfill, and borrow materials.

4.2.2 Verification of each footing subgrade.

4.2.3 Moisture-density relationship test reports.

4.2.4 Compressive strength or bearing test reports.

5. QUALITY ASSURANCE

Testing Laboratory Services

5.1 Secure and pay for the services of a qualified, independent geotechnical engineer to classify existing soil materials, to recommend and to classify proposed borrow materials when necessary, to verify compliance of materials with specified requirements and to perform required field and laboratory testing. Geotechnical engineer shall be acceptable to the Architect and the Owner and shall be licensed to practice in the state in which the project is located.

5.2 The soils investigation Geotechnical Report for the Proposed EMS Post 1 Site, prepared by UES on October 1, 2024is hereby made a part of these specifications and the geotechnical report, the geotechnical report shall govern. Notify Architect immediately of the conflict.

6. PROJECT CONDITIONS

6.1 Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

6.1 Do no close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorized having jurisdiction.

6.2 Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorized having jurisdiction.

6.2 Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.

6.3 Do not commence earth moving operations until temporary erosion- and sedimentation-control measures, specified in Division 31 Section “Site Clearing”, are in place.

6.4 Do not commence earth moving operations until plant-protection measures specified in Division 31 “Site Clearing” are in place.

6.5 The following practices are prohibited within protection zones:

6.5.1 Storage of construction materials, debris, or excavated material

6.5.2 Parking vehicles or equipment

6.5.3 Foot traffic

6.5.4 Erection of sheds or structures

6.5.5 Impoundment of water

6.5.6 Excavation or other digging unless otherwise indicated

6.5.7 Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated

6.6 Do not direct vehicle or equipment exhaust towards protection zones.

6.7 Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones

PART 2 – PRODUCTS

7. SOIL MATERIALS

7.1 General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

7.2 Satisfactory Soils: Soils Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than three inches (3") in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

7.3 Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

7.3.1 Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

7.4 Subbase Material: As per geotechnical report.

7.5 Engineered Fill: As per geotechnical report.

7.6 Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

7.7 Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

7.8 Sand: ASTM C 33; fine aggregate.

7.9 Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

8. ACCESSORIES

Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6-inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

8.1 Red: Electric

8.2 Yellow: Gas, oil, steam, and dangerous materials

8.3 Orange: Telephone and other communication

8.4 Blue: Water systems

8.5 Green: Sewer systems

PART 3 – EXECUTION

9. PREPARATION

9.1 Provide markers indicating limits of work and provide barriers and warning signs around areas to be excavated to prevent injury

9.2 Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

9.3 Protect and maintain erosion and sedimentation controls during earth moving operations.

9.4 Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

10. DEWATERING

10.1 Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

10.2 Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

10.1.1 Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

11. EXCAVATION – GENERAL

Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

11.1 If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

11.1.1 Remove rock to lines and grades indicated to permit installation of permanent construction.

12. EXCAVATION FOR STRUCTURES

Excavate to indicated elevations and dimensions within a tolerance of plus or minus one inch (1"). Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

12.1 Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

12.2 Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimension indicated within a tolerance of plus or minus one inch (1"). Do not disturb bottom of excavations intended as bearing surfaces.

13. EXCAVATION FOR WALKS AND PAVEMENTS

Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

14. EXCAVATION FOR UTILITY TRENCHES

13.1 Excavate trenches to indicated gradients, lines, depths, and elevations. Unless otherwise noted excavate from lowest elevation to highest elevation.

13.1.1 Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

13.2 Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

13.2.1 Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

13.3 Trenches in Tree- and Plant-Protection Zones

13.3.1 Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

13.3.2 Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

15. SUBGRADE INSPECTION

15.1 Notify Architect and geotechnical engineer when excavations have reached required subgrade.

15.2 If geotechnical engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

15.3 Proof-roll subgrade below the building slabs and pavements with a heavily loaded scraper or front-end loader to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades. The proof roll shall be observed by geotechnical engineer.

15.3.1 Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.

15.3.2 Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by geotechnical engineer, and replace with compacted backfill or fill as directed.

15.4 Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

16. UNAUTHORIZED EXCAVATION

Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering tip elevation.

16.1 Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

17. STORAGE OF SOIL MATERIALS

Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

17.1 Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

18. BACKFILL

18.1 Place and compact backfill in excavations promptly, but not before completing the following:

18.1.1 Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.

18.1.2 Testing and inspecting underground utilities.

18.1.3 Removing concrete formwork.

18.1.4 Removing trash and debris.

18.1.5 Removing temporary shoring and bracing, and sheeting.

18.1.6 Installing permanent or temporary horizontal bracing on horizontally supported walls.

18.2 Place backfill on subgrades free of mud, frost, snow, or ice.

19. UTILITY TRENCH BACKFILL

19.1 Place backfill on subgrades free of mud, frost, snow, or ice.

19.2 Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

19.3 Backfill voids with satisfactory soil while removing shoring and bracing.

19.4 Place and compact initial backfill of satisfactory soil, free of particles larger than one inch (1") in any dimension, to a height of 12 inches over the pipe or conduit.

19.4.1 Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

19.5 Place and compact final backfill of satisfactory soil to final subgrade elevation.

19.6 Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

20. SOIL FILL

20.1 Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

20.2 Place and compact fill material in layers to required elevations as follows:

20.2.1 Under grass and planted areas, use satisfactory soil material.

20.2.2 Under walks and pavements, use satisfactory soil material.

20.2.3 Under steps and ramps, use engineered fill.

20.2.4 Under building slabs, use engineered.

20.2.5 Under footings and foundations, use engineered fill.

20.3 Place soil fill on subgrades free of mud, frost, snow, or ice.

21. SOIL MOISTURE CONTROL

Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

21.1 Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

21.2 Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

22. COMPACTION OF SOIL BACKFILLS AND FILLS

22.1 Place backfill and fill soil materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

22.2 Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

22.3 Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698.

22.3.1 Under structures, building slabs, steps, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.

22.3.2 Under walkways and pavement, scarify and recompact top 8 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.

22.3.3 Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.

22.3.4 For utility trenches, compact each layer of initial and final backfill soil material at 90 percent.

23. GRADING

23.1 General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

23.1.1 Provide a smooth transition between adjacent existing grades and new grades.

23.1.2 Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

23.2 Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

23.2.1 Turf or Unpaved Areas: Plus or minus 1 inch

23.2.2 Walks: Plus or minus 1/2 inch

23.2.3 Pavements: Plus or minus 1/2 inch

23.3 Grading Inside Building Lines: Finish subgrade to a tolerance of 12 inch when tested with a 10-foot straight-edge.

23.3.1 Compact each filter material layer per soils report.

24. SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

24.1 Place subbase course on subgrades free of mud, frost, snow, or ice.

24.2 On prepared subgrade, place subbase course under pavements and walks as follows:

24.2.1 Shape subbase course to required crown elevations and cross-slope grades.

24.2.2 Place subbase course to 6 inches or less in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.

24.2.3 Place subbase course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer mor than 6 inches thick, or less than 3 inches thick.

24.2.4 Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

25. FIELD QUALITY CONTROL

25.1 Special Inspections: Contractor will engage a qualified special inspector to perform the following special inspections:

25.1.1 Determine prior to placement of fill that site has been prepared in compliance with requirements.

25.1.2 Determine that fill material and maximum lift thinkness comply with requirements.

25.1.3 Determine, at the required frequency, that in-place density of compacted fill complies with requirements.

25.2 Testing Agency: Contractor will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

25.3 Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

25.4 Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capabilities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

25.5 Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

25.5.1 Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.

25.5.2 Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length, but no fewer than three tests.

25.5.3 Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length, but no fewer than two tests.

25.6 When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

26. PROTECTION

26.1 Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

26.2 Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

26.2.1 Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

26.3 Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

26.3.1 Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

27. DISPOSAL OF SURPLUS AND WASTE MATERIALS

27.1 Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Architect.

27.1.1 Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

End of Section 312000

SECTION 313116

TERMITE CONTROL

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes:
Soil treatment with termiticide.

2.2 Related Sections:
Division 06 Section "Rough Carpentry" for wood preservative treatment by pressure process.

3. SUBMITTALS

3.1 Product Data: For each type of termite control product.
Include the EPA-Registered Label for Termite products.

3.2 Qualification Data: For qualified installer.

3.3 Product Certificates: For termite control products, from manufacturer.

3.4 Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's records and include the following:

3.4.1 Date and time of application

3.4.2 Moisture content of soil before application

3.4.3 Termiticide brand name and manufacturer

3.4.4 Quantity of undiluted termiticide used.

3.4.5 Dilutions, methods, volumes used, and rates of application.

3.4.6 Areas of application.

3.4.7 Water source for application.

3.5 Warranties: Sample of special warranties.

4. QUALITY ASSURANCE

4.1 Installer Qualifications
A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.

4.2 Regulatory Requirements
Formulate and apply termiticides and termiticide devices according to the EPA-Registered Label.

4.3 Source Limitations: Obtain termite control products from single source.

5. PROJECT CONDITIONS

5.1 Environmental Limitations
To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.

5.2 Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs before construction.

6. WARRANTY

Soil Treatment Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor, certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

7. MAINTENANCE SERVICE

Continuing Service: Beginning at Substantial Completion, provide 12 months continuing service including monitoring, inspection, and re-treatment for occurrences of termite activity. Provide a standard continuing service agreement. State services, obligations, conditions, terms for agreement period, and terms for future renewal options.

PART 2 – PRODUCTS

8. SOIL TREATMENT

Termiticide: Provide an EPA-Registered termiticide, complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

8.1 Service Life of Treatment: Soil treatment termiticide that is effective for not less than three (3) years against infestation of subterranean termites.

PART 3 – EXECUTION

9. EXAMINATION

9.1 Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil per termiticide label requirements, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.

9.2 Proceed with application only after unsatisfactory conditions have been corrected.

10. PREPARATION

10.1 General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparation before beginning application of termite control treatment. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.

10.2 Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.

10.2.1 Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

11. APPLICATION – GENERAL

General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

12. APPLYING SOIL TREATMENT

12.1 Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Required Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.

12.1.1 Slabs-on-Grade and Basement Slabs: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.

12.1.2 Foundations: Adjacent soil, including soil along the entire inside perimeter of foundation walls; along both sides of interior partition walls; around plumbing pipes and electric conduit penetrating the slab; around interior column footers, piers, and chimney bases; and along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.

12.1.3 Crawlspaces: Soil under and adjacent to foundations as previously indicated. Treat adjacent areas including around entrance platform, porches, and equipment bases. Apply overall treatment only where attached concrete platform and porches are on fill or ground.

12.1.4 Masonry: Treat voids.

12.1.5 Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

12.2 Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

12.3 Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

12.4 Post warning signs in areas of application.

12.5 Reapply soil treatment solution to areas distributed by subsequent excavation, grading, landscaping, or other construction activities following application.

End of Section 313116

SECTION 321313

CONCRETE PAVING

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes

2.1.1 Driveways (if indicated)

2.1.2 Parking Lots (if indicated)

2.1.3 Curbs and Gutters

2.1.4 Walks

2.2 Related Sections

2.2.1 Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.

2.2.2 Division 32 Section "Concrete Paving Joint Sealants" for joint sealants in expansion and contradiction joints within concrete paving and in joints between concrete paving and asphalt paving or adjacent construction.

3. DEFINITIONS

Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

4. SUBMITTALS

4.1 Product Data: For each type of product indicated.

4.2 Other Action Submittals

Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

4.3 Qualification Data: For qualified ready-mix concrete manufacturer and testing agency.

4.4 Material Certificates: For the following, from manufacturer:

4.4.1 Cementitious materials

4.4.2 Steel reinforcement and reinforcement accessories

4.4.3 Admixtures

4.4.4 Curing compounds

4.4.5 Applied finish materials

4.4.6 Bonding agent or epoxy adhesive

4.4.7 Joint fillers

4.5 Material Test Reports:
For each of the following:
4.5.1 Aggregates

4.6 Field quality-control reports.

5. QUALITY ASSURANCE

5.1 Ready-Mix-Concrete Manufacturing Qualifications
A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 / C 94M requirements for production facilities and equipment.
5.1.1 Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual – Section 3, "Plant Certification Checklist".

5.2 Testing Agency Qualifications
Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
5.2.1 Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

6. PROJECT CONDITIONS

6.1 Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

6.2 Pavement-Marking Paint: Proceed with pavements marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 degrees F for water-based materials, and not exceeding 95 degrees F.

PART 2 – PRODUCTS

7. FORMS

7.1 Form Materials
Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
7.1.1 Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.

7.2 Form-Release Agent
Commercial formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

8. STEEL REINFORCEMENT

8.1 Plain-Steel Welded Wire Replacement: ASTM A 185 / A 185 M, fabricated from steel wire into flat sheets.

8.2 Deformed-Steel Welded Wire Reinforcement: ASTM A 497 / A 497M, flat sheet.

8.3 Epoxy-Coated Welded Wire Reinforcement: ASTM A 884 / A 884M, Class A, plain steel.

8.4 Reinforcing Bars: ASTM A 615 / A 615M, Grade 60 (Grade 420); deformed.

8.5 Galvanized Reinforcing Bars: ASTM A 767 / A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615 A 615M, Grade 60 (Grade 420) deformed bars.

8.6 Epoxy-Coated Reinforcing Bars: ASTM A 775 / A 775M or ASTM A 934 / A 934 M; with ASTM A 615 / A 615M, Grade 60 (Grade 420) deformed bars.

8.7 Steel Bar Mats: ASTM A 775 / A 775M or ASTM A 934 / A 934M; with ASTM A 615 / 615M, Grade 60 (Grade 420) deformed bars.

8.8 Plain-Steel Wire: ASTM A 82 / A 82M, galvanized.

8.9 Deformed-Steel Wire: ASTM A 496 / A 496M.

8.10 Epoxy-Coated-Steel Wire: ASTM A 884 / A 884M, Class A coated.

8.11 Joint Dowel Bars: ASTM A 615 / A 615M, Grade 60 (Grade 420) plain-steel bars. Cut bars true to length with ends square and free of burrs.

8.12 Epoxy-Coated, Joint Dowel Bars: ASTM A 775 / A 775M; with ASTM A 615 / A 615M, Grade 60 (Grade 420), plain-steel bars.

8.13 Tie Bars: ASTM A 615 / A 615M, Grade 60 (Grade 420), deformed.

8.14 Hook Bolts: ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6), internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

8.15 Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater comprehensive than concrete specified, and as follows:

A. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

B. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

8.5 Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

8.6 Zinc Repair Material: ASTM A 780.

9. CONCRETE MATERIALS

9.1 Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project: Portland Cement: ASTM C 150, gray portland cement Type 1.

9.2 Normal-Weight Aggregates: ASTM C 33, uniformly graded. Provide aggregates from a single source.

9.3 Water: Potable and complying with ASTM C 94 / C 94M.

9.4 Air-Entraining Admixture: ASTM C 260.

9.5 Chemical Admixtures: Admixtures cerified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

9.5.1 Water-Reducing Admixture: ASTM C 494 / C 494M, Type A.

9.5.2 Retarding Admixture: ASTM C 494 / C 494M, Type B.

9.5.3 Water-Reducing and Retarding Admixture: ASTM C 494 / C 494M, Type D.

9.5.4 High-Range, Water-Reducing Admixture: ASTM C 494 / C 494M, Type F.

9.5.5 High-Range, Water-Reducing, and Retarding Admixture: ASTM C 494 / C 494M, Type G.

9.5.6 Plasticizing and Retarding Admixture: ASTM C 1017 / C 1017M, Type II.

10. CURING MATERIALS

10.1 Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/ sq. m) dry or cotton mats.

10.2 Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

10.3 Water: Potable

10.4 Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

10.5 Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309m Type 1, Class B, dissipating.

11. RELATED MATERIALS

11.1 Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.

11.2 Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrenen butadiene.

11.3 Epoxy Bonding Adhesive: ASTM C 881 / C 881M, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and the following types:

11.3.1 Types I and II, non-load bearing, Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

12. DETECTABLE WARNING MATERIALS

13. PAVEMENT MARKINGS

Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, Type II, with drying time of less than 45 minutes. Color: White.

14. WHEEL STOPS

Precast, air-entrained concrete, 2500-psi (17.2-MPa) minimum compressive strength, 4-1/2 inches high by 9 inches (225 mm) wide by 72 inches (1820 mm) long. Provide chamfered corners and drainage slots on underside and holes for anchoring to substrate.

15. CONCRETE MIXTURES

15.1 Prepare design mixtures, proportioned according to ACI 301 (ACI 301M), for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

15.1.1 Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.

15.1.2 When automatic machine placement is used, determine design mixtures and obtain laboratory test results that meet or exceed requirements.

15.2 Proportion mixtures to provide normal-weight concrete with the following properties:

15.2.1 Compressive Strength (28 days): 4000 psi (27.6 MPa)

15.2.2 Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.48

15.2.3 Slump Limit: 4 inches (100 mm)

15.3 Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:

15.3.1 Air Content: 4-8%

15.4 Limit water-soluable, chloride-ion content in hardened concrete to 1.15 percent by weight of cement.

15.5 Chemical Admixtures: Use admixtures according to manufacturer’s written instructions.

15.5.1 Use admixtures in concrete as required for placement and workability.

15.5.2 Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

16. CONCRETE MIXING

16.1 Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94 / C 94M. Furnish batch certificates for each batch discharged and used in the Work.

16.1.1 When air temperature is between 85 and 90 degrees F (30 and 32 degrees C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

PART 3 – EXECUTION

17. EXAMINATION

17.1 Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

17.2 Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

17.2.1 Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph (5 km/h).

17.2.2 Proof-roll with a heavily loaded scraper or front-end loader.

17.2.3 Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch (13 mm) according to requirements in Division 31 Section "Earth Moving".

17.3 Proceed with installation only after unsatisfactory conditions have been corrected.

18. PREPARATION

Remove loose material from compacted subbase surface immediately before placing concrete.

19. EDGE FORMS AND SCREED CONSTRUCTION

19.1 Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

19.2 Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

20. STEEL REINFORCEMENT

20.1 General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

20.2 Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

20.3 Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

20.4 Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

20.5 Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.

20.6 Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963 / D 3963M.

20.7 Install fabricated bar matts in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch (50-mm) overlap of adjacent mats.

21. JOINTS

21.1 General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

21.1.1 When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

21.2 Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

21.2.1 Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.

21.2.2 Provide tie bars at sides of paving strips where indicated.

21.2.3 Butt Joints: Use bonding agent or epoxy bonding adhesive at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

21.2.4 Keyed Joints: Provided preformed keyway-section forms or bulkhead forms with keys unless otherwise indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.

21.2.5 Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

21.3 Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

21.3.1 Locate expansion joints at intervals of 50 feet (15.25 m) unless otherwise indicated.

21.3.2 Extend joint fillers full width and depth of joint.

21.3.3 Terminate joint filler not less than 1/2 inch (13mm) or more than 1 inch (25mm) below finished surface if joint sealant is not indicated.

21.3.4 Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.

21.3.5 During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

21.4 Contraction Joints: From weakened-plane contraction joints, sectioning concrete into areas as indicated. Construction contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:

21.4.1 Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4 -inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.

A. Tolerance: Ensure that grooved joints are within 1 inch either way from centers of dowels.

21.4.2 Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 18 -inch (3 mm) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.

A. Tolerance: Ensure that sawed joints are within 1 inch either way from centers of dowels.

21.4.3 Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

21.5 Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/2 inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

22. CONCRETE PLACEMENT

22.1 Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded in or cast-in.

22.2 Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.

22.3 Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

22.4 Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, and placing concrete.

22.5 Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

22.6 Deposit and spread concrete during delivery at Project site. Do not add water to fresh concrete after testing.

22.7 Consolidate concrete according to ACI 301 (ACI 301M) by mechanical vibrating equipment supplemental by hand spading, rodding, or tamping.

22.7.1 Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.

22.8 Screed paving surface with a straight-edge and strike off.

22.9 Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

22.10 Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.

22.11 Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.

22.11.1 Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.

22.12 Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:

22.12.1 When air temperature has fallen to or is expected to fall below 40 degrees F (4.4 degrees C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees F) and not more than 80 degrees F (27 degrees C) at point of placement.

22.12.2 Do not use frozen materials or materials containing ice or snow.

22.12.3 Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

22.13 Hot-Weather Placement: Comply with ACI 301 (ACI 301M) and as follows when hot-weather conditions exist:

22.13.1 Cool ingredients before mixing to maintain concrete temperature below 90 degrees F (32 degrees C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

22.13.2 Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

22.13.3 Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

23. FLOAT FINISHING

23.1 General: Do not add water to concrete surfaces during finishing operations.

23.1 Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

23.1.1 Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.

23.1.2 Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.

23.1.3 Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

23.1.4 Spray-apply chemical surface retarder to paving according to manufacturer's written instructions.

24. CONCRETE PROTECTION AND CURING

24.1 General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

24.2 Comply with ACI 306.1 for cold-weather protection.

24.3 Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

24.4 Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

24.5 Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these as follows:

24.5.1 Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

A. Water

B. Continuous water-fog spray.

C. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.

24.5.2 Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm) and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.

24.5.3 Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

25. PAVING TOLERANCES

25.1 Comply with tolerances in ACI 117 and as follows:

25.1.1 Elevation: 3/4 inch (19 mm)

25.1.2 Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm)

25.1.3 Surface: Gap below 10-foot- (3-m) long, unleveled straight-edge not to exceed 1/2 inch (13 mm)

25.1.4 Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches (13 mm per 300 mm) of tie bar.

25.1.5 Lateral Alignment and Spacing of Dowels: 1 inch (25 mm)

25.1.6 Vertical Alignment of Dowels: 1/4 inch (6 mm)

25.1.7 Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches (6 mm per 300 mm) of dowel.

25.1.8 Joint Spacing: 3 inches (75 mm)

25.1.9 Contradiction Joint Depth: Plus 1/4 inch (6 mm), no minus.

25.1.10 Joint Width: Plus 1/8 inch (3 mm), no minus.

26. PAVEMENT MARKING

26.1 Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

26.2 Allow concrete paving to cure for a minimum of 28 days and be dry before starting pavement marking.

26.3 Sweep and clean surface to eliminate loose material and dust.

26.4 Apply paint with mechanical equipment to produce markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

26.4.1 Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to concrete surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.

27. WHEEL STOPS

27.1 Install wheel stops in bed of adhesive applied as recommended by manufacturer.

27.2 Securely attach wheel stops to paving with not less than two galvanized steel dowels located at one-quarter to one-third points. Install dowels in drilled holes in the paving and bond dowels to wheel stop. Recess head of dowel beneath top of wheel stop.

28. FIELD QUALITY CONTROL

28.1 Testing Agency: Engage a qualified testing agency to perform tests and inspections.

28.2 Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

28.2.1 Testing Frequency: Obtain at least one composite sample for each 5000 sq. ft. (465 sq. m) or fraction thereof of each concrete mixture placed each day.

A. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

28.2.2 Slump: ASTM C 143 / C 143 M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.

28.2.3 Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

28.2.4 Concrete Temperature: ASTM C 1064 / C 1064M; one test hourly when air temperature is 40 degrees F (4.4 degrees C) and below and when it is 80 degrees F (27 degrees C) and above, and one test for each composite sample.

28.2.5 Compression Test Specimens: ASTM C31 / C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.

28.2.6 Compressive-Strength Tests: ASTM C 39 / C 39M; test one specimen at seven days and two specimens at 28 days.

A. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.

28.3 Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive strength test value falls below specified compressive-strength by more than 500 psi (3.4 MPa).

28.4 Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design, compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

28.5 Non-destructive Testing: Impact hammer, sonoscope, or other non-destructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

28.6 Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

28.7 Concrete paving will be considered defective if it does not pass tests and inspections.

28.8 Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

28.9 Prepare test and inspection reports.

29. REPAIRS AND PROTECTION

29.1 Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by the Architect.

29.2 Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.

29.3 Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

29.4 Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

End of Section 321313

SECTION 321373

CONCRETE PAVING JOINT SEALANTS

PART 1 – GENERAL

1. RELATED DOCUMENTS

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

2. SUMMARY

2.1 Section Includes:
Cold-applied joint sealants.

2.2 Related Sections:
Division 32 Section "Concrete Paving" for constructing joints in concrete pavement.

3. SUBMITTALS

3.1 Product Data: For each joint-sealant product indicated.

3.2 Pavement-Joint-Sealant Schedule: Include the following information:

3.2.1 Joint-sealant application, joint location, and designation.

3.2.2 Joint-sealant manufacturer and product name.

3.2.3 Joint-sealant formulation.

3.2.4 Joint-sealant color.

3.3 Product Certification: For each type of joint sealant and accessory, from manufacturer.

3.4 Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for joint sealants.

4. QUALITY ASSURANCE

4.1 Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

4.2 Source Limitations: Obtain each type of joint sealant for single source from single manufacturer.

5. PROJECT CONDITIONS

5.1 Do not proceed with installation of joint sealants under the following conditions:

5.1.1 When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 degrees F (5 degrees C).

5.1.2 When joint substrates are wet.

5.1.3 Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.

5.1.4 Where contaminants capable of interfacing with adhesion have not yet been removed from joint substrates.

PART 2 – PRODUCTS

6. MATERIALS

6.1 Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

6.2 Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

7. JOINT-SEALANT BACKER MATERIALS

7.1 General: Provide joint-sealant backer materials that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

7.2 Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

7.3 Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

8. PRIMERS

Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

PART 3 – EXECUTION

9. EXAMINATION

9.1 Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

9.2 Proceed with installation only after unsatisfactory conditions have been corrected.

10. PREPARATION

10.1 Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

10.2 Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

11. INSTALLATION OF JOINT SEALANTS

11.1 General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

11.2 Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

11.3 Install joint sealant backings of kind indicated to support joint sealants during application and a position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

11.3.1 Do not leave gaps between ends of joint-sealant backings.

11.3.2 Do not stretch, twist, puncture, or tear joint-sealant backings.

11.3.3 Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.

11.4 Install joint sealants using proven techniques that comply with the following and at the same time backings are installed:

11.4.1 Place joint sealants so they directly contact and fully wet joint substrates.

11.4.2 Completely fill recesses in each joint configuration.

11.4.3 Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

11.5 Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

12. CLEANING

Clean off excess joint sealant or sealant smears adjacent to joints as the Work progresses, by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

13. PROTECTION

Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at the time of Substantial Completion. If despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

End of Section 321373