

# PROJECT MANUAL

**PROJECT NAME:**

## Clarinda Correctional Facility (CCF) Kitchen and Laundry Addition

**PROJECT ADDRESS:**

Clarinda Correctional Facility (CCF)  
2000 N. 16th St.  
Clarinda, IA, 51632



**PROJECT DATE:** February 9, 2024

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**OWNER:**

Iowa Department of Administrative Services  
109 Southeast 13<sup>th</sup> Street  
Des Moines, Iowa 50319



**OWNER PROJECT NUMBER:** 9223.00

**OWNER REQUEST FOR BID NUMBER:** RFB 922300-04

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**CONSTRUCTION MANAGER:**

The Samuels Group  
2929 Westown Parkway  
Suite 200  
West Des Moines, IA  
50266



**CONSTRUCTION MANAGER PROJECT NUMBER:** 7673

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**ARCHITECT:**

Farnsworth Group  
14225 University Ave.  
Ste 110  
Waukee, IA  
50263



**ARCHITECT PROJECT NUMBER:** 0240202.00

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## DESIGN CONSULTANTS

**CONSULTANT:**

Rippe Associates  
10400 Yellow Circle Drive  
Ste 100  
Minneapolis, MN  
55343



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**ENGINEER:**

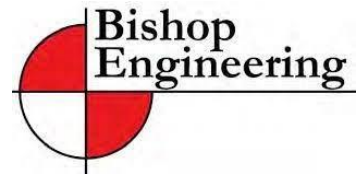
Bishop Engineering  
3501 104<sup>th</sup> St.  
Urbandale, IA  
50322



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**ENGINEER:**

Farnsworth Group  
14225 University Ave.  
Ste 110  
Waukee, IA  
50263



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**ENGINEER:**


IMEG  
2882 106<sup>th</sup> St  
Des Moines, IA  
50263



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**SECTION 00 0107  
SEALS PAGE**

	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 IOWA.
	SIGNED: <u>Seth V. Sunderman</u> DATE: <u>2/6/2024</u>
	SETH V. SUNDERMAN, P.E. 23468
	LICENSE RENEWAL DATE: DEC. 31, 2025 PAGES OR SHEETS COVERED BY THIS SEAL: <u>Section 31, 32 &amp; 33</u>

	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 IOWA.
	<u>Nathan T. Kress</u> <u>2/6/2024</u> NATHAN T. KRESS (DATE)
	MY LICENSE RENEWAL DATE IS DECEMBER 31, 2025
	PAGES OR SHEETS COVERED BY THIS SEAL <u>014500, 033000, 051200, 052100,</u> <u>053100, 054000, 055000, 312005</u>





I hereby certify that the portion of this technical submission described below was prepared by me or under my direct personal supervision and responsible charge. I am a duly licensed architect under the laws of the state of Iowa.

Signature: Robert C. Ridgway 2/6/2023  
ROBERT C. RIDGWAY Date

License Expires: June 30, 2025

Pages or sheets covered by this seal: 02 4100, 03 3511, 03 4500, 04 2000, 05 5100,  
Div. 6 - 10, 11 1900, 11 1910, 11 1940, 12 3600

	<p>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 IOWA. <u><i>Eric J. Henderson</i></u> <u>02/06/2024</u></p> <p>ERIC J. HENDERSON DATE</p> <p>MY LICENSE EXPIRATION DATE IS: 12/31/2025</p> <p>PAGES OR SHEETS COVERED BY THIS SEAL:</p>
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	<p>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 IOWA. <u><i>Kristen Spina</i></u> <u>02/06/2024</u></p> <p>KRISTEN SPINA DATE</p> <p>MY LICENSE EXPIRATION DATE IS: 12/31/2025</p> <p>PAGES OR SHEETS COVERED BY THIS SEAL:</p>
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END OF SECTION

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**ELECTRICAL**

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**END OF SECTION**

**SECTION 00 0116**

**BID SUBMITTAL CHECKLIST**

**PART 1 - GENERAL**

**1.01 BID SUBMITTAL CHECKLIST**

- A. The Bidder is responsible to see that the bid is submitted online at [IMPACS Electronic Procurement System](#) on or before the due date and time specified. Late bids shall not be accepted.
- B. Bids shall be typewritten or in ink. All information requested shall accompany the bid. All blocks shall be completed. Errors shall be lined out and initialed.
- C. The right is reserved to reject any or all bids. The State may waive minor deficiencies or informalities in the best interest of the State of Iowa.
- D. A properly prepared and submitted bid document is the bidder's responsibility.
- E. Bids cannot be changed after the bid opening.
- F. In all cases, no verbal communications by any party will override written communications from the issuing office.
- G. The Bid Form shall be completed in full and signed and submitted by an officer of the bidder with authority to bind in a contract.
- H. If Bid Bond is called for, it shall accompany the Bid submission.
- I. If Non-discrimination Clause information is called for, it shall accompany the Bid submission.
- J. If Targeted Small Business Pre-bid Contact information is called for, it shall accompany the Bid submission.
- K. If Certificate of Site Visit form is called for, it shall accompany the Bid submission.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

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**SECTION 00 1113  
NOTICE TO BIDDERS**

**RFB #922300-04**

The Iowa Department of Administrative Services will be receiving bids for the construction of a new kitchen and laundry facility at the Clarinda Correctional Facility (CCF) 2000 N. 16<sup>th</sup> St., Clarinda, IA 51632. Bid packs BP-01, BP-02, BP-03, BP-04, BP-05, bp-06, BP-07 and BP-08 have already been awarded and not included. **This bid is for bid pack BP-09 VIDEO SURVEILLANCE only. Drawings note RFB922300-03 are for BP-09.**

The Iowa Department of Administrative Services anticipates construction to begin May 2024 and end July 2025.

Bids must be received no later than **2:00 pm, Thursday, February 13, 2025**. Late bids will not be considered. Bids shall be submitted on [IMPACS Electronic Procurement System](#). The Bid shall be accompanied by a Bid Security as set forth in the Instructions to Bidders in the amount of 5% of the total bid amount. Each bid shall be accompanied by a bid bond, cashier's check or a certified check drawn upon a solvent bank chartered under the laws of the United States of America.

**Bid Opening**

The time and place of bid opening will be at [meet.google.com/nyi-gxdp-rmn](https://meet.google.com/nyi-gxdp-rmn) and teleconference number 1-318-771-7914 Pin: 313 368 924# at 3:00 pm on February 13, 2025.

The Iowa Department of Administrative Services reserves the right to reject any and all bids, and to waive irregularities and to accept a bid that is deemed in the best interest of the State of Iowa.

Bidders must comply with all affirmative action/equal employment opportunity provisions of the State of Iowa and the Federal Government.

This project is exempt from Iowa Sales Tax. Davis Bacon Wages **will not** apply to this project.

Questions must be submitted by **2:00 pm, January 31, 2025** to the Issuing Officer.

Bidding documents may stipulate a specific product. Substitute product will be considered if a written request is received by **2:00 pm, January 31, 2025** prior to bid opening. Substitution requests will be considered for all products per Section 01 2500 Substitution Procedures, even if the specification does not include a statement such as "or equal," "equal to," "equivalent to," or "basis of design," unless otherwise noted.

An **optional** Virtual Pre-Bid meeting will be held on January 28, 2025 at 10:00 AM. Microsoft Teams

Meeting ID: 292 824 533 823 Passcode: Bt7Fc6qT

**Dial in by phone** 1-515-598-7333 - Phone conference ID: 955 568 604#

This meeting is not mandatory but is highly recommended.

Bidding Documents, including drawing sheets bearing the project name Clarinda Correctional Facility – Kitchen & Laundry Addition, Dated 02-09-2024 and the Project Manual prepared by Farnsworth Group dated 02-09-2024, may be obtained from may be obtained from Rapids Reproductions by calling (319) 364-2473 or emailing [www.rapidsrepro.com](http://www.rapidsrepro.com) on Tuesday, January 21, 2025.

For further information regarding this project contact:

Michael Bradbury – Issuing Officer

Phone: 515-823-9327

E-Mail: [construction.procurement@iowa.gov](mailto:construction.procurement@iowa.gov)

**END OF SECTION**

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**SECTION 00 2113**

**INSTRUCTIONS TO BIDDERS**

**RFB #922300-04**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Project Description
- B. Owner
- C. State Agency Representatives and Contacts
- D. Proposal Form and Submissions
- E. Taxes
- F. Alternate Bids
- G. Drawings
- H. Bid Security
- I. Due Date and Time for Receipt of Bids
- J. Commencement and Completion Date
- K. Site Visit
- L. Pre-bid Meeting
- M. Questions
- N. Addenda and Interpretations of the Contract Documents
- O. Substitutions
- P. Obligation of Bidder
- Q. Public Records and Requests for Confidential Treatment
- R. Withdrawal of Bid
- S. Bid Closing
- T. Basis of Bids
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- W. Preference
- X. Qualifications
- Y. Insurance
- Z. Form of Agreement between Owner and Contractor
- AA. Execution of Contract
- BB. Laws and Regulations
- CC. Contract Documents and Order of Precedence
- DD. Conditions of the Work
- EE. Subcontracts
- FF. Project Manual/Drawings (**Drawings note RFB922300-03 for BP-09**)

**1.02 PROJECT DESCRIPTION**

- A. Project Description: The project includes the construction of a new kitchen and laundry building for the Clarinda Correctional Facility. Scope of the project includes general construction, concrete, masonry, precast, structural steel, EPDM roofing, food service equipment, fire suppression, plumbing, HVAC, electrical, communications, electronic safety/security, earthwork, paving, utilities, etc.

**1.03 OWNER**

- A. State of Iowa, Department of Administrative Services, 109 SE 13th St, Des Moines, IA 50319

#### 1.04 STATE AGENCY REPRESENTATIVES AND CONTACTS

- A. PURCHASING AGENT: Michael Bradbury, State of Iowa, Department of Administrative Services, Hoover State Office Building, 3<sup>rd</sup> floor, 1305 East Walnut Street, Des Moines, IA 50319-0105, Phone: 515-823-9327; email: [construction.procurement@iowa.gov](mailto:construction.procurement@iowa.gov)
- B. OWNER REPRESENTATIVE: Brad Tonyan, State of Iowa, Department of Administrative Services, 109 SE 13<sup>th</sup> Street, Des Moines, IA 50319, Phone: 515-360-7718; email: [brad.tonyan@iowa.gov](mailto:brad.tonyan@iowa.gov).
- C. ON-SITE COORDINATOR: Greg Graham, Plant Operations Manager, Phone: 712-370-4448; email: [gregory.graham@iowa.gov](mailto:gregory.graham@iowa.gov)
- D. CONSTRUCTION MANAGER CONTACT: Brian Polzin, Samuels Group, 2929 Westown Parkway, Suite 200, West Des Moines, IA 50266, Phone: Brian - 515-218-0227; email: [bpolzin@samuelsgroup.net](mailto:bpolzin@samuelsgroup.net).
- E. DESIGN PROFESSIONAL CONTACT: Kelsey Vetter, Farnsworth Group, 14225 University Ave STE #110, Phone: 515-225-3469; email: [kvetter@f-w.com](mailto:kvetter@f-w.com)
- F. COMMISSIONING AGENT CONTACT: Matt Faber, Denovo, 300 4<sup>th</sup> Street, West Des Moines, Iowa, 50265, Phone: 515-512-3250; email: [mfaber@teambdenovo.com](mailto:mfaber@teambdenovo.com)

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

#### 3.01 PROPOSAL FORM AND SUBMISSION

- A. A properly prepared and submitted bid is the bidder's responsibility. Bids are to be made in accordance with these Instructions to Bidders and items included on the Bid submission. Failure to comply may be cause for rejection.
- B. The Bid is to consist of the required Bid information, together with the other information specified below to be submitted with the Bid, in which copies are included with these Bidding Documents.
  - 1. The total bid package submitted is required to include the following:
    - a. An online submission including:
      - 1) Required Bid Form (To be uploaded online)
      - 2) Required Non-discrimination Clause Information
      - 3) Required Targeted Small Business Pre-bid Contact Information
      - 4) Bid Security (documentation provided by Bidder) (To be uploaded online) (Required)
      - 5) Certification of Site Visit (To be uploaded online if Pre-Bid is Mandatory)
- C. Include the amount for performing all work described in the drawings and specifications for Base Bid and for each Alternate Bid requested.
- D. Acknowledge receipt of all Addenda issued, where so indicated on the Bid Form
- E. All required information to be submitted, by an officer of the company having authority to bind the company in a contract.
- F. Commencement of the work of the contract shall begin with the Contractor's receipt of a fully executed contract (signed by both parties).
- G. The Owner reserves the right to award a contract for Base Bid only, or for Base Bid in combination with any, or all, identified Alternate Bids. The Owner reserves the right to award a contract for individual Bid Packages, or any combination of Bid Packages. Each Bidder must comply with all of the General Requirements of the project and any requirements of the Project manual that apply to their scope of work.

- H. The company's Federal I.D. Number and the Iowa Contractors Registration Number shall be included in the Bid Form.
- I. Unless indicated otherwise, the Bid shall be for a single responsibility contract for all work as indicated on the Drawings and specified in the Project Manual, and shall be a lump sum amount. If no change in the Base Bid amount is required with respect to consideration of a particular Alternate Bid, enter "No Change" in the blank for that Alternate Bid.
- J. Where so requested, provide Unit Prices for the designated types of work and in the units specified, in which the Unit Prices would be used as adjustments to the quantities described in the instructions as the basis for the Base Bid and any Alternate Bid work. A Unit Price would be applicable in the event the Owner should request additional work of that type beyond the extent and quantity that has been established as the scope of the work by graphic delineation and notations on the Drawings, or by otherwise stipulating in the Bidding Documents a numerical quantity of the work, for the Bidder's use in determining the lump sum bid amount for the Base Bid and any requested Alternate Bid containing such work. The Unit Prices shall also be used to adjust the Contract Amount for actual quantities of work involved when the work subject to Unit Price adjustment differs by being less in quantity than that contemplated by the original scope of work for the respective Base Bid or Alternate Bid.
- K. Completed State of Iowa Nondiscrimination Clause information and Subcontractor Targeted Small Business Enterprise Pre-Bid Contact Information, included in these Bidding Documents, are to accompany the Bid submission. Bidders shall comply with all affirmative action/equal opportunity provisions of State and Federal laws. The Owner seeks to provide opportunities for Targeted Small Businesses in accordance with the provisions of Chapter 73 of the Code of Iowa.
- L. All Bid information is to be submitted online. Any required Bid Security shall be provided, in the form and amount specified elsewhere in these Instructions to Bidders, at the time of submission of the Bid. When a site visit is mandatory as specified elsewhere in these Instructions to Bidders, and a Certificate of Site Visit is required to be submitted with the Bid as evidence of such visit having occurred for purposes of observing the conditions of the site and the work proposed therein, the Certificate shall be uploaded with the bid submission.

### **3.02 TAXES**

- A. In accordance with Section 423 of the Code of Iowa and 701-19 of the Iowa Administrative Rules, Iowa Construction Sales Tax Exemption Certificates for this project will be issued. Do not include Iowa sales tax or use tax, or any local option sales tax, on construction materials in determining your bid prices. The successful Contractor will be required to notify the Department of Administrative Services project manager of all Subcontractors within forty-eight (48) hours after the published date and time by which bids must be submitted. Information on the Contractor and each Subcontractor shall include the firms' name, address, contact person, federal tax identification number, and the Iowa contractor registration number. For the Contractor and each Subcontractor, designate the type of trade or category of work that is to be provided on the project. The Construction Manager for the Department of Administrative Services must be informed when any Subcontractor is added to the project. Following receipt of the information, the Construction Manager for the Department of Administrative Services will arrange to have an authorization letter and certificate (please see sample, included in the Project Manual) issued on behalf of the Contractor and each Subcontractor and will forward the documents to the Contractor for distribution and use by each in purchasing construction materials for this project. Certificates issued for this project shall be used for tax-exempt purchasing construction materials for this project only.

### **3.03 ALTERNATE BIDS**

- A. Bidders are to bid all Alternates requested on the Bid Form. Alternates quoted will be reviewed and accepted or rejected at the option of the Department of Administrative Services. Accepted Alternates will be identified in the Owner-Contractor agreement. Indicate the price for Alternates

described, as shown on the Drawings and specified in the Project Manual, and identify in the correct location on the Bid Form.

### **3.04 DRAWINGS AND PROJECT MANUAL**

- A. Drawings and Project Manual are specified in the Notice to Bidders or any extension thereof made by Addendum.

### **3.05 BID SECURITY**

- A. Each Bid shall be accompanied by Bid Security.
- B. The Bid Security shall be in the form of a Bid Bond, Certified check, or Cashier's check in an amount not less than five percent (5%) of the maximum value of the Bid, including any additive Alternates. NOTE: Checks other than Certified checks and Cashier's checks will not be accepted. Bonds shall be issued by a bonding company licensed to transact business in the State of Iowa. The Attorney in Fact who signs the Bond shall file with the Bond a certified and effectively dated copy of their Power of Attorney. The Bid Security shall be made payable to the Iowa Department of Administrative Services, and shall accompany the Bid. If a Bid Bond is not used, copies of Certified checks or Cashier's checks must be uploaded and hand delivered, in a sealed envelope, or mailed upon request. The Bid Security shall serve as a guarantee that a Bidder who is offered a contract will enter into an Agreement with the State of Iowa and will file an approved surety company's Performance Bond, Payment Bond and the Insurance Certificates as evidence of the required Insurance prior to execution of the contract. Upon failure to comply, the Bid Security shall be forfeited as liquidated damages. The governmental entity shall retain the bid security furnished by the successful bidder until the approved contract form has been fully executed, a bond has been filed by the bidder guaranteeing the performance of the contract, and the contract and bond have been approved by the governmental entity. The provisions of chapter 573, where applicable, apply to contracts awarded under this chapter. The governmental entity shall promptly return the checks or bidder's bonds of unsuccessful bidders to the bidders once the Notice of Intent to Award is issued.

### **3.06 DUE DATE AND TIME FOR RECEIPT OF BIDS**

- A. Properly completed Bids shall be submitted online through [IMPACS Electronic Procurement System](#), no later than the time and date specified in the Notice to Bidder or any extension thereof made by Addendum. Written, emailed, oral or telephonic Bids are invalid, and will not receive consideration. The Bidder shall assume full responsibility for the timely online submission of the Bid. Late bids will not be accepted.

### **3.07 COMMENCEMENT AND COMPLETION DATES**

- A. Commencement of the Work of the Contract shall be the day of receipt by the selected Contractor of the fully-executed contract. Final completion of the Work of the contract shall be acknowledged as a part of the Contractor's proposal.

### **3.08 SITE VISIT**

- A. A site visit by the prospective bidder is highly recommended at the time of the Pre-Bid Meeting of this project.

### **3.09 PRE-BID MEETING**

- A. Pre-Bid Meeting will be specified in the Notice to Bidders or any extension thereof made by Addendum.

### **3.010 QUESTIONS**

- A. Questions on this project may be raised and discussed at the time of the Pre-Bid Meeting or by submitting in writing to the issuing officer as specified in the Notice to Bidders or any extension thereof made by Addendum.

### **3.011 ADDENDA AND INTERPRETATIONS OF THE CONTRACT DOCUMENTS**

- A. Any person contemplating submitting a proposal for the proposed Contract, who is in doubt as to the true meaning of any part of the Bidding Documents, shall submit a written request for an interpretation thereof. The person submitting a request will be responsible for its prompt delivery. Every request for such interpretation should reference the Bid Number specified in the Bidding Documents, and shall be made in writing (email preferred). Questions shall be submitted to the previously identified Purchasing Agent for the Department of Administrative Services. To be given consideration, requests shall be received as specified in the Notice to Bidders or any extension thereof made by Addendum. Replies, which revise or correct the Bidding Documents, or provide necessary clarifications, will be issued in the form of a written Addendum to the Bidding Documents. 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, or changes. The Bidder is to include any resultant cost changes in the Bid Sum. Addenda will be posted electronically at the respective bid site where the bid is initially posted. Acknowledgment by the Bidder of each issued Addendum shall be noted in the location so indicated on the Bid. All Addenda issued shall become part of the Contract Documents.

### **3.012 SUBSTITUTIONS**

- A. Where the Bidding Documents stipulate a specific product be provided by naming one or more manufacturer and model, a substitute product will be considered when a written request is received as specified in the Notice to Bidders or any extension thereof made by Addendum prior to bid opening. Substitution requests will be considered for all products per Section 01 2500 Substitution Procedures, even if the specification does not include a statement such as "or equal," "equal to," "equivalent to," or "basis of design," unless otherwise noted. Substitution requests shall be emailed to the Issuing Officer at the email address provided in Instructions to Bidders Section 1.04.

### **3.013 OBLIGATION OF BIDDER**

- A. It shall be the responsibility of each Bidder contemplating the submission of a Bid for the proposed Contract to fully acquaint himself/herself with conditions at the work site, project requirements, and to become acquainted thoroughly with the work, and all conditions that may be related to it. No considerations or revision in the contract price or scope of the project will be considered by the Owner for any item that could have been revealed by a thorough on-site inspection and examination.
- B. By submission of a Bid, it shall be understood that the Bidder assures that he/she has reviewed and is thoroughly familiar with the project requirements, contract conditions and supplementary conditions, the drawings, specifications, addenda, and that the bidder is aware of the conditions existing at the site that may relate to the work of this project. Failure of any Bidder to examine any form, document, or other instrument shall in no way relieve the Bidder from any obligation in respect to his/her Bid.

### **3.014 PUBLIC RECORDS AND REQUESTS FOR CONFIDENTIAL TREATMENT**

- A. The Agency's release of public records is governed by Iowa Code chapter 22. Contractors are encouraged to familiarize themselves with Chapter 22 before submitting a Proposal. The Agency will copy and produce public records upon request as required to comply with Chapter 22 and will treat all information submitted by a Contractor as non-confidential records unless Contractor requests specific parts of the Proposal be treated as confidential at the time of the submission as set forth herein AND the information is confidential under Iowa or other applicable law.
- B. A Contractor requesting confidential treatment of specific information must: (1) fully complete Form 22 (Available at <https://das.iowa.gov/sites/default/files/procurement/pdf/Form%2022-ConfidentialityRequest-RFB.pdf>), (2) identify the request in the transmittal letter with the Contractor's Proposal, (3) conspicuously mark the outside of its Proposal as containing confidential information, (4) mark each page upon which confidential information appears, and (5) submit a "Public Copy" from which the confidential information has been excised.
- C. Form 22 will not be considered fully complete unless, for each confidentiality request, the Contractor: (1) enumerates the specific grounds in Iowa Code chapter 22 or other applicable law that supports treatment of the material as confidential, (2) justifies why the material should be maintained in confidence, (3) explains why disclosure of the material would not be in the best interest of the public, and (4) sets forth the name, address, telephone, and e-mail for the person authorized by Contractor to respond to inquiries by the Agency concerning the confidential status of such material.
- D. The Public Copy from which confidential information has been excised is in addition to the number of copies requested in Section 3 of this RFP. The confidential material must be excised in such a way as to allow the public to determine the general nature of the material removed and to retain as much of the Proposal as possible.
- E. **Failure to request information be treated as confidential as specified herein shall relieve Agency and State personnel from any responsibility for maintaining the information in confidence. Contractors may not request confidential treatment with respect to pricing information and transmittal letters. A contractor's request for confidentiality that does not comply with this section or a contractor's request for confidentiality on information or material that cannot be held in confidence as set forth herein are grounds for rejecting contractor's Proposal as non-responsive. Requests to maintain an entire Proposal as confidential will be rejected as non-responsive.**
- F. If Agency receives a request for information that Contractor has marked as confidential and if a judicial or administrative proceeding is initiated to compel the release of such material, Contractor shall, at its sole expense, appear in such action and defend its request for confidentiality. If Contractor fails to do so, Agency may release the information or material with or without providing advance notice to Contractor and with or without affording Contractor the opportunity to obtain an order restraining its release from a court possessing competent jurisdiction. Additionally, if Contractor fails to comply with the request process set forth herein, if Contractor's request for confidentiality is unreasonable, or if Contractor rescinds its request for confidential treatment, Agency may release such information or material with or without providing advance notice to Contractor and with or without affording Contractor the opportunity to obtain an order restraining its release from a court possessing competent jurisdiction.

### 3.015 WITHDRAWAL OF BID

- A. A Bid may be modified or withdrawn only before the time and date for receipt of Bids. Said request for modification or withdrawal of a bid must be completed online through [IMPACS Electronic Procurement System](#). A Bid shall remain valid for consideration by the Owner for the following period(s) of time after the date specified for receipt of Bids, or until such time following that period that the apparent low bidder requests in writing that the Bid be withdrawn, after which the Bid may be withdrawn without forfeiture of any required Bid Security. The Bid shall be valid for not less than thirty (30) calendar days after the date Bids are specified to be due. With the approval of the Department of Administrative Services, a bid may be withdrawn after opening, but  
o

nly if the bidder provides prompt written notification that adequately documents the commission of an honest error that may cause undue financial loss.

### **3.016 BID OPENING**

- A. All bids received on or before the due date and time specified in the Notice to Bidder or any extension thereof made by Addendum will be opened and the name of the Bidder and the amount of their Bid will be announced.

### **3.017 BASIS OF BIDS**

- A. The Bidder shall include all additional documents or appendices that are requested to be submitted concurrent with the Bid submission; failure to comply may be cause for rejection.
- B. In accordance with Iowa law, Section 8A.311: A bidder, to be considered for an award of a state construction contract, shall disclose to the state agency awarding the contract the names of all subcontractors and suppliers who will work on the project being bid, within forty-eight (48) hours after the published date and time by which bids must be submitted. A bidder shall not replace a subcontractor or supplier disclosed without the approval of the state agency awarding the contract.
  - 1. A bidder, prior to an award or who is awarded a state construction contract, shall disclose all of the following, as applicable:
    - a. If a subcontractor or supplier disclosed (under the preceding) by a bidder is replaced, the reason for replacement and the name of the new subcontractor or supplier;
    - b. If the cost of work to be done by a subcontractor or supplier is changed or if the replacement of a subcontractor or supplier results in a change in the cost, the amount of the change in cost.
    - c. Any reduction in subcontractor or supplier price as a result of the change, if the change is approved by the Owner, shall be deducted from the Trade Contract via a deductive Change Order. Any such changes, if approved by the Owner, which result in an increase in the Trade Contract Price shall be borne by the Trade Contractor.
- C. The Bidder is specifically advised that any person, firm or other party to whom it is proposed to award a subcontract under this contract must:
  - 1. Be registered in the State of Iowa and have an Iowa Contractor's Registration number, and
  - 2. Be acceptable to the Owner.

### **3.018 INFORMALITIES/ REJECTION OF BIDS**

- A. The Iowa Department of Administrative Services reserves the right to waive any irregularities or informalities and to enter into a Contract with a Bidder, or to reject any or all bids as it deems to be in the best interest of the State, without penalty.

### **3.019 CONSIDERATION OF BIDS**

- A. It is the intent of the Department of Administrative Services to award a Contract to the lowest responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and is determined to be compliant with all Bidding Requirements, and does not exceed the funds available for construction.
- B. Bidder is to bid on each Alternate Bid requested. Failure to do so may result in disqualification of the bid. The Department of Administrative Services reserves the right to accept any, or no, Alternate Bid. Alternate Bids may be considered in any order or combination, and the low successful Bidder will be determined on the basis of the sum of the Base Bid and the Alternate(s) accepted at the time of the Contract award.
- C. In evaluating Bids, any proposal offered by a Bidder for an alternate design, or for materials other than those shown or specified for the Base Bid or for Alternate Bid construction under the

proposed Construction Documents or called for by any issued Addenda to those Construction Documents, will not be considered in determining the low successful Bidder. However, the Department of Administrative Services reserves the right to consider any such Bidder-proposed (Contractor's Alternate) alternate designs or materials with the low successful Bidder, after the low successful Bidder is determined in the manner described above (A and B).

- D. Notice of Intent to Award the Bid(s) will be sent to all Respondents submitting a timely Bid and may be posted at the website shown on the RFB cover sheet. Negotiation and execution of the Contract(s) shall be completed no later than fifteen (15) days from the date of the Notice of Intent to Award or such other time as designated by Agency. If the successful Bidder fails to negotiate and deliver an executed Contract, including all required documents such as payment and performance bonds and insurance certificate, by that date, the Agency, in its sole discretion, may cancel the award and award the Contract to the remaining Bidder the Agency believes will provide the best value to the State.

### 3.020 PREFERENCE

- A. By virtue of statutory authority, a preference shall be given to Iowa domestic labor, products produced and provisions grown within the state of Iowa, in accordance with the provisions of Chapter 73, Code of Iowa and any amendments thereto.
- B. Enforcement of reciprocal resident bidder preference and resident labor force preference codified at Iowa Code Section 73A.21.
1. NOTICE: Failure on the part of the bidder to carefully read the following paragraphs and to provide the information requested below may make the bidder's bid materially nonresponsive and therefore ineligible for contract award. Violations of Iowa Code Section 73A.21 may, among other things, result in civil penalties assessed by the Commissioner of the Division of Labor of Iowa Workforce Development. The bidder should seek out the advice of an attorney if he or she has questions about Iowa Code Section 73A.21. As a part of the competitive procurement of contracts for Public Improvements that must be awarded to the low bidder (if the bid is responsive and the bidder is deemed responsible), Public Bodies shall allow a preference to Resident Bidders if a Nonresident Bidder places a bid for the contract for the Public Improvement and that Nonresident Bidder's state or foreign country gives resident bidders of that state or foreign country a preference (including a labor force preference or any type of preferential treatment). The preference allowed, or reciprocally applied, shall be equal to the preference given or required by the state or foreign country in which the Nonresident Bidder is a resident bidder.  
"Public Body" means the State of Iowa (and its agencies) and any of its political subdivisions, including school districts, public utilities, and the state board of regents.  
"Public Improvement" means a building or other construction work to be paid for in whole or in part by the use of funds of the State of Iowa, its agencies, and any of its political subdivisions and includes road construction, reconstruction, and maintenance projects.  
"Resident Bidder" means a person or entity authorized to transact business in of the State of Iowa and having a place of business for transacting business within the State of Iowa at which it is conducting and has conducted business for at least three years prior to the date of the first advertisement for the public improvement. Note, however, that if a nonresident bidder's state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable as to bidders from that state or foreign country.  
"Nonresident Bidder" means a person or entity who does not meet the definition of a resident bidder.
- C. Nonresident bidders shall be required to certify on the Bid submission, where so indicated, the state or foreign country in which the firm is a resident, and if that state or foreign country uses a percentage for in-state bidders and the amount of the preference.
- D. If it is determined that this may cause denial of federal funds which would otherwise be available, or would otherwise be inconsistent with requirements of federal law, this section shall be

suspended, but only to the extent necessary to prevent denial of the funds or to eliminate the inconsistency with federal requirements.

### 3.021 QUALIFICATIONS

- A. In accordance with Iowa Code 26.9(2) and 26.16, no potential bidder shall be required to provide confidential or proprietary information or meet any class requirements as a precondition to submitting a responsive bid. However, as noted in Iowa Code 26.9(2), the lowest responsive bidder may be required to provide additional information to verify responsibility prior to and as a condition of obtaining final award of the contract. Any qualification requirements contained in any bid document indicates only preferred qualifications, not a precondition to bid, and the lowest responsive bidder's qualifications will be evaluated individually based on all information provided.
- B. The Owner may make such investigations as he or she deems necessary to determine the ability of the awarded Bidder to perform the required work, and the awarded Bidder shall furnish to the Owner all such information and data for this purpose. The Owner reserves the right to rescind any awarded Bid if the evidence submitted by, or in investigation of, such Bidder fails to satisfy the Owner that the Bidder is properly qualified to carry-out the obligations of the Contract and to complete the Work contemplated therein.
- C. Bidders shall be registered as a Construction Contractor with the Labor Commissioner, Iowa Workforce Development Department, as required by Chapter 91C of the Code of Iowa. Bidder's Iowa Contractor Registration Number shall be included in the location provided in the Bid Form.
- D. Non-resident corporations submitting bids must be in compliance with Section 490.1501 of the Code of Iowa and legally authorized thereby to carry-on such business in the State of Iowa as is required by the Contract Documents.
- E. An out-of-state Bidder, if awarded a contract, will be required to submit evidence of authorization to do business in the State of Iowa.

### 3.022 INSURANCE

- A. Insurance Requirements
  - 1. The Contractor shall maintain in effect, with insurance companies of recognized responsibility, at its expense, insurance covering its work of the type and in amounts required by this Contract. The Contractor's insurance shall, among other things, insure against any loss or damage resulting from the Contractor's performance of this Contract. All such insurance policies shall remain in full force and effect for the entire life of this Contract and shall not be canceled or changed except after thirty (30) days written notice to the Owner.
  - 2. **Amounts of Insurance Required – Refer to ConsensusDOCS 802 (see template in Project Manual)**
- B. Certificates of Coverage
  - 1. Certificates of the insurance described above shall be submitted to the Owner before starting any construction activities and shall be subject to approval by the Owner. The Contractor shall provide certificates for the insurance required. The insurer shall state in the certificate that no cancellation of the insurance will be made without at least thirty (30) days prior written notice to the Contractor. Upon receipt of any notice of cancellation or alteration, Contractor shall within ten (10) days procure other policies of insurance, similar in all respects to the policy or policies, about to be canceled or altered, and, if the Contractor fails to provide, procure, and deliver acceptable policies of insurance, or satisfactory evidence thereof, in accordance with the terms hereof then, at the Owner's option, Owner may obtain such insurance at the cost and expense of Contractor, without the need of any notice to Contractor.
- C. No Limitation of Liability
  - 1. Acceptance of the insurance certificates by the Owner shall not act to relieve the Contractor of any obligation under this Contract. All insurance policies and certificates shall be issued only by companies authorized to transact business in the State of Iowa. It shall be the

responsibility of the Contractor to keep the respective insurance policies and coverage's current and in force during the life of this agreement.

2. A Sample Certificate of Insurance is attached for reference following this Section.

### **3.023 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR**

- A. The Agreement for the Work will be written on ConsensusDOCS 802 Form of Agreement between Owner and Contractor (sample of the document with modifications incorporated is bound in this Project Manual).

### **3.024 EXECUTION OF CONTRACT**

- A. Contract documents shall mean and include the following:
  1. Contract: ConsensusDOCS 802
  2. Performance and Payment Bonds
  3. Project Manual
  4. Drawings
  5. Numbered Addenda issued after initial publication of Bid Documents
  6. Numbered Modifications (Change Orders) issued after Contract is signed

### **3.025 LAWS AND REGULATIONS**

- A. The Bidder's attention is directed to the fact that all applicable laws and regulations of Federal and State agencies having jurisdiction over the construction of this project shall apply to any contract resulting from this proposal, and it shall be deemed that those rules and regulations are made a part of such contract the same as if set forth in their entirety therein. By submitting a Bid, the Bidder confirms that he/she is familiar with and understands the Contractor's responsibility under all Federal and State of Iowa laws and regulations with respect to the Work described by the proposed Contract Documents.

### **3.026 CONTRACT DOCUMENTS AND ORDER OF PRECEDENCE**

- A. Where an irreconcilable conflict exists among Applicable Legal Requirements, this Contract, the specifications in the Materials and the Drawings, the earliest item mentioned in this sentence involving a conflict shall control over any later mentioned item or items subject to such conflict unless doing so would result in reducing the Bidder's duty of care or obligations under this Contract, in which case the terms resulting in the highest requirements for Bidder performance shall control.

### **3.027 CONDITIONS OF THE WORK**

- A. Each bidder must fully inform him/herself of the conditions under which the work is to be performed at the site of the work, the obstacles which may be encountered, and all other relevant matters concerning the work to be performed. Failure to do so will not relieve a successful bidder of the obligation to furnish all material and labor necessary to carry out the provisions of the contract. When a site visit is required by provisions located elsewhere in these Instructions to Bidders, as a site tour in conjunction with a mandatory Pre-Bid Meeting, it shall be the Bidder's responsibility to fulfill this obligation as a condition of bidding the Work described in the Bidding Documents.
- B. No allowance will be made for any additional compensation by reason of any matter or condition with which the bidder might have fully informed him/herself, but failed to do so prior to bidding. Insofar as possible, the Contractor and all subcontractors shall employ such methods or means in carrying out the work so as not to cause any interruption of, or interference with, the work of any other subcontractor or trade.

**3.028 SUBCONTRACTS**

- A. The Prime Contractor shall be responsible for notifying all subcontractors and suppliers and informing them that they are bound in each case by all applicable provisions of the bidding information and those of the proposed Form of Agreements as defined in the Contract Documents.

**END OF SECTION**

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## SECTION 00 2113.01

### IMPACS Public Construction Bidders User Guide

Public construction bids must be submitted on-line at [IMPACS Electronic Procurement System](#).

Bidders must be registered in IMPACS to submit a Bid.

To create an account, enter your email address and click on “Next” and click “Create Account”. Bidder must enter all fields noted with \* including legal company name, contact first and last name, phone number, confirm email address, password, re-enter password, select account recovery question including answer, confirm answer, select box accepting websites use terms and conditions and select security check box “I’m not a robot”.

On the [IMPACS Electronic Procurement System](#) Customer Portal Home page, Bidder selects “View Event” in the Sourcing Events section.



Event Number	Status	Event Title	Dates	Action
RFB923700-02	Open	Hoover East Side Pavers	Open: 4/27/2022 12:00:00 PM CDT Close: 5/5/2022 12:00:00 PM CDT	View Event

Bidders can view event details including description, prerequisites, buyer attachments, questions and answers.

To submit a Bid, Bidder must select “**Yes, I intend to Bid**”. Bidder must complete the following sections.

**Prerequisites** - Bidder must complete all prerequisites.

- Bidder must upload a file of the Bid Security/Bond for 5% of total Bid Amount and certify that if they are awarded the construction contract, they will enter into the contract at the Bid Amount submitted.
- Bidder must upload the completed and signed Bid Form.  
**NOTE: Bids are to be entered on the Bid Form only; not in the IMPACS. As a result, IMPACS will display a bid amount of \$0.**

**Questions** - Bidder must complete all questions.

**Review & Submit** - Bidder must select the certification box certifying that the statements and information in response are true and correct to the best of their knowledge and belief.

**END OF SECTION**



**SECTION 00 3101**

**GEOTECHNICAL SOILS INVESTIGATION REPORT**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Geotechnical Evaluation Report, Subsurface Exploration, prepared by Team Services.
  - 1) Report Dated April 12, 2022
  - 2) TEAM No. 1-5118

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

# Geotechnical Evaluation Report

Subsurface Exploration  
CCF Kitchen and Laundry Addition  
Clarinda, Iowa

April 12, 2022

Prepared for:

DAS Iowa Department of Administrative  
Services  
Facilities Management Center  
109 SE 13<sup>th</sup> Street  
Des Moines, IA 50319

Prepared by:

TEAM Services, Inc.  
Des Moines, Iowa



April 12, 2022

DAS Iowa Department of Administrative Services  
Facilities Management Center  
109 SE 13<sup>th</sup> Street  
Des Moines, IA 50319

Attn: Josh Herman

Re: Subsurface Exploration  
CCF Kitchen and Laundry Addition  
Clarinda, Iowa  
TEAM Project No. 1-5118

Dear Mr. Herman:

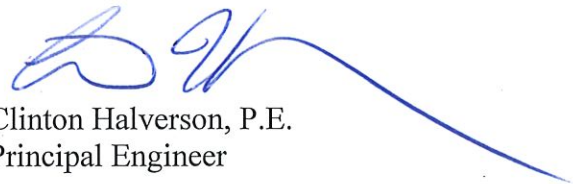
We have completed the subsurface exploration for the proposed addition at the Clarinda Correctional Facility in Clarinda, Iowa. The accompanying geotechnical report presents the findings of the subsurface exploration and our recommendations concerning design and construction for the proposed addition.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service to you in any way, please do not hesitate to contact us.

Sincerely yours,  
TEAM Services


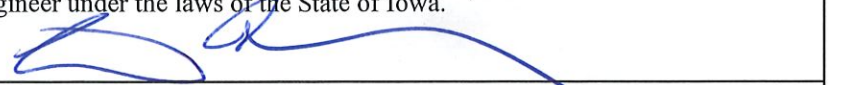


Christopher Ostheimer  
Staff Engineer



Clinton Halverson, P.E.  
Principal Engineer

Cc: Jerry Dehnke – The Samuels Group

	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 Iowa. 
	Clinton Halverson, P.E. License Number 19928 Date: 04/12/2022 My license renewal date is December 31, 2023. Pages covered by this seal: <u>    All Pages    </u> .

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## **PROJECT INFORMATION**

Project information was provided by Mr. Jerry Dehnke of The Samuels Group, Inc. through phone conversation and email with our office. Included with the emails was a site plan showing the proposed addition footprint and requested boring locations and depths. The project will consist of the construction of a new kitchen, laundry, and visitor center addition at the Clarinda Correctional Facility at 1800 North 16<sup>th</sup> Street in Clarinda, Iowa. The area where the addition is planned is currently a greenspace with a garden located in the southwest corner of the secured facility at the Clarinda Correctional Facility. The addition is planned to be approximately 18,600 square foot, slab-on-grade, and will connect to the existing facility with a circulation hallway. The addition is planned to have an at-grade loading dock with drive on the east side of the addition. Anticipated maximum loads of 3.5 kips per linear foot for continuous foundation and 100 kips for column loads were provided. At the time of this report a final finished floor elevation had not yet been decided.

## **SITE CONDITIONS**

The project site is located at the Clarinda Correctional Facility at 1800 North 16<sup>th</sup> Street in Clarinda, Iowa. The site is currently a greenspace located in the southwest yard inside the perimeter fence of the correctional facility. The area where our borings were conducted gently sloped downhill to the southwest with approximately 3½ feet of elevation difference between our borings. Our truck-mounted auger drill rig was supported by the existing surfaces without difficulty.

## **FIELD EXPLORATION**

A total of 4 borings were conducted at this site to depths of about 15 to 30 feet below existing grades on February 28, 2022. The borings were located and staked by The Samuels Group, Inc. prior to TEAM Services arriving at the site. The ground surface elevations at the boring locations were shot in the field using a surveying rod and scope and referenced the finished floor of the existing south wing as an elevation benchmark with an arbitrarily assigned elevation of 100.0 feet. The boring locations indicated on the attached Boring Plan are placed at their planned locations assuming field boring location staking matched planned locations. The benchmark location shown on the attached Boring Plan is based off visual approximations. The elevations are recorded on the respective Boring

Logs. The locations and elevations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

Our drilling equipment consisted of our truck-mounted auger drill rig. The borings were made by mechanically twisting a continuous flight hollow stem steel auger into the soil. At assigned intervals, the center drive bit of the auger was removed and soil samples were obtained.

Representative samples were obtained using thin-walled tube and split-barrel sampling procedures in general accordance with ASTM Specifications D-1587 and D-1586, respectively. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge is pushed hydraulically into the ground to obtain relatively undisturbed samples of cohesive or moderately cohesive soils. In the split-barrel sampling procedure, a standard 2-inch O.D. split-barrel sampling spoon is driven into the ground with a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the standard penetration resistance value. These values are indicated on the Boring Logs at the depths of occurrence. The samples were tagged for identification, sealed and returned to the laboratory for testing and classification.

An automatic hammer was used to perform the Standard Penetration Tests in the borings at this site. In the automatic hammer system, the cathead and rope used traditionally in the manual test procedure is replaced with an automatic lifting mechanism for the 140 pound driving weight. The reduction in system friction with the automatic hammer system results in a significant increase in the driving energies. This results in significantly greater driving efficiencies and a corresponding decrease in the number of blows in the Standard Penetration Test results. We have taken the driving efficiency of the automatic hammer system into account when analyzing this data.

Field logs of the borings were prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling, as well as the driller's interpretation of the subsurface conditions between samples. Final Boring Logs included with this report represent an interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

## **LABORATORY TESTING**

Based on the driller's field records and examination of the samples in the laboratory, a soil testing program was developed to collect more information about the soil conditions at the site. The following is a brief description of the specific tasks completed for this project.

**Natural Moisture Content** -- The natural moisture content of selected samples was determined in general accordance with ASTM D 2216. The moisture content of the soil is the ratio, expressed as a percentage, of the weight of water in a given mass of soil to the weight of the soil particles. The results are presented on the Boring Logs at the depths from which the samples were obtained.

**Unit Weight** -- In the laboratory, selected undisturbed samples of the site soils were measured and weighed to determine gross weight and volume of the samples. Where possible, the samples are placed in a template and trimmed at each end to fit the template. The moisture content of each specimen was then determined, and the dry unit weight was calculated. The results of these tests are also presented on the Boring Logs at the appropriate sample depths.

**Unconfined Compressive Strength** -- A calibrated hand penetrometer was used to estimate the approximate unconfined compressive strength of select samples. The calibrated hand penetrometer has been correlated with unconfined compression tests and provides a better estimate of soil consistency than visual examination alone.

**Plasticity (Atterberg Limits) Tests** -- Selected soil samples were tested for Plastic Index. The soils' Plastic Index (PI) is bracketed by the Liquid Limit (LL) and the Plastic Limit (PL). The LL is the moisture content at which the soil will flow as a heavy viscous fluid. The PL is the moisture content at which the soil begins to crumble when rolled into a small thread. These tests are conducted in general accordance with ASTM D 4318. The results are indicated on the Boring Logs at the depth where the sample was obtained.

As part of the testing program, the samples were classified in the laboratory based on visual observation, texture and plasticity. The descriptions of the soils indicated on the Boring Logs are in accordance with the enclosed *General Notes* and the *Unified Soil Classification System*. Estimated group symbols according to the *Unified Soil Classification System* are given on the Boring Logs. A brief description of this classification system is attached to this report.

## **SUBSURFACE CONDITIONS**

Subsurface conditions encountered during this exploration are indicated on the individual Boring Logs. Based on the results of the borings, subsurface conditions on the project site can be generalized as follows.

We encountered fill and possible fill at the ground surface in all borings. Possible fill is used to describe soil layers which may be natural but have a characteristic such as color or soil texture that raises suspicion that the soil could be fill. The fill and possible fill contained primarily lean clay, fat clay, and lean to fat clay. The existing fill and possible fill extended approximately 3 to 12 feet below existing surfaces.

Buried topsoil was encountered beneath the fill in Borings 1 and 3. Topsoil typically consisted of very stiff to hard fat clay with trace amount of organic material. The thickness of buried topsoil ranged from about 1½ to 3 feet when encountered.

Below the buried topsoil in Borings 1 and 3 and below the fill and possible fill in Borings 2 and 4, soil derived from loess (wind-blown soil) was encountered. The loess soils are typically medium stiff to stiff lean clay, stiff fat clay, and stiff to very stiff lean to fat clay in this area. Loess soils have typically not experienced significant overburden pressures beyond the weight of the soil above them; below the zone of soil affected by seasonal wet/dry cycles (where some preconsolidation by desiccation has occurred), the loess is often near-normally consolidated. The depth of the loess was about 8 and 12 feet below existing surfaces in Borings 4 and 1, respectively. Borings 2 and 3 terminated in the loess at depths of 15 to 20 feet below existing grades.

Glacially derived soils were encountered below the loess in Borings 1 and 4. These materials were deposited during the advance or retreat of continental glacial ice sheets which previously covered this area. The common glacial material consists of unsorted soil deposits with a mixture of sand, silt, and clay, with the engineering properties of the soil being controlled by the clay fraction. This material, termed glacial till, is commonly sandy lean clay. A layer with little or no sand was encountered amongst the glacial till in Boring 1. The sand-free clay soil appeared to be lean clay when encountered and is likely the result of sorting by meltwater streams. Soils deposited by meltwater streams are termed glacial outwash. The glacial till and outwash soils were typically stiff.

Paleosol was encountered as part of the glacially derived soils in Borings 1 and 4. Paleosol is a weathered zone of glacially derived soils that is commonly found at the top of a glacial stratum, however it was also encountered below glacial till and glacial outwash at this site. The paleosol at the site consisted of medium stiff to stiff lean to fat clay and very stiff fat clay. The various glacial soils extended to the terminal depths of Borings 1 and 4.

Cobbles and boulders were not noted in our borings. However, glacial soils were encountered at the site, and these materials often contain cobbles and boulders. The possibility of their presence should be considered where excavations or grading operations at the site advance into the glacial soils.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Boring Logs contain detailed information recorded at each boring location. These Boring Logs represent our interpretation of the field logs based on engineering examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries, and the transition between strata may be gradual. It should be noted that the soil conditions will vary between the boring locations.

## **GROUNDWATER CONDITIONS**

The borings were monitored while drilling for the presence of groundwater. Groundwater levels observed in the borings are noted on the Boring Logs.

Groundwater seepage was encountered during drilling operations in Boring 1 at a depth of 24 feet below existing grade. Groundwater seepage was encountered immediately following drilling operations in Boring 1 at a depth of 20 feet below existing grade. No groundwater seepage was observed during or immediately after drilling in all other borings.

These groundwater level observations provide an approximate indication of the groundwater conditions existing on this site at the time of drilling operations. Fluctuation of groundwater levels can occur due to seasonal variations in the amount of rainfall, runoff, surface drainage, subsurface drainage, site topography, irrigation practices, ground cover (pavement or vegetation), and other factors not evident at the time the borings were conducted. Normally, the highest groundwater levels occur in late winter and spring time while the lowest levels occur in late summer and fall time. The fluctuation of the groundwater levels should be considered when developing the design and

construction plans for this project. Longer term monitoring in cased holes or piezometers would be required for a more accurate evaluation of the groundwater conditions at the site.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Existing Fill Considerations**

We encountered fill and possible fill at the ground surface in all borings. Possible fill is used to describe soil layers which may be natural but have a characteristic such as color or soil texture that raises suspicion that the soil could be fill. The fill and possible fill contained primarily lean clay, fat clay, and lean to fat clay. The existing fill and possible fill extended approximately 3 to 12 feet below existing surfaces. Based on visual observations and resistance to penetration the existing fill at the site appeared to be well compacted.

Man-made fills have an inherently high risk of variability, and careful construction inspection will be necessary to assure adequate foundation performance. Contract allowances should be made for some remedial work at the site related to foundation construction, including either overexcavation and backfilling of foundation excavations in accordance with the recommendations of this report or lowering of the foundation bearing elevations. The amount of such work cannot be defined at this time. The owner should be informed of these cost variables. Supporting foundations and slabs on undocumented fills carries with it a risk that undetected unsuitable materials may be buried within the fill that could cause distress to the planned structure. This risk can be reduced, but not eliminated, in a careful construction inspection program.

### **Expansive Soil Considerations**

Moderately expansive fill, possible fill, loess and paleosol soils were encountered in our borings at the site. These expansive soils will experience volume changes with changes in soil moisture content. Therefore, foundations and floor slabs would be susceptible to swelling pressures that can cause movement, cracking, and structural distress when bearing just above or directly on these soils. To eliminate the risk associated with these expansive soils, it would be necessary to remove the expansive soils at the site and replace them with suitable, compacted and tested non-expansive engineered fill material. However, complete removal or treatment of these soils would be costly and it is our opinion that the following recommendations provide a more practical approach in dealing with the expansive soils encountered at this site. It should be noted that by implementing the

following recommendations, the potential movements are reduced to generally acceptable levels (less than 1 inch) but are not eliminated.

We recommend that a minimum of 24 inches of separation (buffer zone) should be provided between the bottom of floor slabs and the expansive soils. Where expansive soils are encountered within the buffer zone, we recommend that the expansive soils be overexcavated and replaced with suitable compacted and tested, low plasticity select cohesive fill soils or well-graded granular material, with at least 6% passing the No. 200 sieve, so that the minimum required separation can be provided beneath the slabs. Cleaner gravel gradations may be utilized where the gravel is part of a drainage system. The recommended buffer between the bottom of the floor slab and the expansive soils may include the proposed capillary break (detailed in the **Floor Slabs** section of this report). As an alternative, fly ash, cement or lime stabilization techniques can be considered for stabilizing the moderately expansive soils at the site. If chemical stabilization is desired, TEAM Services should be retained to perform additional laboratory testing to determine adequate quantities for stabilization. If a finished floor elevation similar to the existing buildings finished floor elevation is chosen, then overexcavation for expansive soil after topsoil stripping is expected to be minor.

The anticipated foundation loads should be high enough to resist the swelling pressures exerted by the moderately expansive soils. In our opinion, foundations may bear within or directly above the moderately expansive soils with no additional mitigation recommended, provided these soils meet the strength and stability requirements presented in the **Shallow Foundation Design** section of this report.

The contractor should avoid excessive drying of floor slab subgrade soils and foundation bearing soils during construction. If these soils experience drying then the dried soils should be removed, moisture conditioned, and properly compacted back into place or replaced with suitable new compacted fill material, prepared in accordance with the recommendations of this report. Measures to reduce drying of these soils include following excavation rapidly with foundation and floor slab construction, covering the site with moisture-proof plastic, and/or occasionally watering the subgrade soils during dry weather.

Placements of large bushes or trees within a horizontal distance from the building equal to about  $\frac{1}{2}$  the ultimate height of the bushes or trees should be avoided. Additionally, use of open bottom planters or excessive irrigation around the perimeter of the building should be avoided. As a protective measure, paving around the proposed addition with a sidewalk or planting a maintained

grass stand, with moderate irrigation during dry weather periods, is a suitable option for this site. Positive drainage should also be maintained around the addition.

## **Site Preparation**

Site preparation should begin with the removal of any organic-laden soils, vegetation and any loose, soft or otherwise unsuitable materials. For planning purposes, we expect an average stripping depth of about 6 inches for undisturbed soil areas to remove root-zone soils. Existing fill may be removed if desired as discussed in the **Existing Fill Considerations** section of this report. Removal of the expansive soils should be conducted per the recommendations in the previous **Expansive Soils Considerations** section. The actual depths of stripping and overexcavation and replacement may vary and should be determined in the field in consultation with TEAM Services personnel. The site strippings and any near surface soils with organics could be used for landscaping purposes in non-critical areas where support for foundations, floor slabs and pavements is not required.

Any abandoned utility lines should be completely removed along with their associated backfill material and replaced with engineered compacted fill. Consideration should be given to rerouting any existing utilities which will remain in service to locations outside the planned building areas so that they will be easily accessible for maintenance.

The exposed grade in both cut and fill areas should be proofrolled and inspected by TEAM Services personnel. Proofrolling should be performed at the lowest cut grade, prior to fill placement. Proofrolling should be conducted with a fully loaded tandem axle dump truck having a minimum gross weight of 25 tons. Where proofrolling is not possible due to poor access or excessive disturbance to the existing soils, these soils should be probed and visually inspected by TEAM Services to determine the suitability of the subgrade. Any unsuitable soils identified during this process should be removed and replaced with suitable engineered compacted and tested fill which meets or exceeds the Class 1 Construction Application requirement in Table A in the following **Fill Placement** report section.

It should be noted that initial subgrade preparation for some soil types may not be suitable under repeated heavy construction vehicle loads and may require stabilization to greater depths or placement of crushed rock with or without geogrid. Stabilization of subgrade soils with fly ash, cement or lime could also be considered. Contract allowances should be made for some remedial

work at the site related to subgrade preparation. The amount of such work cannot be defined at this time. Therefore, the owner should be informed of these cost variables.

## **Fill Placement**

Fill and backfill placed for support of the proposed structures should consist of approved materials which are free of organic matter and debris. Brick, concrete, rocks or other solid pieces with a maximum dimension of 3 inches or larger should not be placed in the newly placed fill sections. We recommend that low-plasticity cohesive soil or granular material be used for general fill placement. By our definition, low-plasticity cohesive soil would have a liquid limit of 43 or less and a plasticity index of 20 or less. In our opinion, the lean clay and sandy lean clay fill, loess, and glacial soils meet these requirements, however the lean to fat clay and fat clay fill, possible fill, buried topsoil, loess, and paleosol do not meet these requirements. Since it isn't likely feasible to separate the low plasticity minority of fill from the unsuitable majority and the lean loess and glacial soils are six feet or deeper below existing grades, a significant excavation would be required to source on-site soils for suitable fill for general fill placement. Fly ash, cement, or lime treatment options could lower the plasticity of existing moderately expansive materials. Moderately expansive soils could be used as new fill in open grass spaces and below the recommended buffer zone discussed in the **Expansive Soil Considerations** section of this report. Any off site potential borrow materials should be evaluated by TEAM Services prior to their use as engineered compacted and tested fill.

The following Table A lists recommended minimum compaction requirements for cohesive and cohesionless fill materials for specific applications. For low-plasticity (CL and ML) cohesive soils, moisture contents within a range of -2 to +3 percent of the material's optimum moisture content (as determined by Standard Proctor ASTM D 698) are necessary to achieve the desired fill qualities for general grading and utility backfill. Where allowed, moderately expansive soils should be placed within a range of 0 to +4 percent of the material's optimum moisture content. Granular materials with sufficient fines content to be moisture-sensitive should be placed within 3 percent of the material's optimum moisture content. Clean granular materials are not moisture sensitive.

The on-site soils can be excavated utilizing conventional excavation equipment. Granular soils can generally be suitably compacted with vibratory compaction equipment. Proper compaction of cohesive soils can be achieved with sheepsfoot or pneumatic type compactors within the above moisture content ranges. The soils should be placed in a maximum loose thickness of 12 inches and at a thickness compatible with the equipment being utilized. Sufficient density tests should be performed on each lift of engineered compacted fill placed to verify that adequate compaction is

achieved. Care should be taken to prevent unnecessary disturbance of subgrade soils. Disturbed areas should be removed and replaced with engineered compacted and tested fill in accordance with the recommendations of this report. Exposed sand surfaces can be recompacted if they become disturbed during excavation.

**TABLE A**  
**RECOMMENDED DEGREE OF COMPACTION GUIDELINES**

Construction Application		Standard Proctor (ASTM D698) Cohesive Soil	Standard Proctor (ASTM D698) Cohesionless Soil <sub>2</sub>	Relative Density (ASTM D4253 & D4254) Cohesionless Soil <sub>1,2</sub>
Class 1	Subgrade preparation for foundations, slabs, pavement, and other critical backfill areas	95%	98%	70%
Class 2	Backfill adjacent to structures not supporting other structures or pavements. Minor subsidence possible.	90%	93%	45%
Class 3	Backfill in non-critical areas. Moderate subsidence possible.	85%	88%	20%

1. Use Relative Density technique (ASTM D4253 & D4254) where Standard Proctor technique (ASTM D698) does not result in a definable maximum dry density and optimum moisture content.
2. Clean gravel should be inspected visually during compaction by a qualified engineering technician to confirm adequate compactive effort and appropriate lift thicknesses in lieu of density testing.

Upon completion of the filling operation, care should be taken to maintain the subgrade moisture content prior to structure construction. If the subgrade should become desiccated, frozen or otherwise disturbed, the affected material should be removed or these materials should be scarified, moistened, recompacted and retested prior to concrete, asphalt, or new fill placement. As a general guideline, cohesive fills which dry to a moisture content less than 2/3 of their optimum moisture content as determined by the Standard Proctor Test (ASTM D 698) in their upper 2 inches are candidates for reconditioning as described above.

### Shallow Foundation Design

It appears that foundations for the proposed buildings will bear on the existing fill, possible fill, buried topsoil, or loess, or on newly placed engineered fill required to achieve the desired final grades or to replace unsuitable soils. In our opinion, foundations bearing on existing fill, possible

fill, buried topsoil, or loess that is verified as suitable in the field or on newly placed engineered compacted and tested fill extending to suitable soils may be designed for a maximum net allowable bearing pressure of 2,000 pounds per square foot.

The net bearing pressure is the pressure in excess of the minimum adjacent overburden pressure at the foundation level. The bearing capacity discussed in the previous paragraph may be increased by 33% when considering transient forces such as wind. We estimate maximum settlements, due to the assumed structural loads, will be on the order of 1 inch and differential settlement may be on the order of 2/3 of the total settlement.

Continuous foundations should be adequately reinforced to limit deflections caused by non-uniform soil support characteristics. All perimeter foundations and foundations in unheated areas should extend at least 42 inches below the lowest adjacent finished grade for frost protection and reduce movements associated with changes in soil moisture content. Interior footings located in permanently frost-free environments should have at least 18 inches of protective embedment below lowest adjacent finished grade. Trench or augured excavations may not be appropriate for areas when sands or gravels are encountered within the excavation sidewalls. If sidewalls become unstable, sloped excavations or shored/cased excavations would be necessary.

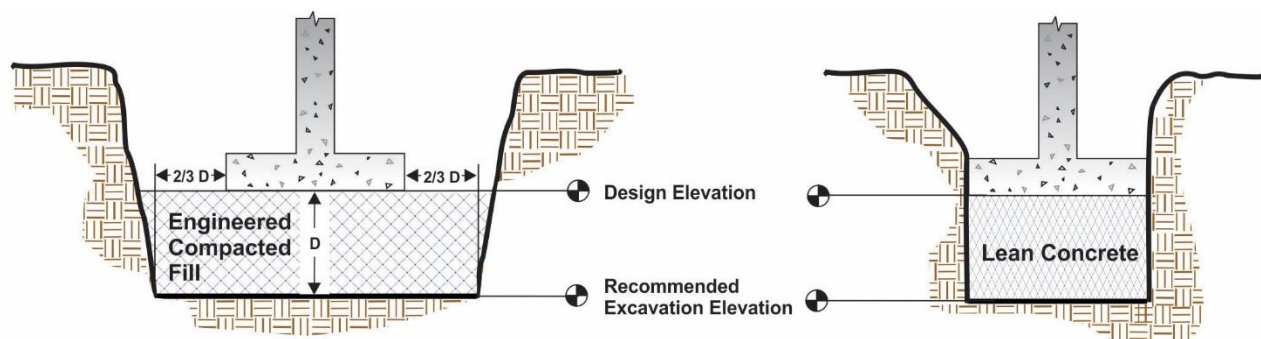
Where future addition foundations are constructed adjacent to the existing structure's foundations, the proposed foundation bearing elevation should be the same as the existing structure's foundation bearing elevation. If unsuitable soils are present at this depth, then TEAM Services should be retained to develop recommendation to provide adequate foundation support without undermining the existing foundations. Architectural and structural connections should be designed to accommodate the potential differential settlement that may occur between the addition and the existing structure. Where new foundations are placed next to existing foundations, the differential settlement between the two would approach the total settlement expected for the new foundations.

### **Shallow Foundation Construction**

We recommend that the base of all foundation excavations be observed and tested by the geotechnical engineer prior to placement of concrete. During this process, if soft, organic, or otherwise unsuitable materials are encountered at foundation elevations, we recommend that the foundations extend through the unsuitable soils and bear on undisturbed, suitable soils below or an overexcavation and replacement procedure be performed. The overexcavation and backfill

procedure would include removal of these unsuitable materials and replacement with suitable engineered compacted fill soils prepared in accordance with the recommendations in the **Fill Placement** section of this report. The following Figure 1 shows a typical cross-sectional view of this overexcavation and backfill procedure. Where sands are exposed which are not excessively wet; the sand can likely be compacted in-place to mitigate moderate surface disturbance.

In general, the overexcavation is widened  $\frac{2}{3}$  of a foot laterally on each side of the foundation per each foot of excavation that is below the foundation bearing elevation. The depth of overexcavation (shown as “D” in Figure 1) should be determined in consultation with the geotechnical engineer. Backfill materials should be suitable cohesive or granular soil, prepared and compacted in accordance with the recommendations in the **Fill Placement** section of this report. Another option would be to remove the unsuitable soils down to suitable soils and replace the excavated area with lean concrete (minimum 50 psi compressive strength), in which case widening of the excavation would not be required unless required due to unstable vertical sidewalls such as from sand.



### Overexcavation / Backfill

NOTE: Excavations should be sloped as necessary for safety.

**Figure 1.**

Trench or augured excavations may not be appropriate for areas when sands or gravels are encountered within the excavation sidewalls. If sidewalls become unstable, sloped excavations or shored/cased excavations would be necessary.

Footing excavations should be kept free of water accumulation to prevent softening of subgrade soils and conducted in a manner which avoids disturbance of soils beneath existing foundations. Concrete should be placed as soon as possible after excavating to minimize bearing soil disturbance. Should the soils at bearing level become excessively dry, saturated, or otherwise disturbed; the affected soil should be removed prior to placing concrete.

## Overexcavation Undermining Considerations

The sides of excavations can gradually or suddenly slough depending on the sidewall slope, soil type, groundwater influence, consistency of the soils, loads supported near the sides of the excavation, and other factors. To avoid undermining the soils supporting nearby structures, all excavations should ideally remain in the safe zone for excavation, illustrated in Figure 2. If excavations outside of the safe zone are desired and the owner does not wish to relocate the structure requiring overexcavation then there are options available to allow the excavation to continue. Underpinning the existing at-risk structure's foundations and slabs with helical piers or micropiles could be considered to completely support the structural elements in case of a sidewall failure. Another option would be to shore the sides of the excavation to allow a vertical cut, such as with a soldier or sheet pile style wall (which has been properly designed by a licensed structural engineer in consultation with TEAM Services). Generally, excavations extending beneath an existing structure are not feasible. Any nearby loading should be minimized during nearby overexcavation processes.

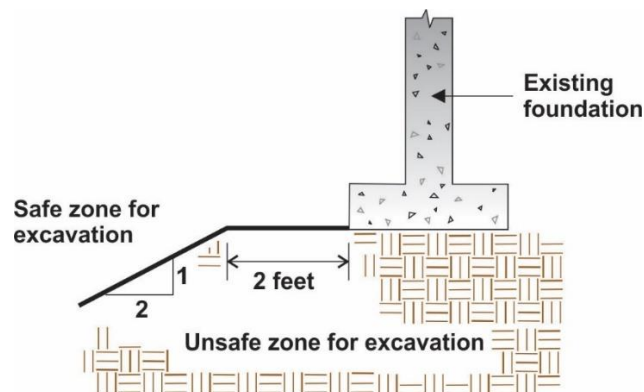


Figure 2.

## Floor Slabs

Interior floor slabs can be adequately supported on a subgrade prepared in accordance with the **Existing Fill Considerations, Expansive Soil Considerations, Site Preparation and Fill Placement** sections of this report.

During building construction, the surface of the completed building pads may have been disturbed by construction equipment, etc. Therefore, it is recommended that the building areas be proofrolled or probed and tested where proofrolling cannot be conducted to delineate zones of soft soils present near the surface which may require additional removal or compaction prior to construction of the

floor slab. If the exposed subgrade has been disturbed since the original subgrade preparation, the subgrade should be scarified to a minimum depth of 9 inches, moisture conditioned (if needed), and recompacted to meet or exceed the Class 1 Construction Application requirement given in Table A in the **Fill Placement** section.

To avoid localized slab failures, it is important that interior backfill around foundations and in plumbing trenches be properly compacted. Therefore, all fill materials placed beneath the proposed floor slab are to meet or exceed the Class 1 Construction Application requirement given in Table A.

In order to allow successful use of a variety of floor systems, measures to control vapor transmission through the floor slab are recommended where moisture sensitive floor coverings are a possibility. This would include use of a vapor barrier/retarder with a minimum thickness of 10 mils placed between the slab and an underlying capillary break material. The vapor barrier/retarder should be strong enough to resist puncturing by the capillary break materials.

We recommend that the capillary break consist of clean manufactured sand or crushed limestone (drainable material). The capillary break should be at least 4 inches thick and contain less than 6 percent material finer than the U.S. No. 200 sieve. Floor slabs in areas not subject to frost action and floor slabs which are protected from frost action may be designed with a modulus of subgrade reaction of 150 pci when subgrade soils and capillary breaks are constructed in accordance with the recommendations of this report.

We recommend that continuous wire mesh reinforcement or a regular rebar schedule be provided for the floor slab and that crack control joints be sawn with a regular spacing not greater than about 10 feet. Unless columns are tied to slabs for structural support, we recommend isolation joints should be provided between the floor slabs and perimeter or interior foundations so that they can move independently without damage. These measures are taken with the intent of allowing the floor slab to deflect somewhat without experiencing large differential movements across slab joints and to channel the cracking of the floor slabs to the crack control joints so that they are not perceived as building distress.

### **Temporary Excavation Support**

All excavations should comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches" and other applicable codes. This document states that excavation safety

is the responsibility of the contractor. Reference to this OSHA requirement should be included in the job specifications. The **Overexcavation Undermining Considerations** section of this report provides additional recommendations for safe excavations. Where these specifications differ, the most conservative recommendations should be adhered to.

### **Construction Dewatering**

During construction activities, care should be taken to maintain positive drainage at the site to ensure that drainage is directed away from excavations. Based on the groundwater readings from the site, groundwater seepage is unlikely to be encountered during construction. However, seepage is possible when construction is performed during wet weather periods and/or where groundwater is anticipated to be high during construction. If seepage is encountered then we recommend that construction groundwater control be established prior to excavating the final 2 feet of soils. Groundwater seepage in cohesive soils can be provided by digging a system of trenches leading to a gravity outfall or temporary construction sumps to be pumped outside the perimeter of the excavations. Water bearing sand may be dewatered using a system of well points. Any ponded water should be removed as soon as possible.

Where seepage is observed, a granular working surface of at least 6 inches of clean, crushed concrete or limestone gravel may be useful to provide a firm working surface for constructing slabs or placing additional lifts of backfill. The clean gravel can be well compacted in the presence of water, will drive through and reinforce shallow (1 or 2 inches) cohesive soils which have become softened by water exposure or disturbance, and can accumulate water seepage to flow to a peripheral sump pit to be pumped away. If the granular working surface becomes completely embedded in any cohesive soils, a geotextile may need to be employed as separation between the granular material and cohesive soils.

If groundwater control is required but is lost during construction, disturbance of the upper few inches to few feet below grade is possible in the soils at the site. In these circumstances, it will be necessary to reestablish groundwater control and remove the disturbed soils. TEAM Services should be consulted regarding the extent of remedial action which is necessary.

## **Site Drainage**

Positive site drainage should be maintained along the perimeters of the buildings. Final grades should be established to direct runoff away from building foundations. Down spouts, gutters, and roof drains should discharge away from building perimeters. Site grading should direct surface water away from excavations or completed foundations during construction and after site development is completed.

## **QUALIFICATION OF REPORT**

Our evaluation of support conditions has been based on our understanding of the site and project information and the data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpolation of subsurface data between the borings. In evaluating the boring data, we have examined previous correlations between soil properties and pressures observed in soil conditions similar to those at your site. The discovery of any site or subsurface conditions during construction which deviate from the data outlined in this exploration should be reported to us for our evaluation. The assessment of site environmental conditions or the presence of pollutants in the soil, rock, and groundwater of the site was beyond the scope of this exploration.

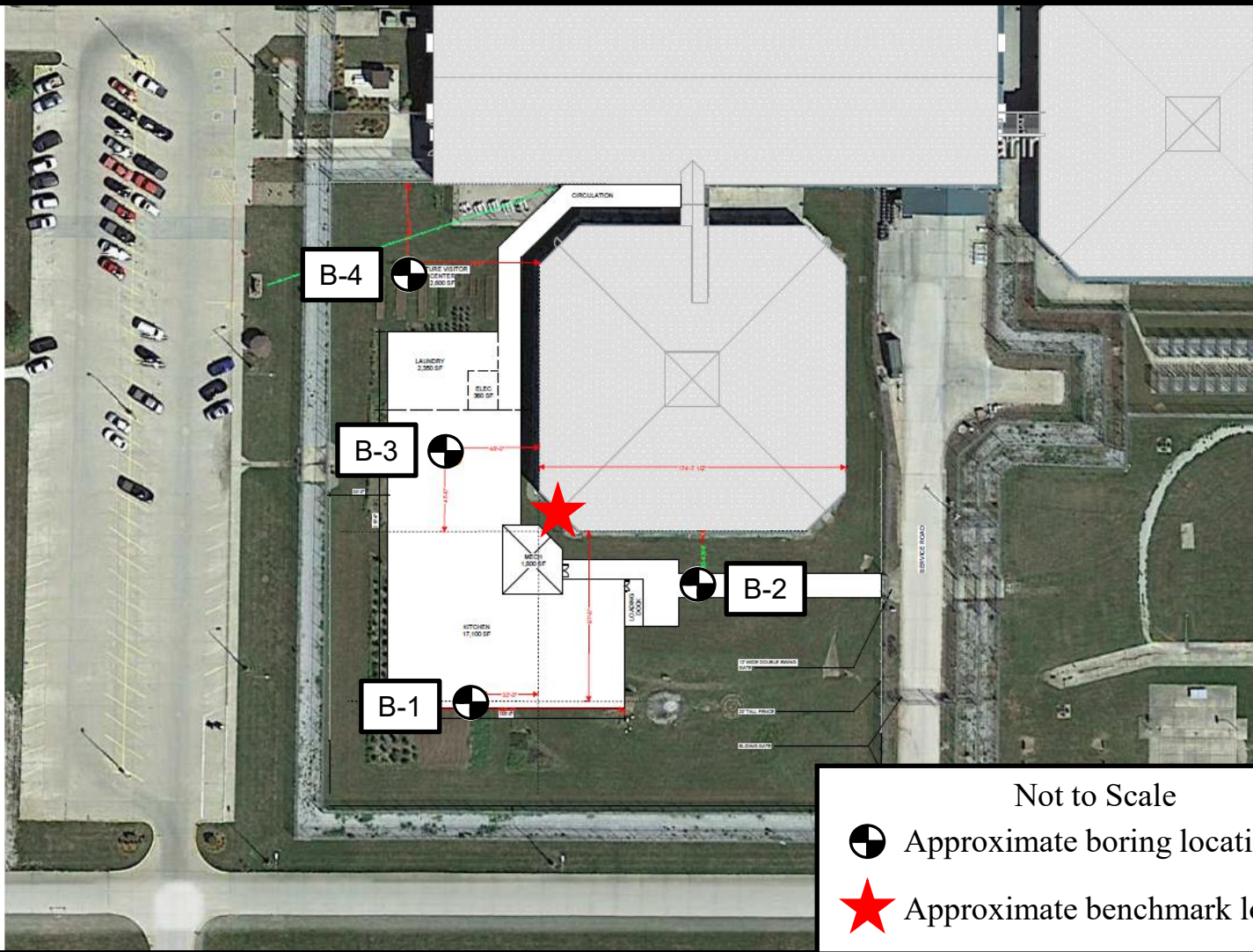
Support of structures on existing fill is discussed in this report. Existing fills are potentially much more inconsistent than natural soil deposits. Support of structures upon existing fills carries with it a degree of risk that unsuitable materials may be buried within the fill and not be detected in the inspection and testing program recommended herein. Unsuitable materials in the fill may experience settlement and cause distress to structures supported on the fill. Elimination of this risk requires removal of the fill. This is costly, and we believe that if construction inspections indicate that the fill is suitable then the risks at this site are low enough that the owner could reasonably accept this risk and keep the resultant savings.

Potentially expansive soils were encountered in the borings at this site. These soils experience volume changes in response to soil moisture content changes. These volume changes can cause movement, cracking and other distress for structures supported above them. Measures to help reduce the degree of soil volume change have been discussed. These measures can reduce the risks associated with the potentially expansive soils, but they do not eliminate this risk. Elimination of the

risks associated with expansive soils would require complete removal of all expansive soils and replacement with a more suitable soil type or structurally suspending the planned building above the expansive soils. Neither of these measures is believed practical. A degree of risk must be accepted to support development at this site.

It is recommended that the geotechnical engineer be retained to review the plans and specifications so that comments can be provided regarding the interpretation and implementation of the geotechnical recommendations in the design and specifications. It is further recommended that the geotechnical engineer be retained for testing and observation during the foundation construction phase to help determine that the design requirements are fulfilled.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranty is provided. In the event that any changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer.



**TEAM Services, Inc.**

717 SE 6<sup>th</sup> Street  
Des Moines, IA 50309

**CCF Kitchen and Laundry Addition**

Clarinda, IA  
Boring Plan

Project No. 1-5118

April 8, 2022

# BORING LOG No. 1

<b>PROJECT</b> CCF Kitchen and Laundry Addition	<b>SITE</b> Clarinda, IA
----------------------------------------------------	-----------------------------

GRAPHIC LOG	DESCRIPTION	USCS SYMBOL	DEPTH (ft.)	SAMPLES				TESTS			OTHER
				NUMBER	TYPE	RECOVERY	SPT - N (BLOWS / FT.)	MOISTURE, %	DRY DENSITY (PCF)	UNCONFINED STRENGTH (PSF)	
93.8	Approx. Surface Elevation (ft): 95.3 Site Datum: Existing Finished Floor (100.0') Drilling Method: HSA										
93.8	Fill - Lean CLAY, trace organics, very dark brown	CL	0	1	AS			26.1			
92.3	Fill - Fat CLAY, gray, very dark gray and yellowish brown	CH	3.0	2	SS	10	FRZN**	20.2		7500*	
89.3	Buried Topsoil - Fat CLAY, trace organics, very dark gray and dark yellowish brown, hard	CH	5	3	ST	6		22.1	101	9000*	
83.3	Loess - Lean CLAY, gray and yellowish brown, stiff	CL	10	4	SS	14	6	27.8		2500*	
83.3	Loess - Lean CLAY, gray and yellowish brown, stiff	CL	10	5	ST	14		20.8	106	5000*	
78.3	Glacial Till - Sandy lean CLAY, trace gravel, yellowish brown, gray and very dark gray, stiff	CL	15	6	SS	18	8	21.2		3500*	
78.3	Glacial Outwash - Lean CLAY, gray, yellowish brown and brown, medium stiff	CL	20	7	SS	18	5	27.5		1000*	
73.3	Paleosol - Lean to fat CLAY, dark yellowish brown, medium stiff	CL/CH	25	8	SS	18	4	27.5		2000*	
65.3	-- color changes to grayish brown and yellowish brown, becomes stiff after 27'		30	9	S	18	9	24.6		5000*	
65.3	Bottom of Boring		30								

**Notes:** \*\* Sample noted as frozen during drilling operations \* Calibrated hand penetrometer  
Hammer Type: Automatic

<b>Water Level:</b> 24 Ft. While Drilling 20 Ft. After Drilling Ft.	 Geotechnical and Construction Material Consultants	<b>Boring Started:</b> 02/28/2022 <b>Boring Completed:</b> 02/28/2022 <b>Rig:</b> 112 <span style="float: right;"><b>Foreman:</b> JH</span> <b>Approved:</b> <span style="float: right;"><b>Job #:</b> 1-5118</span>
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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES; IN-SITU, THE TRANSITION MAY BE GRADUAL.

# BORING LOG No. 2

<b>PROJECT</b> CCF Kitchen and Laundry Addition	<b>SITE</b> Clarinda, IA
----------------------------------------------------	-----------------------------

GRAPHIC LOG	DESCRIPTION	USCS SYMBOL	DEPTH (ft.)	SAMPLES				TESTS			OTHER
				NUMBER	TYPE	RECOVERY	SPT - N (BLOWS / FT.)	MOISTURE, %	DRY DENSITY (PCF)	UNCONFINED STRENGTH (PSF)	
	1.0 Fill - Lean CLAY, trace organics, very dark brown 97.1 97.1 Fill - Fat CLAY, gray, very dark gray and yellowish brown	CL	0	1	AS			38.1			
		CH		2	SS	8	9	20.2		7000*	Atterberg Limits: LL = 51 PI = 28
				3	ST	8		23.6	96	4000*	
		-- color changes to dark gray, very dark gray and yellowish brown after 6'		5							
				4	SS	10	9	21.5		5000*	
				10	5	SS	12	11	27.8	2000*	
	9.0 Possible Fill - Lean to fat CLAY, dark gray and yellowish brown 89.1 89.1	CL/ CH									
	12.0 Loess - Fat CLAY, gray and yellowish brown, stiff 86.1 86.1	CH									
	15.0 Bottom of Boring 83.1 83.1		15	6	S	16	7	26.9		4000*	

**Notes:** \* Calibrated hand penetrometer  
**Hammer Type:** Automatic

<b>Water Level:</b>	
	NONE Ft. While Drilling
	NONE Ft. After Drilling
	Ft.



<b>Boring Started:</b> 02/28/2022	
<b>Boring Completed:</b> 02/28/2022	
<b>Rig:</b> 112	<b>Foreman:</b> JH
<b>Approved:</b>	<b>Job #:</b> 1-5118

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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES; IN-SITU, THE TRANSITION MAY BE GRADUAL.

# BORING LOG No. 3

<b>PROJECT</b> CCF Kitchen and Laundry Addition	<b>SITE</b> Clarinda, IA
----------------------------------------------------	-----------------------------

GRAPHIC LOG	DESCRIPTION	USCS SYMBOL	DEPTH (ft.)	SAMPLES				TESTS			
				NUMBER	TYPE	RECOVERY	SPT - N (BLOWS / FT.)	MOISTURE, %	DRY DENSITY (PCF)	UNCONFINED STRENGTH (PSF)	OTHER
	Approx. Surface Elevation (ft): 97.5 Site Datum: Existing Finished Floor (100.0') Drilling Method: HSA										
	1.0	Fill - Lean CLAY, trace organics, very dark brown	CL	0	1	AS			21.7		
		Fill - Fat CLAY, gray, yellowish brown and very dark brown	CH		2	SS	8	4	20.4		6000*
	3.5										
		Buried Topsoil - Fat CLAY, trace organics, very dark gray and dark yellowish brown, very stiff	CH		3	SS	12	12	23.7		9000*
	5.0			5							
		Loess - Fat CLAY, dark gray and yellowish brown, stiff	CH		4	ST	11		27	96	5000*
8.5											
	Loess - Lean CLAY, gray and yellowish brown, medium stiff	CL		5	SS	16	5	30.3		2000*	
			10								
				6	SS	18	5	28.3		2000*	
			15								
				7	SS	18	4	24.4		1500*	
			20								
	20.0		77.5								
	Bottom of Boring										

**Notes:** \* Calibrated hand penetrometer  
**Hammer Type:** Automatic

<b>Water Level:</b> NONE Ft. While Drilling NONE Ft. After Drilling Ft.	 Geotechnical and Construction Material Consultants	<b>Boring Started:</b> 02/28/2022 <b>Boring Completed:</b> 02/28/2022 <b>Rig:</b> 112 <b>Foreman:</b> JH <b>Approved:</b> <b>Job #:</b> 1-5118
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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES; IN-SITU, THE TRANSITION MAY BE GRADUAL.

# BORING LOG No. 4

<b>PROJECT</b> CCF Kitchen and Laundry Addition	<b>SITE</b> Clarinda, IA
----------------------------------------------------	-----------------------------

GRAPHIC LOG	DESCRIPTION	USCS SYMBOL	DEPTH (ft.)	SAMPLES				TESTS			OTHER
				NUMBER	TYPE	RECOVERY	SPT - N (BLOWS / FT.)	MOISTURE, %	DRY DENSITY (PCF)	UNCONFINED STRENGTH (PSF)	
1.0	Fill - Fat CLAY, trace organics, very dark brown and yellowish brown	CH	0	1	AS			23.5			Atterberg Limits: LL = 50 PI = 24
	Fill - Fat CLAY, brown, yellowish brown, very dark brown and gray	CH		2	SS	8	5	26.9		6000*	
3.5	Loess - Lean to fat CLAY, brown, stiff	CL/CH		3	SS	6	5	26.4		2500*	
	-- color changes to gray and brown, becomes very stiff after 5.5'		5								
8.0	Paleosol - Fat CLAY, gray, yellowish brown and brown, very stiff	CH		4	ST	14		24.5	101	5000*	
	-- color changes to gray and yellowish brown after 12'		10							6000*	
17.0	Glacial Till - Sandy lean CLAY, gray and yellowish brown, stiff	CL		6	SS	16	12	23.7		8500*	
20.0				7	SS	18	7	21.2		3000*	
	Bottom of Boring		20								

**Notes:** \* Calibrated hand penetrometer  
Hammer Type: Automatic

<b>Water Level:</b>	
NONE Ft. While Drilling	
NONE Ft. After Drilling	
Ft.	



<b>Boring Started:</b> 02/28/2022	
<b>Boring Completed:</b> 02/28/2022	
<b>Rig:</b> 112	<b>Foreman:</b> JH
<b>Approved:</b>	<b>Job #:</b> 1-5118

1-5118\_geo\_TSBORER16.tbl.5/16/2016

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES; IN-SITU, THE TRANSITION MAY BE GRADUAL.

# UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests <sup>A</sup>				Soil Classification		
				Group Symbol	Group Name <sup>B</sup>	
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines <sup>C</sup>	$Cu \geq 4$ and $1 \leq Cc \leq 3^E$	GW	Well-graded gravel <sup>F</sup>	
			$Cu < 4$ and/or $1 > Cc > 3^E$	GP	Poorly graded gravel <sup>F</sup>	
		Gravels with Fines More than 12% fines <sup>C</sup>	Fines classify as ML or MH	GM	Silty gravel <sup>F, G, H</sup>	
			Fines classify as CL or MH	GC	Clayey gravel <sup>F, G, H</sup>	
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines <sup>E</sup>	$Cu \leq 6$ and $1 \leq Cc \leq 3^E$	SW	Well-graded sand <sup>I</sup>	
			$Cu < 6$ and/or $1 > Cc > 3^E$	SP	Poorly graded sand <sup>I</sup>	
		Sands with Fines More than 12% fines <sup>D</sup>	Fines classify as ML or MH	SM	Silty sand <sup>G, H, I</sup>	
			Fines classify as CL or CH	SC	Clayey sand <sup>G, H, I</sup>	
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic:	$PI > 7$ and plots on or above "A" line <sup>J</sup>	CL	Lean clay <sup>K, L, M</sup>	
			$PI < 4$ or plots below "A" line <sup>J</sup>	ML	Silt <sup>K, L, M</sup>	
		Organic:	Liquid limit – oven dried	< 0.75	OL	Organic clay <sup>K, L, M, N</sup>
			Liquid limit – not dried			Organic silt <sup>K, L, M, O</sup>
	Silts and Clays Liquid limit 50 or more	Inorganic:	$PI$ plots on or above "A" line	CH	Fat clay <sup>K, L, M</sup>	
			$PI$ plots below "A" line	MH	Elastic silt <sup>K, L, M</sup>	
		Organic:	Liquid limit – oven dried	< 0.75	OH	Organic clay <sup>K, L, M, P</sup>
			Liquid limit – not dried			Organic silt <sup>K, L, M, Q</sup>
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor			PT	Peat	

<sup>A</sup> Based on the material passing the 3-in. (75-mm) sieve.

<sup>B</sup> If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

<sup>C</sup> Gravels with 5 to 12% fines require dual symbols:  
 GW-GM well-graded gravel with silt  
 GW-GC well-graded gravel with clay  
 GP-GM poorly graded gravel with silt  
 GP-GC poorly graded gravel with clay

<sup>D</sup> Sands with 5 to 12% fines require dual symbols:

SW-SM well-graded sand with silt  
 SW-SC well-graded sand with clay  
 SP-SM poorly graded sand with silt  
 SP-SC poorly graded sand with clay

<sup>E</sup>  
 $Cu = D_{60}/D_{10}$      $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

<sup>F</sup> If soil contains  $\geq 15\%$  sand, add "with sand" to group name.

<sup>G</sup> If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

<sup>H</sup> If fines are organic, add "with organic fines" to group name.

<sup>I</sup> If soil contains  $> 15\%$  gravel, add "with gravel" to group name.

<sup>J</sup> If Atterberg limits plots in shaded area, soil is a CL-ML, silty clay.

<sup>K</sup> If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.

<sup>L</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.

<sup>M</sup> If soil contains  $\geq 30\%$  plus No. 200, predominantly gravel, add "gravelly" to group name.

<sup>N</sup>  $PI \geq 4$  and plots on or above "A" line.

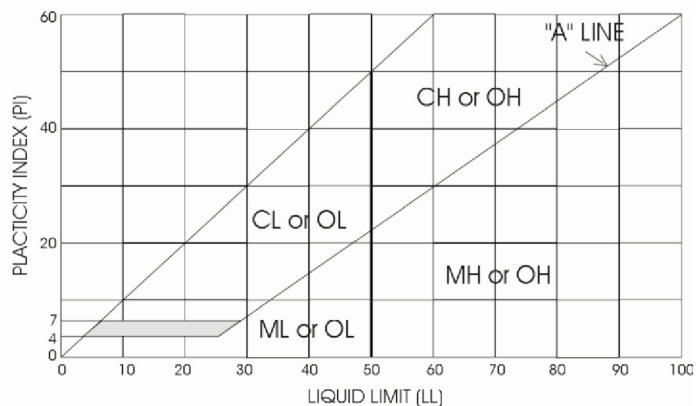
<sup>O</sup>  $PI < 4$  or plots below "A" line.

<sup>P</sup>  $PI$  plots on or above "A" line.

<sup>Q</sup>  $PI$  plots below "A" line.

For classification of fine-grained soils and fine grained fraction of coarse-grained soils.

Equation of "A" Line:  
 Horizontal at  $PI = 4$  to  $LL + 25.5$ .  
 then  $PI = 0.73 (LL - 20)$



# GENERAL NOTES

SOIL and ROCK TYPES			DRILLING & SAMPLING SYMBOLS		
	SAND		FAT CLAY		GRAVEL
	SILT		FILL		LIMESTONE
	LEAN CLAY		TOPSOIL		SHALE

<b>SS</b>	Split Spoon - 1 1/2" I.D., 2" O.D., unless otherwise noted
<b>ST</b>	Thin-Walled Tube - 3" O.D., unless otherwise noted
<b>PA</b>	Power Auger
<b>HA</b>	Hand Auger
<b>DB</b>	Diamond Bit - 4", N, B
<b>AS</b>	Auger Sample
<b>HS</b>	Hollow Stem Auger
<b>WS</b>	Wash Sample
<b>RB</b>	Rock Bit
<b>BS</b>	Bulk Sample
<b>DC</b>	Dutch Cone
<b>WB</b>	Wash Bore
<b>AR</b>	Air Rotary

STRENGTH TERMS				
CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing No. 200 sieve)			RELATIVE DENSITY OF COARSE-GRAINED SOILS (50% or more retained No. 200 sieve)	
Consistency	Unconfined Compressive Strength, Qu, psf	N-Blows/ft* (Approx. Correlation)	Relative Density	N-Blows/ft. *
Very Soft	< 500	0 - 2	Very Loose	0 - 4
Soft	500 - 1,000	3 - 4	Loose	5 - 10
Medium	1,001 - 2,000	5 - 8	Medium Dense	10 - 29
Stiff	2,001 - 4,000	9 - 15	Dense	30 - 49
Very Stiff	4,001 - 8,000	16 - 30	Very Dense	50 - 80
Hard	8,001 - 16,000	31 - 50	Extremely Dense	80 +
Very Hard	> -16,000	50 +		

\* Standard "N" Penetration Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch OD split spoon, except where noted.

RELATIVE PROPORTIONS OF SAND AND GRAVEL		RELATIVE PROPORTIONS OF FINES		GRAIN SIZE TERMINOLOGY	
Descriptive Term(s) (of components also present in sample)	Percent of Dry Weight	Descriptive Term(s) (of components also present in sample)	Percent of Dry Weight	Major Component of Sample	Size Range
Trace	< 15	Trace	< 5	Boulders	Over 12 in. (300 mm)
With Modifier	15 - 29	With Modifier	5 - 12	Cobbles	12 in. to 3 in. (300 mm to 4.75 mm)
	> 30		> 12	Gravel	3 in. to #4 sieve (75 mm to 4.75 mm)
				Sand	#4 to #200 sieve (4.75 mm to 0.075 mm)
				Silt or Clay	Passing #200 sieve (0.075 mm)

WATER LEVELS:	
	WD = While Drilling
	AD = After Drilling
	Depth groundwater first encountered during drilling
	Groundwater level after 24 hours (unless otherwise noted, i.e. "AD" -- after drilling)

TERMS DESCRIBING SOIL STRUCTURE			
Parting:	paper thin in size	Fissured:	containing shrinkage cracks, frequently filled with fine sand or silt, usually more or less vertical.
Seam:	1/8" to 3" in thickness	Interbedded:	composed of alternate layers of different soil types.
Layer:	greater than 3" in thickness	Laminated:	composed of thin layers of varying color and texture.
Ferrous:	containing appreciable quantities of iron	Slickensided:	having inclined planes of weakness that are slick and glossy in appearance.
Well-Graded:	having wide range in grain size and substantial amounts of all intermediate sizes.	NOTE:	Clays possessing slickensided or fissured structure may exhibit lower unconfined strength than indicated above. Consistency of such soil is interpreted using the unconfined strength along with pocket penetrometer results.
Poorly-Graded:	predominately one grain size or having a range of sizes with some intermediate sizes missing.		

**SECTION 00 3113**

**PRELIMINARY SCHEDULE**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Preliminary Construction Schedule
- B. Schedule Durations

**1.02 PRELIMINARY SCHEDULE**

- A. A preliminary schedule has been identified by the Owner for the implementation of the Project. Refer to the schedule following this Section for references to anticipated milestones and construction duration.
- B. Each step of the Preliminary Schedule is subject to receipt of acceptable bids, Owner's decision process and date of commencement.
- C. A proposed construction schedule shall be submitted by all Trade Contractors to the Construction Manager no later than 48 hours prior to the pre-construction meeting. A revised Construction Schedule will be submitted by the Construction Manager once all preliminary schedules are reviewed and approved by the Owner.
- D. The final construction schedule will be established post award of bids with the cooperation of all contractors.

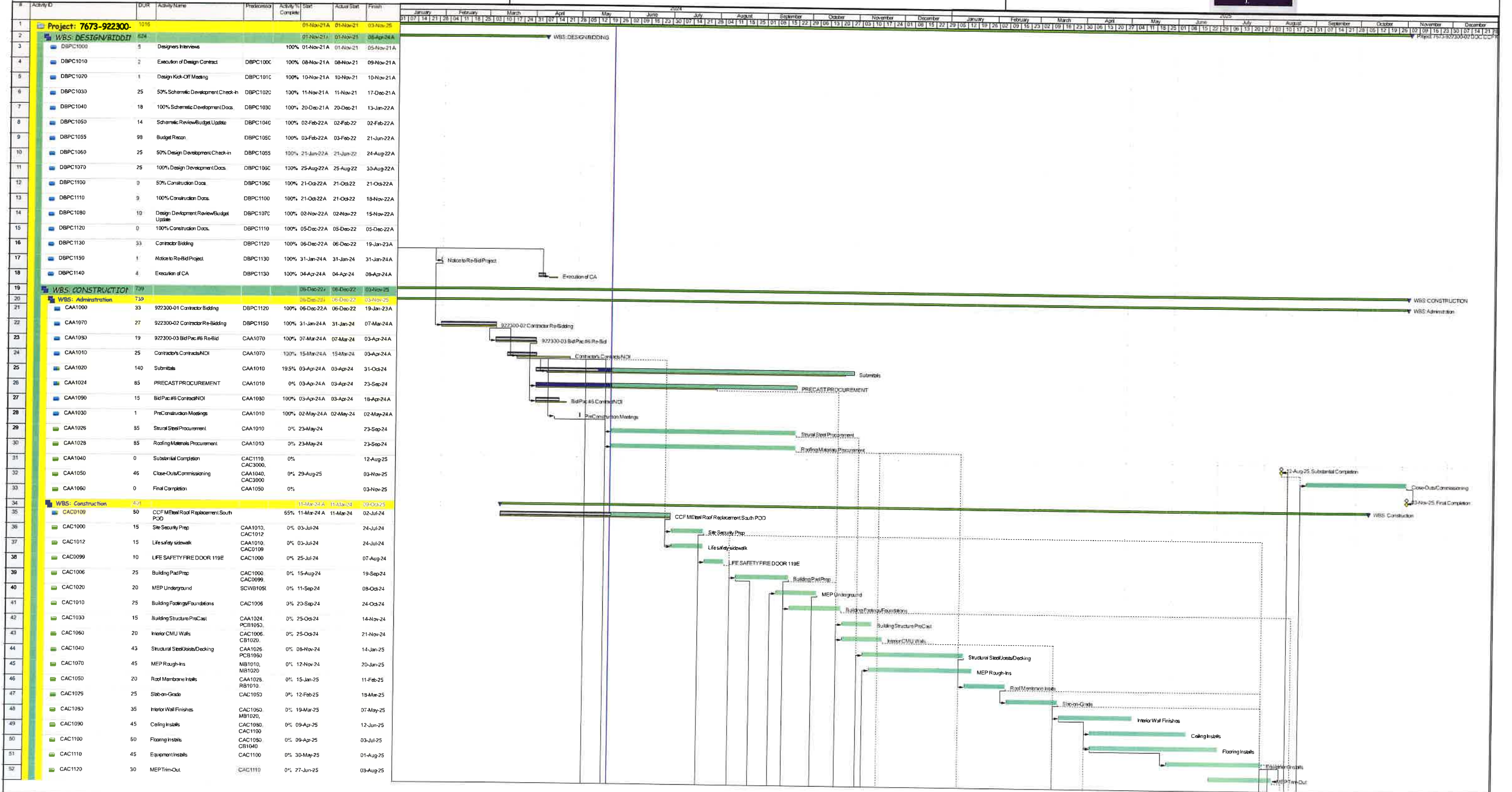
**1.03 SCHEDULE DURATIONS**

- A. Anticipated Notice of Intent to Award – 02/17/25
- B. Anticipated Date of Commencement – 04/09/25
- C. Substantial Completion by – 08/12/25

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

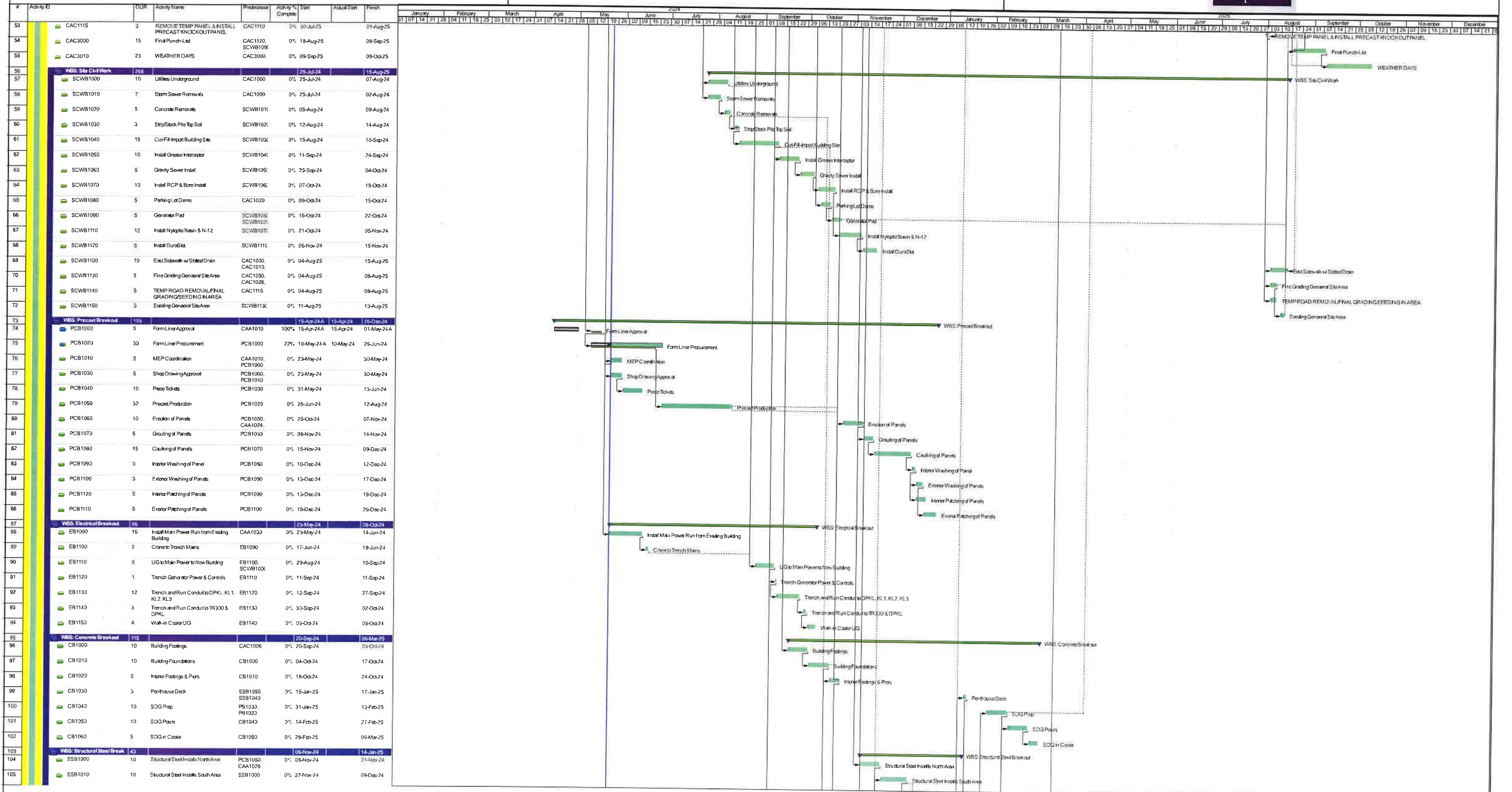
**END OF SECTION**



█ Primary Baseline   
 █ Remaining Work   
 █ Critical Remaining Work   
 🏠 Start Constraint   
 📅 Finish Constraint

Data Date 05.23.2024

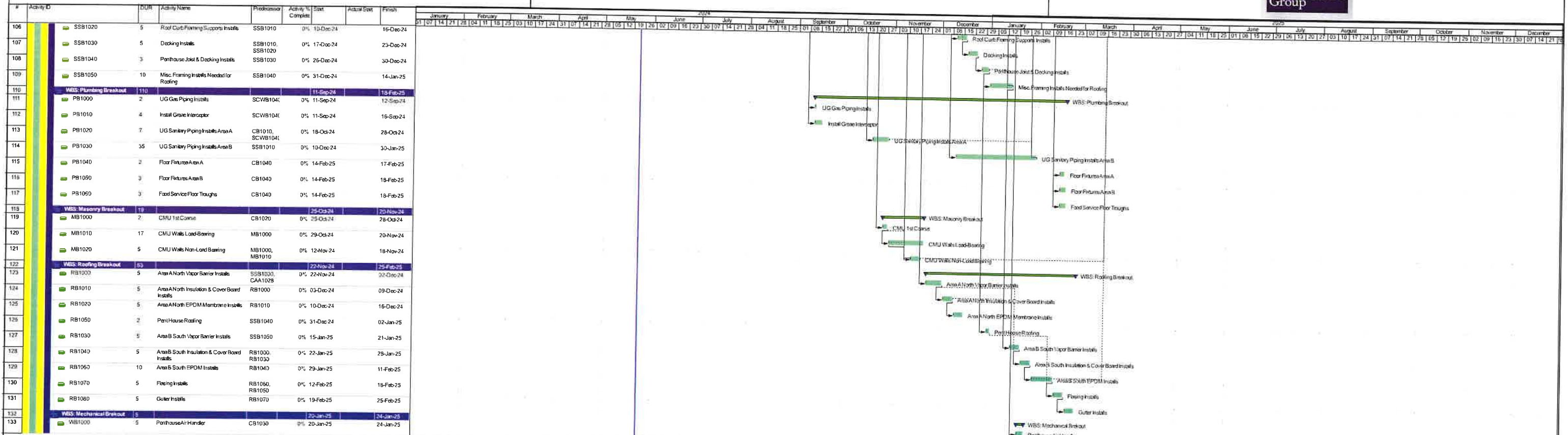
TASK filter: All Activities



█ Primary Baseline   
 █ Remaining Work   
 🏠 Start Constraint  
█ Actual Work   
 █ Critical Remaining Work   
 🏠 Finish Constraint

Data Date 05.23.2024

TASK filter: All Activities



█ Primary Baseline   
 █ Remaining Work   
 █ Critical Remaining Work   
 ▲ Start Constraint   
 △ Finish Constraint   
 █ Actual Work

Data Date 05.23.2024

TASK filter: All Activities

**SECTION 00 3143**

**PERMIT APPLICATION**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Permit Application Information
- B. Licenses, Permits, and Related Inspections

**1.02 PERMIT APPLICATION INFORMATION**

- A. State Building Code Plan Review: The plan review and inspections for this project have been applied for by the Architect. Please contact your inspector prior to construction and occupancy.
- B. State Building Code Energy Review: The energy code review and inspections for this project have been applied for by the Architect. Please contact your inspector prior to construction and occupancy.
- C. Water Heater Permit and Inspections: Trade Contractor is responsible for permits and inspections.
- D. Electrical Permit and Inspections: Trade Contractor is responsible for permits and inspections.
- E. Other Applicable inspections: Trade Contractor is responsible for any other applicable project specific permits and inspections.

**1.03 LICENSES, PERMITS, AND RELATED INSPECTIONS**

- A. Local authorities do not have jurisdiction for the permitting process for this project. Contact the Iowa State Fire Marshal Office and/or Iowa Workforce Development for information related to permits and inspections.
- B. The Bidder shall comply with all codes, laws, ordinances, rules and regulations of any public authority having jurisdiction that bears on the performance of its work. All construction, materials and methods shall comply with the State Building Codes, except where plans and specifications establish a higher standard.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

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**SECTION 00 4116**

**BID FORM**

The Bid Form must be submitted online through the State's [IMPACS Electronic Procurement System](#).

RFB 922300-04

BID FORM for CONSTRUCTION CONTRACT  
for  
Clarinda Correctional Facility (CCF)  
2000 N. 16<sup>th</sup> St., Clarinda, Iowa 51632  
Project 9223.00

Iowa Department of Administrative Services  
Hoover State Office Building, Level 3  
1305 East Walnut Street  
Des Moines, Iowa 50319-0105

The following information is to be completed and submitted with your bid..

1. Bid Form - Completed and Signed (to be uploaded with bid submission)
2. Non Discrimination Clause Information
3. Contractor Targeted Small Business Enterprise Pre-Bid Contract Information
4. Bid Security – 5% of total Bid amount (to be uploaded with bid submission)

**Authorized Representative:**

The undersigned Bidder, in response to your Request for Bid for construction of the above project, having examined the Drawings, Specifications, and other Bidding Documents dated February 09, 2024, and Addenda issued and acknowledged below as received and being familiar with all the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, equipment and supplies to perform all work to construct the project in strict accordance with the proposed Contract Documents, within the time and at the prices stated below. Prices are to cover all expenses incurred in performing the work required under the proposed Contract Documents, of which this bid is a part.

Bidder acknowledges receipt of the following Addenda which are a part of the Bidding Documents and for which any effect on cost of the Work is included in the bid amounts indicated:

Number \_\_\_\_\_

Dated \_\_\_\_\_

Note that the State of Iowa is exempt from State and Local sales and use taxes (including local option and school option) for this project. Taxes on construction materials shall NOT be included in the bid amounts.

Amounts shall be indicated in both words and figures. In case of discrepancy, the amount indicated in words shall govern.

**BID PACKAGES:**

**Bid Package BP 09**

**Description: Video Surveillance**

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

\_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).

Bidder hereby certifies that:

1. This bid is genuine and is not made in the interest of or on behalf of any undisclosed person, firm or corporation;
2. Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain any advantage over any other bidder or over the Owner.
3. Bidder hereby certifies that the Bidder is registered with the Iowa Labor Commissioner as a Contractor as required by Chapter 91C, Code of Iowa.
4. Bidder agrees to comply with all Federal and State Affirmative Action/Equal Employment Opportunity requirements concerning fair employment and will not discriminate between or among them by reason of race, color, religion, sex, national origin or physical handicap.
5. All construction under this Contract shall conform to the requirements of the *Iowa State Building Code*.
6. Bidder agrees that this bid shall remain valid and shall not be withdrawn for a period of thirty (30) calendar days after the date for receipt of bids.
7. Bidder agrees that if written notice of acceptance of this bid is mailed, emailed, or delivered to the undersigned within thirty (30) days after the date in which bids are due, or at any time thereafter before it is withdrawn, the undersigned will sign and return the Contract Agreement, prepared in accord with the Bidding Documents and this bid as accepted; and will also provide proof of insurance coverage and required surety bonds.
8. Bidder understands that the Owner reserves the right to reject any and all bids, and to waive irregularities or informalities and enter into a contract for the work, as the Owner deems to be in the best interest of the State.
9. Bidder understands that the Owner reserves the right to accept any, or no, Alternate Bid, if requested, and that the Alternate Bids may be considered in any order or combination, and the low Bidder shall be determined on the basis of the sum of the base bid and any Alternate(s) accepted.

Subcontractors:

The Trade Contractor must identify all Subcontractors and Suppliers within 48 hours of the published date and time for which bids must be submitted, in accordance with Iowa Code Section 8A311, as amended by House File 646 in 2011. Subcontractors and suppliers may not be changed without the approval of the Owner. Requests for changing a Subcontractor or supplier must identify the reason for the proposed

change, the name of the new Subcontractor or supplier, and the change in the subcontractor or supplier price as a result of the change. Any reduction in subcontractor or supplier price as a result of the change, if the change is approved by the Owner, shall be deducted from the Trade Contract Price via a deductive Change Order. Any such changes, if approved by the Owner, which result in an increase in the Trade Contract Price shall be borne by the Trade Contractor.

**Enforcement of Reciprocal Resident Bidder Preference, per Iowa Code 73A.21.**

All bidders shall either check the box next to "Resident Bidder" or check the box next to "Nonresident Bidder" and by doing so and signing thereafter certifies and attests to the same. All information requested must be provided. Seek out the advice of an attorney if you have questions.

"Resident Bidder" means a person or entity authorized to transact business in of the State of Iowa and having a place of business for transacting business within the State of Iowa at which it is conducting and has conducted business for at least three years prior to the date of the first advertisement for the public improvement. Note, however, that if a nonresident bidder's state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable as to bidders from that state or foreign country.

Resident Bidder

Name of Resident Bidder: \_\_\_\_\_

By: \_\_\_\_\_  
Authorized Agent and Signatory of Resident Bidder

**OR:**

Nonresident Bidder

Name of Nonresident Bidder: \_\_\_\_\_

Name of State or Foreign Country of Nonresident Bidder: \_\_\_\_\_

Particularly identify and describe any preference, labor preference, or any other type of preferential treatment, in effect in the nonresident bidder's state or foreign country at the time of this bid:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

NOTICE: Nonresident Bidders domiciled in a state or country with a resident labor force preference shall make and keep, for a period of not less than three years, accurate records of all workers employed on the public improvement. The records shall include each worker's name, address, telephone number when available, social security number, trade classification, and the starting ending time of employment.

By: \_\_\_\_\_  
Authorized Agent and Signatory of Nonresident Bidder

Bid Form shall be signed by an officer of the company with authority to bind in a contract.

Notice of acceptance of this bid, or request for additional information by the Department of Administrative Services, may be addressed to the undersigned at the address set forth below:

Legal Name of Firm: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_

Title: \_\_\_\_\_

Typed Name of Signatory: \_\_\_\_\_

Email: \_\_\_\_\_

Business Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Federal Tax Identification Number: \_\_\_\_\_

Iowa Contractor Registration Number: \_\_\_\_\_

Bidder Safety Manager Name: \_\_\_\_\_

For an out-of-state Bidder, Bidder certifies that the Resident Preference given by the State or Foreign Country of Bidder's residence, \_\_\_\_\_, is \_\_\_\_\_ %.

**END OF SECTION**

**SECTION 00 4116.01**

**NON-DISCRIMINATION CLAUSE**

**This Section is for informational purposes only. All information will be submitted online through the State's [IMPACS Electronic Procurement System](#).**

**PART 1 - GENERAL**

All contractors, subcontractors, vendors and suppliers of goods and services doing business with the State of Iowa and value of said business equals or exceeds \$10,000 annually, agree as stated below.

**1.01 NONDISCRIMINATION CLAUSE**

- A. The contractor, subcontractor, vendor and supplier of goods and services will not discriminate against an employee or applicant for employment because of race, creed, color, sex, national origin, ancestry, religion, economic status, age, disability, political opinion, or affiliations of an applicant or employee based upon the nature of the job occupation. The contractor, subcontractor, vendor and supplier will develop an Affirmative Action Program to insure that applicants are employed and that employees are treated during employment without regard to their race, creed, color, sex, national origin, ancestry, religion, economic status, age, disability, political opinions or affiliations. Such action shall include, but not be limited to the following:
  - 1. Employment.
  - 2. Upgrading.
  - 3. Demotion or transfer.
  - 4. Recruitment and advertising.
  - 5. Layoff or termination.
  - 6. Rates of pay or other forms of compensation.
  - 7. Selection for training, including apprenticeship.
- B. The contractor, subcontractor, vendor and supplier of goods and services will, in all solicitations or advertisements for employees, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, national origin, ancestry, religion, economic status, age, disability, political opinion or affiliations.
- C. The contractor, subcontractor, vendor and supplier or their collective bargaining representative will send to each labor union or representative or workers with which they have a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or workers' representative of the contractor's commitments under this section.
- D. The contractor, subcontractor, vendor and supplier of goods and services will comply with all published rules, regulations, directives and orders of the State of Iowa Affirmative Action Program Contract Compliance Provisions.
- E. The contractor, subcontractor, vendor and supplier of goods and services will furnish and file compliance reports within such time and upon such forms as provided by the Equal Employment Opportunity Officer, said forms may elicit information as to the policies, procedures, patterns, and practices of each subcontractor as state as the contractor themselves and said contractor, subcontractor, vendor and supplier will permit access to their employment books, records and accounts to the State's Equal Employment Opportunity Officer, for the purpose of investigation to ascertain compliance with this Contract and with rules regulations of the State's Affirmative Action Program.
- F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations and orders; this Contract may be canceled,

terminated or suspended in whole or in part and the Contractor may be declared ineligible for further contracts in accordance with procedures authorized by the State of Iowa.

- G. The contractor, subcontractor, vendor and supplier of goods and services will include, or incorporate by reference, the provisions of the nondiscrimination clause in every contract, subcontract or purchase order unless exempted by the rules, regulations or orders of the State's Affirmative Action Program, and will provide in every subcontract or purchase order that said provisions will be binding upon each contractor, subcontractor or seller.
- H. The parties agree to comply with "Compliance with the Law; Nondiscrimination in Employment" of the current Terms and Conditions at the award of this contract. Current Terms and Conditions may be found on the following web site and are, by this reference, made a part of this Agreement. <https://das.iowa.gov/procurement/terms-and-conditions>
- I. We certify and recognize that we are morally and legally committed to nondiscrimination in employment. Any person who applies for employment with our company will not be discriminated against because of race, creed, color, sex, national origin, ancestry, religion, economic status, age or disabilities, unless disabilities are based upon the nature of the job occupation.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

**SECTION 00 4116.02**

**TARGETED SMALL BUSINESS INFORMATION**

**This Section is for informational purposes only. All information will be submitted online through the State's [IMPACS Electronic Procurement System](#).**

**PART 1 - GENERAL**

**1.01 TARGETED SMALL BUSINESS INFORMATION**

- A. Subcontractor Targeted Small Business Enterprise Pre-Bid Contact Information, including subcontractor and dollar amount to be subcontracted, is to accompany the Bid submission. Bidders shall comply with all affirmative action/equal opportunity provisions of State and Federal laws. The Owner seeks to provide opportunities for Targeted Small Businesses in accordance with the provisions of Chapter 73 of the Code of Iowa.
- B. [Search the Targeted Small Business Directory](#) for certified State of Iowa Targeted Small Businesses.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES  
 SUBCONTRACTOR  
 TARGETED SMALL BUSINESS ENTERPRISE  
 PRE-BID CONTRACT INFORMATION

<b>CONTRACTOR</b>	<b>BID NO.</b>
(to be completed by bidder)	
<b>BID NO.</b>	<b>PAGE #</b>

You are requested to provide the information on this form showing your targeted Small Business enterprises contacts made prior to your bid submission. This information is subject to verification and confirmation. NOTE: The Department of General Services will not regard your acceptance or use of a low quote or bid from a non-targeted Small Business Enterprise on any subcontract item as evidence itself of any lack of good faith effort to solicit targeted Small Business Enterprise subcontractors on this project. However, every effort shall be made to solicit quotes or bids on as many subcontractable items as necessary to evidence affirmative action in contracting.

**TABLE OF INFORMATION SHOWING BIDDER'S PRE-BID TARGETED SMALL BUSINESS ENTERPRISE CONTACTS**

SUBCONTRACTOR	TSB	DATES CONTACTED	QUOTES RECEIVED		QUOTATION USED IN BID	
			YES/NO	DATES	YES/NO	DOLLAR AMOUNT PROPOSED TO BE SUBCONTRACTED

Total dollar amount proposed to be subcontracted to TSB on this project \$ \_\_\_\_\_  
 List items to be subcontracted. (If more space is needed, use reverse side.)

**SECTION 00 4313**

**BID SECURITY FORMS**

**PART 1 - GENERAL**

**1.01 BID SECURITY FORMS**

- A. A Bid Bond form will be required on this project. An amended ConsensusDocs 262 is attached for reference following this page. ConsensusDocs bid bond form is not required (other standard forms are acceptable to the State of Iowa).

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**



**CONSENSUSDOCS 262**  
**BID BOND**  
**(AMENDED BY STATE OF IOWA)**

This document was developed through a collaborative effort of organizations representing a wide cross-section of the design and construction industry. The organizations endorsing this document believe it represents a fair allocation of risk and responsibilities for all project participants.

Endorsing organizations recognize that this document must be reviewed and adapted to meet specific needs and applicable laws. This document has important legal and insurance consequences. You are encouraged to consult legal, insurance and surety advisors before completing or modifying this document. The software includes a notes section indicating where information is to be inserted to complete this document. Further information and endorsing organizations' perspectives are available at [www.consensusdocs.org/guidebook](http://www.consensusdocs.org/guidebook).

For Use with ConsensusDOCS 200, Standard Form of Agreement and General Conditions Between Owner and Constructor (Where the Contract Price is a Lump Sum) and ConsensusDOCS 500, Standard Agreement and General Conditions Between Owner and Construction Manager.

The Trade Contractor, \_\_\_\_\_ (the "Trade Contractor") has submitted a Bid to the Owner, \_\_\_\_\_, (the "Owner") for the \_\_\_\_\_ (the "Project") in accordance with the Bidding Documents, including Drawings and Specifications prepared by \_\_\_\_\_ (the "Design Professional").

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**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.

By virtue of this Bid Bond (the "Bond"), the Constructor as Principal and \_\_\_\_\_ as Surety ("Surety"), are bound to the Owner as Obligee in the maximum amount \_\_\_\_\_, Dollars (\$\_\_\_\_\_) (the "Bond Sum"). The Constructor and Surety hereby bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein.

1. If the Obligee shall accept the bid of the Constructor, the Constructor shall enter into an Agreement with the Obligee in accordance with the terms of such Bid.
2. Constructor shall procure such bond or bonds as are specified in the Contract Documents for the faithful performance of the Work and for the prompt payment of labor and materials furnished in the performance of the Work.
3. If the Constructor fails to enter such Agreement and give such bonds, the Constructor shall pay to the Obligee the difference between the amount of Constructor's bid and the amount of such agreement the Obligee in good faith executes with another Party to perform the Work covered by Constructor's Bid, not to exceed the Bond Sum stated above.
4. If the Constructor shall fulfill its obligation under Articles 1 through 3, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

This Bond is entered into as of \_\_\_\_\_ (date)

SURETY: \_\_\_\_\_ (seal)

BY: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_ (Attach Power of Attorney)

Witness: .....

(Additional signatures, if any, appear on attached page)

Constructor: \_\_\_\_\_ (seal)

BY: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Witness: .....

(Additional signatures, if any, appear on attached page)

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**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.

**SECTION 00 5200**

**AGREEMENT FORM**

**PART 1 - GENERAL**

**1.01 AGREEMENT FORM**

- A. The Form of Agreement to be used on this project is a modified ConsensusDocs 802. A sample is attached following this page.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

# ConsensusDocs 802

## STANDARD FORM OF AGREEMENT BETWEEN OWNER AND TRADE CONTRACTOR

(Where the Construction Manager Is the Owner's Agent)



### TABLE OF ARTICLES

1. AGREEMENT
2. GENERAL PROVISIONS
3. TRADE CONTRACTOR'S OBLIGATIONS
4. OWNER'S RESPONSIBILITIES
5. SUBCONTRACTS
6. TRADE CONTRACT TIME
7. TRADE CONTRACT PRICE
8. CHANGES
9. PAYMENT
10. INDEMNITY, INSURANCE, WAIVERS AND BONDS
11. SUSPENSION, NOTICE TO CURE AND TERMINATION OF AGREEMENT
12. DISPUTE MITIGATION AND RESOLUTION
13. MISCELLANEOUS PROVISIONS
14. TRADE CONTRACT DOCUMENTS

This Agreement has important legal and insurance consequences. Consultations with an attorney and with insurance and surety consultants are encouraged with respect to its completion or modification. Notes indicate where information is to be inserted to complete this Agreement.



## ARTICLE 1 AGREEMENT

This Trade Contractor Agreement is made effective as of the XX day of Month, Year , by and between the

OWNER

State of Iowa - DAS, Department of Administrative Services ("DAS"). DAS's principal office is located: 109 SE 13th Street, Des Moines, IA 50319-0120.

and the

TRADE CONTRACTOR

*Contractor Name*

*Address*

*City, State, Zip*

for work in connection with the following

PROJECT

*XXXX.XX - Project Name*

The CONSTRUCTION MANAGER is

*Construction Manager Name*

*Address*

*City, State, Zip*

The DESIGN PROFESSIONAL for the Project is

*Designer Name*

*Address*

*City, State, Zip*

Notice to the Parties shall be given at the above addresses.

## ARTICLE 2 GENERAL PROVISIONS

2.1 RELATIONSHIP OF PARTIES The Owner and the Trade Contractor agree to proceed with this Agreement on the basis of mutual trust, good faith and fair dealing and shall cooperate with each other and with the Construction Manager and Design Professional in furthering the Owner's interests. The Trade Contractor shall use its diligent efforts to perform the work in an expeditious manner consistent with the Trade Contract Documents. The Owner and the Trade Contractor will endeavor to promote harmony and cooperation among all Project participants.

2.1.1 The Owner and the Trade Contractor shall perform their obligations with integrity, ensuring at a minimum that

2.1.1.1 conflicts of interest shall be avoided or disclosed promptly to the other Party; and

2.1.1.2 the Trade Contractor and the Owner warrant that they have not and shall not pay nor receive any contingent fees or gratuities to or from the other Party, including its agents, officers and employees, Subcontractors or others for whom they may be liable, to secure preferential



treatment.

2.2 PROJECT ORGANIZATION This Agreement is for the performance of work described herein in connection with the construction of the Project. The Owner also may enter into separate agreements with other trade contractors for other portions of the Project. The Owner has entered or will enter into a Construction Management Agreement with the Construction Manager, and a design agreement with the Design Professional.

2.3 INDEPENDENT CONTRACTOR The Trade Contractor represents that it is an independent contractor and that its performance of the Trade Contract Work it shall act as an independent contractor. Neither Trade Contractor nor any of its agents or employees shall act on behalf of the Owner except as provided in this Agreement or unless authorized in writing by the Owner.

2.4 CONSTRUCTION MANAGER IS OWNER'S AGENT The Construction Manager will represent the Owner as its agent in the administration and management of this Agreement. Any instructions, reviews, approvals, orders or directions given to the Trade Contractor by the Construction Manager will be given on behalf of and as agent for the Owner. The Trade Contractor shall be obligated to respond or perform as if the same were given directly by the Owner. The Trade Contractor shall communicate and provide all requests and concerns regarding the Trade Contract Work to the Construction Manager. The Trade Contractor shall provide copies to the Construction Manager of all notices to the Owner required by and regarding this Agreement.

2.5 CONSTRUCTION MANAGER NOT IN PRIVITY WITH TRADE CONTRACTOR This Agreement shall not give the Trade Contractor any claim or right of action against the Construction Manager. The Trade Contractor and its subcontractors shall not be beneficiaries of any obligations of the Construction Manager. This Agreement shall not create a contractual relationship between any parties except the Owner and the Trade Contractor.

2.5A NO THIRD-PARTY BENEFICIARY There are no third-party beneficiaries of this Agreement.

2.6 DESIGN PROFESSIONAL The Owner, through its Design Professional, shall provide all architectural and engineering design services necessary for the completion of the Work, except the following:

#### No exceptions

The Trade Contractor shall not be required to provide professional services which constitute the practice of architecture or engineering except as otherwise provided in section 3.15.

2.6.1 The Owner shall obtain from the Design Professional either a license for Trade Contractor and Subcontractors to use the design documents prepared by the Design Professional or ownership of the copyrights for such design documents, and shall defend, indemnify and hold harmless the Trade Contractor against any suits or claims of infringement of any copyrights or licenses arising out of the use of the design documents. To the extent portions of this paragraph are in conflict with SF 396 (codified at Iowa Code Section 537A.5) said portions are void and unenforceable.

2.7 EXTENT OF AGREEMENT This Agreement is solely for the benefit of the Parties, represents the entire integrated agreement between the Parties, and supersedes all prior negotiations, representations and agreements, either written or oral. This Agreement and each and every provision is for the exclusive benefit of the Owner and the Trade Contractor and not for the benefit of any third party except to the extent expressly provided in this Agreement. In the event of conflict between this Agreement and any of the Exhibits or any other documents incorporated into this Agreement, the terms and provisions of this Agreement shall control.

#### 2.8 DEFINITIONS



2.8.1 Agreement means this ConsensusDocs 802 Standard Form of Agreement Between Owner and Trade Contractor (Where the Construction Manager is the Owner's Agent), as modified by the Parties, and Exhibits and Attachments made part of this Agreement upon its execution.

2.8.2 Design Professional means the Architect, Design Professional or Engineer identified in ARTICLE 1 and its consultants, retained by Owner to perform design services for the Project, and licensed in the State in which the Project is located. The use of the term Design Professional in this Agreement is for convenience and is not intended to imply or infer that the individual or entity named in ARTICLE 1 will provide design professional services in a discipline in which it is not licensed.

2.8.3 Construction Manager means the Construction Manager identified in ARTICLE 1 and its authorized representative.

2.8.4 The Construction Schedule is the document initially prepared by and updated by the Construction Manager and approved by the Owner that indicates proposed activity sequences, durations, or milestone dates for such activities as receipt and approval of pertinent information, issuance of the Construction Documents, the preparation and processing of shop drawings and samples, delivery of materials or equipment requiring long-lead-time procurement, Owner's occupancy requirements and estimated dates of Substantial Completion and Final Completion of the Project.

2.8.5 The term Day shall mean calendar day unless otherwise specifically defined.

2.8.6 Final Completion occurs on the date when the Trade Contractor's obligations under this Agreement are complete and accepted by the Owner and final payment becomes due and payable, as established in ARTICLE 6. This date shall be confirmed by a Certificate of Final Completion signed by the Owner and the Trade Contractor.

2.8.7 A Hazardous Material is any substance or material identified now or in the future as toxic or hazardous under any federal, state or local law or regulation, or any other substance or material which may be considered hazardous or otherwise subject to statutory or regulatory requirements governing handling, disposal or clean-up.

2.8.8 A Material Supplier is a person or entity retained by the Trade Contractor to provide material or equipment for the Trade Contract Work. This definition is not intended to, and shall not be interpreted to, expand or modify the definition(s) of materials or material suppliers contained in Iowa Code Chapter 573.

2.8.9 Others means other contractors, material suppliers, and persons at the Worksite who are not employed by the Trade Contractor or Subcontractors.

2.8.10 The term Overhead shall mean a) payroll costs and other compensation of Trade Contractor employees in the Trade Contractor's principal and branch offices; b) general and administrative expenses of the Trade Contractor's principal and branch offices including deductibles paid on any insurance policy and c) the Trade Contractor's capital expenses, including interest on capital used for the Work.

2.8.11 Owner is the person or entity identified in ARTICLE 1 as Owner, and includes the Owner's representative.

2.8.12 The Project, as identified in ARTICLE 1, is the building, facility or other improvements for which the Trade Contractor is to perform the Trade Contract Work.

2.8.13 A Subcontractor is a person or entity retained by the Trade Contractor as an independent contractor to provide the labor, materials, equipment or services necessary to complete a specific



portion of the Work. This definition is not intended to, and shall not be interpreted to, expand or modify the definition(s) of materials or material suppliers contained in Iowa Code Chapter 573.

2.8.14 Per Iowa Code Section 26.13, "substantially completed" means the first date on which any of the following occurs: (1) Completion of the Project (or Trade Contract Work, in the case of the multiple Trade Contractors) or when the Project (or Trade Contract Work in the case of multiple Trade Contractors) has been substantially completed in general accordance with the terms and provisions of the contract. (2) The work on the Project (or Trade Contract Work in the case of multiple Trade Contractors) or on the designated portion is substantially completed in general accordance with the terms of the contract so that the State Iowa can occupy or utilize the Project or designated portion of the Project for its intended purpose. (3) The Project (or Trade Contract Work in the case of multiple Trade Contractors) is certified as having been substantially completed by either of the following: (a) the architect or engineer authorized to make such certification (which is defined in this Agreement as the Design Professional). (b) The authorized contract representative (which is defined in this Agreement as the Owner's Representative). (4) The State of Iowa is occupying or utilizing the Project (or Trade Contract Work in the case of multiple Trade Contractors) for its intended purpose. This subparagraph shall not apply to highway, bridge, or culvert projects.

2.8.15 Terrorism means a violent act, or an act that is dangerous to human life, property or infrastructure, that is committed by an individual or individuals and that appears to be part of an effort to coerce a civilian population or to influence the policy or affect the conduct of any government by coercion. Terrorism includes, but is not limited to, any act certified by the United States government as an act of terrorism pursuant to the Terrorism Risk Insurance Act, as amended.

2.8.16 A Trade Contract Change Order is a written order signed by the Owner and the Trade Contractor after execution of this Agreement, indicating changes in the scope of the Trade Contract Work, the Trade Contract Price or Trade Contract Time, including substitutions proposed by the Trade Contractor and accepted by the Owner. Trade Contract Change Orders shall be executed using the ConsensusDOCS 813 Trade Contract Change Order (CM as Owner's Agent) form document with exhibits attached as necessary.

2.8.17 The Trade Contract Documents consist of this Agreement (as modified), the drawings, specifications, addenda issued prior to execution of this Agreement, approved submittals, information furnished by the Owner under subsection 4.1.3, the bid documents, other documents listed in this Agreement and any modifications issued after execution.

2.8.18 The Trade Contract Price is the amount indicated in section 7.1 of this Agreement.

2.8.19 The Trade Contract Time is the period between the Date of Commencement and Final Completion.

2.8.20 Trade Contract Work means the construction and services provided by the Trade Contractor.

2.8.20.1 Changed Work means work that is different from the original scope of Trade Contract Work; or work that changes the Trade Contract Price or Trade Contract Time.

2.8.20.2 Defective Work is any portion of the Trade Contract Work that is not in conformance with the Trade Contract Documents.

2.8.21 The Trade Contractor is the person or entity identified in ARTICLE 1 and includes the Trade Contractor's Representative.

2.8.22 The term Work means the construction and services necessary or incidental to fulfill the Trade



Contractors' obligations for the Project. The Work may refer to the whole Project or only a part of the Project.

2.8.23 Worksite means the geographical area at the location of the Project as identified in ARTICLE 1 where the Trade Contract Work is to be performed.

### ARTICLE 3 TRADE CONTRACTOR'S OBLIGATIONS

#### 3.1 GENERAL RESPONSIBILITIES

3.1.1 RESPONSIBILITIES The Trade Contractor shall provide all of the labor, materials, equipment and services necessary to complete the Trade Contract Work, all of which shall be provided in full accord with or as reasonably inferable from the Trade Contract Documents as being necessary to produce the indicated results.

3.1.2 The Trade Contractor shall be responsible for the supervision and coordination of the Trade Contract Work, including the construction means, methods, techniques, sequences and procedures utilized, unless the Trade Contract Documents give other specific instructions. In such case, the Trade Contractor shall not be liable to the Owner for damages resulting from compliance with such instructions unless the Trade Contractor recognized and failed to timely report to the Owner any error, inconsistency, omission or unsafe practice that it discovered in the specified construction means, methods, techniques, safety, sequences or procedures.

3.1.3 The Trade Contractor shall perform Trade Contract Work only within locations allowed by the Trade Contract Documents, applicable permits and applicable local law.

#### 3.2 COOPERATION WITH WORK OF OWNER AND OTHERS

3.2.1 The Owner may perform work at the Worksite directly or by Others. Any agreements with Others to perform construction or operations related to the Project shall include provisions pertaining to insurance, indemnification, waiver of subrogation, coordination, interference, clean up and safety which are substantively the same as the corresponding provisions of this Agreement.

3.2.2 In the event that the Owner elects to perform work at the Worksite directly or by Others, the Trade Contractor and the Owner shall, with the assistance of the Construction Manager, coordinate the activities of all forces at the Worksite and agree upon fair and reasonable schedules and operational procedures for Worksite activities. The Owner shall require each separate contractor to cooperate with the Trade Contractor and assist with the coordination of activities and the review of construction schedules and operations. The Trade Contract Price and Trade Contract Time shall be equitably adjusted, as mutually agreed by the Parties, for subsequent changes made necessary by the coordination of construction activities, and the Trade Contractor's construction schedule and the Construction Schedule shall be revised accordingly. The Trade Contractor, Owner and Others shall adhere to the revised Construction Schedule until it may subsequently be revised.

3.2.3 With regard to the work of the Owner and Others, the Trade Contractor shall (a) proceed with the Trade Contract Work in a manner which does not hinder, delay or interfere with the work of the Owner or Others or cause the work of the Owner or Others to become defective, (b) afford the Owner or Others reasonable access for introduction and storage of their materials and equipment and performance of their activities, and (c) coordinate the Trade Contractor's construction and operations with theirs as required by this section.

3.2.4 Before proceeding with any portion of the Trade Contract Work affected by the construction or operations of the Owner or Others, the Trade Contractor shall give the Owner and Construction



Manager prompt written notification of any defects the Trade Contractor discovers in their work which will prevent the proper execution of the Trade Contract Work. The Trade Contractor's obligations in this section do not create a responsibility for the work of the Owner or Others, but are for the purpose of facilitating the Trade Contract Work. If the Trade Contractor does not notify the Owner and Construction Manager of patent defects interfering with the performance of the Trade Contract Work, the Trade Contractor acknowledges that the work of the Owner or Others is not defective and is acceptable for the proper execution of the Trade Contract Work. Following receipt of written notice from the Trade Contractor of defects, the Owner, through the Construction Manager, shall promptly inform the Trade Contractor what action, if any, the Trade Contractor shall take with regard to the defects.

### 3.3 RESPONSIBILITY FOR PERFORMANCE

3.3.1 In order to facilitate its responsibilities for completion of the Work in accordance with and as reasonably inferable from the Trade Contract Documents, prior to commencing the Work the Trade Contractor shall examine and compare the drawings and specifications with information furnished by the Owner pursuant to subsection 4.1.3, relevant field measurements made by the Trade Contractor and any visible conditions at the Worksite affecting the Trade Contract Work.

3.3.2 If in the course of the performance of the obligations in subsection 3.3.1 the Trade Contractor discovers any errors, omissions or inconsistencies in the Contract Documents, the Trade Contractor shall promptly report them to the Owner and Construction Manager. It is recognized, however, that the Trade Contractor is not acting in the capacity of a licensed design professional, and that the Trade Contractor's examination is to facilitate construction and does not create an affirmative responsibility to detect errors, omissions or inconsistencies or to ascertain compliance with applicable laws, building codes or regulations. Following receipt of written notice from the Trade Contractor of defects, the Owner shall promptly inform the Trade Contractor what action, if any, the Trade Contractor shall take with regard to the defects.

3.3.3 The Trade Contractor shall have no liability for errors, omissions or inconsistencies discovered under subsections 3.3.1 and 3.3.2 unless the Trade Contractor fails to report a recognized problem to the Owner and Construction Manager.

3.3.4 The Trade Contractor may be entitled to additional costs or time if there are changes in the scope of the Trade Contract Work that increase the cost of the Work or increase the number of days required to perform the Work, respectively, because of clarifications or instructions arising out of the Trade Contractor's reports described in the three preceding Subsections.

### 3.4 CONSTRUCTION PERSONNEL AND SUPERVISION

3.4.1 The Trade Contractor shall provide competent supervision for the performance of the Trade Contract Work. Before commencing the Trade Contract Work, Trade Contractor shall notify Owner and Construction Manager in writing of the name and qualifications of its proposed superintendent(s) and project manager so Owner and Construction Manager may review the individual's qualifications. If, for reasonable cause, the Owner or Construction Manager refuses to approve the individual, or withdraws its approval after once giving it, Trade Contractor shall name a different superintendent or project manager for Owner's and Construction Manager's review. Any disapproved superintendent shall not perform in that capacity thereafter at the Worksite.

3.4.2 The Trade Contractor shall be responsible to the Owner for acts or omissions of parties or entities performing portions of the Trade Contract Work for or on behalf of the Trade Contractor or any of its Subcontractors.

3.4.3 The Trade Contractor shall permit only qualified persons to perform the Trade Contract Work. The



Trade Contractor shall enforce safety procedures, strict discipline and good order among persons performing the Trade Contract Work. If the Owner or Construction Manager determines that a particular person does not follow safety procedures, or is unfit or unskilled for the assigned work, the Trade Contractor shall immediately reassign the person on receipt of the Owner's or Construction Manager's written notice to do so.

**3.4.4 TRADE CONTRACTOR'S REPRESENTATIVE** The Trade Contractor's authorized representative is . The Trade Contractor's representative shall possess full authority to receive instructions from the Owner and to act on those instructions. The Trade Contractor shall notify the Owner and the Construction Manager in writing of a change in the designation of the Trade Contractor's representative. The Trade Contractor's representative is also authorized to bind the Trade Contractor in all matters relating to this Agreement including, without limitation, all matters requiring the Trade Contractor's approval, authorization, or written notice. The Trade Contractor's representative is also authorized to resolve disputes in accordance with Section 12.2 of this Agreement.

### 3.5 MATERIALS FURNISHED BY THE OWNER OR OTHERS

**3.5.1** In the event the Trade Contract Work includes installation of materials or equipment furnished by the Owner or Others, it shall be the responsibility of the Trade Contractor to examine the items so provided and thereupon handle, store and install the items, unless otherwise provided in the Trade Contract Documents, with such skill and care as to provide a satisfactory and proper installation. Loss or damage due to acts or omissions of the Trade Contractor shall be the responsibility of the Trade Contractor and may be deducted from any amounts due or to become due the Trade Contractor. Any defects discovered in such materials or equipment shall be reported at once to the Owner and Construction Manager. Following receipt of written notice from the Trade Contractor of defects, the Owner shall promptly inform the Trade Contractor what action, if any, the Trade Contractor shall take with regard to the defects.

### 3.6 TESTS AND INSPECTIONS

**3.6.1** The Trade Contractor shall schedule all required tests, approvals and inspections of the Trade Contract Work or portions thereof at appropriate times so as not to delay the progress of the Trade Contract Work or other work related to the Project. The Trade Contractor shall give proper notice to the Construction Manager and to all required parties of such tests, approvals and inspections. If feasible, the Owner and Others may timely observe the tests at the normal place of testing. Except as provided in subsection 3.6.3, the Owner shall bear all expenses associated with tests, inspections and approvals required by the Trade Contract Documents, which, unless otherwise agreed to, shall be conducted by an independent testing laboratory or entity retained by the Owner. Unless otherwise required by the Trade Contract Documents, required certificates of testing, approval or inspection shall be secured by the Trade Contractor and promptly delivered to the Owner and Construction Manager.

**3.6.2** If the Owner, Construction Manager or appropriate authorities determine that tests, inspections or approvals in addition to those required by the Trade Contract Documents will be necessary, the Trade Contractor shall arrange for the procedures and give timely notice to the Owner, Construction Manager and Others who may observe the procedures. Costs of the additional tests, inspections or approvals are at the Owner's expense except as provided in subsection 3.6.3.

**3.6.3** If the procedures described in subsections 3.6.1 and 3.6.2 indicate that portions of the Trade Contract Work fail to comply with the Trade Contract Documents, the Trade Contractor shall be responsible for costs of correction and retesting.

### 3.7 WARRANTY



3.7.1 The Trade Contract Work shall be executed in accordance with the Trade Contract Documents in a workmanlike manner. The Trade Contractor warrants that all materials and equipment shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Trade Contract Work and shall be new unless otherwise specified, of good quality, in conformance with the Trade Contract Documents, and free from defective workmanship and materials. At the Owner's or Construction Manager's request, the Trade Contractor shall furnish satisfactory evidence of the quality and type of materials and equipment furnished. The Trade Contractor further warrants that the Trade Contract Work shall be free from material defects not intrinsic in the design or materials required in the Trade Contract Documents. The Trade Contractor's warranty does not include remedies for defects or damages caused by normal wear and tear during normal usage, use for a purpose for which the Project was not intended, improper or insufficient maintenance, modifications performed by the Owner or Others, or abuse. The Trade Contractor's warranty pursuant to this section shall commence on the Date of Substantial Completion.

3.7.2 The Trade Contractor shall obtain from its Subcontractors and material suppliers any special or extended warranties required by the Trade Contract Documents. All such warranties shall be listed in an attached Exhibit to this Agreement.

### 3.8 CORRECTION OF TRADE CONTRACT WORK WITHIN ONE YEAR

3.8.1 If, prior to Substantial Completion and within one year after the date of Substantial Completion of the Trade Contract Work, any Defective Work is found, the Owner shall promptly notify the Trade Contractor in writing. Unless the Owner provides written acceptance of the condition, the Trade Contractor shall promptly correct the Defective Work at its own cost and time and bear the expense of additional services required for correction of any Defective Work for which it is responsible. If within the one-year correction period the Owner discovers and does not promptly notify the Trade Contractor or give the Trade Contractor an opportunity to test or correct Defective Work as reasonably requested by the Trade Contractor, the Owner waives the Trade Contractor's obligation to correct that Defective Work as well as the Owner's right to claim a breach of the warranty with respect to that Defective Work.

3.8.2 With respect to any portion of Trade Contract Work first performed after Substantial Completion, the one-year correction period shall be extended by the period of time between Substantial Completion and the actual performance of the later Trade Contract Work. Correction periods shall not be extended by corrective work performed by the Trade Contractor.

3.8.3 If the Trade Contractor fails to correct Defective Work within a reasonable time after receipt of written notice from the Owner prior to final payment, the Owner may correct it in accordance with the Owner's right to carry out the Trade Contract Work in section 11.2. In such case, an appropriate Trade Contract Change Order shall be issued deducting the cost of correcting such deficiencies from payments then or thereafter due the Trade Contractor. If payments then or thereafter due Trade Contractor are not sufficient to cover such amounts, the Trade Contractor shall pay the difference to the Owner.

3.8.4 If after the one-year correction period but before the applicable limitation period the Owner discovers any Defective Work, the Owner shall, unless the Defective Work requires emergency correction, promptly notify the Trade Contractor. If the Trade Contractor elects to correct the Defective Work, it shall provide written notice of such intent within fourteen (14) Days of its receipt of notice from the Owner. The Trade Contractor shall complete the correction of Defective Work within a time frame mutually agreed upon by the Trade Contractor and the Owner. If the Trade Contractor does not elect to correct the Defective Work, the Owner may have the Defective Work corrected by itself or Others and charge the Trade Contractor for the reasonable cost of the correction and other directly related



expenses. Owner shall provide Trade Contractor with an accounting of correction costs it incurs.

3.8.5 If the Trade Contractor's correction or removal of Defective Work causes damage to or destroys other completed or partially completed Work or existing buildings, the Trade Contractor shall be responsible for the cost of correcting the destroyed or damaged property.

3.8.6 The one-year period for correction of Defective Work does not constitute a limitation period with respect to the enforcement of the Trade Contractor's other obligations under the Trade Contract Documents.

3.8.7 Prior to final payment, at the Owner's option and with the Trade Contractor's agreement, the Owner may elect to accept Defective Work rather than require its removal and correction. In such case the Contract Price shall be equitably adjusted for any diminution in the value of the Project caused by such Defective Work. Before the Owner accepts any such change it must be documented in writing with a Change Order signed by both the Trade Contractor and Owner.

### 3.9 CORRECTION OF COVERED TRADE CONTRACT WORK

3.9.1 On request of the Owner or Construction Manager, Trade Contract Work that has been covered without a requirement that it be inspected prior to being covered may be uncovered for the Owner's or Construction Manager's inspection. The Owner shall pay for the costs of uncovering and replacement if the Work proves to be in conformance with the Trade Contract Documents, or if the defective condition was caused by the Owner or Others. If the uncovered Trade Contract Work proves to be defective, the Trade Contractor shall pay the costs of uncovering and replacement.

3.9.2 If contrary to specific requirements in the Trade Contract Documents or contrary to a specific request from the Owner or Construction Manager, a portion of the Trade Contract Work is covered, the Owner or Construction Manager, by written request, may require the Trade Contractor to uncover the Trade Contract Work for the Owner's or Construction Manager's observation. In this circumstance the Trade Contract Work shall be uncovered and recovered at the Trade Contractor's expense and with no adjustment to the Trade Contract Time. Costs incurred by the Owner as a direct result of the above shall be deducted from the Trade Contract Price.

### 3.10 SAFETY OF PERSONS AND PROPERTY

3.10.1 SAFETY PRECAUTIONS AND PROGRAMS The Trade Contractor shall have overall responsibility for safety precautions and programs in the performance of the Trade Contract Work. While this section establishes the responsibility for safety between the Owner and Trade Contractor, it does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with the provisions of applicable laws and regulations.

3.10.2 The Trade Contractor shall seek to avoid injury, loss or damage to persons or property by taking reasonable steps to protect:

3.10.2.1 its employees and other persons at the Worksite;

3.10.2.2 materials and equipment stored at on-site or off-site locations for use in the Trade Contract Work; and

3.10.2.3 property located at the site and adjacent to Trade Contract Work areas, whether or not the property is part of the Trade Contract Work.

3.10.3 TRADE CONTRACTOR'S SAFETY REPRESENTATIVE The Trade Contractor's Worksite Safety Representative is who shall act as the Trade Contractor's authorized safety representative with a duty



to prevent accidents in accordance with subsection 3.10.2 If no individual is identified in this section, the authorized safety representative shall be the Trade Contractor's Representative. The Trade Contractor shall report immediately in writing to the Owner and Construction Manager all recordable accidents and injuries occurring at the Worksite. When the Trade Contractor is required to file an accident report with a public authority, the Trade Contractor shall furnish a copy of the report to the Owner and Construction Manager.

3.10.4 The Trade Contractor shall provide the Owner and Construction Manager with copies of all notices required of the Trade Contractor by law or regulation. The Trade Contractor's safety program shall comply with the requirements of governmental and quasi-governmental authorities having jurisdiction.

3.10.5 Damage or loss not insured under property insurance which may arise from the Trade Contract Work, to the extent caused by the negligent acts or omissions of the Trade Contractor, or anyone for whose acts the Trade Contractor may be liable, shall be promptly remedied by the Trade Contractor.

3.10.6 If the Owner or Construction Manager deems any part of the Trade Contract Work or Worksite unsafe, the Owner or Construction Manager, without assuming responsibility for the Trade Contractor's safety program, may require the Trade Contractor to stop performance of the Trade Contract Work or take corrective measures satisfactory to the Owner, or both. If the Trade Contractor does not adopt corrective measures, the Owner may perform them and deduct their cost from the Trade Contract Price. The Trade Contractor agrees to make no claim for damages, for an increase in the Trade Contract Price or for a change in the Trade Contract Time based on the Trade Contractor's compliance with the Owner's or Construction Manager's reasonable request.

### 3.11 EMERGENCIES

3.11.1 In an emergency, the Trade Contractor shall act in a reasonable manner to prevent personal injury or property damage. Any change in the Trade Contract Price or Trade Contract Time resulting from the actions of the Trade Contractor in an emergency situation shall be determined as provided in ARTICLE 8.

### 3.12 HAZARDOUS MATERIALS

3.12.1 The Trade Contractor shall not be obligated to commence or continue Trade Contract Work until any Hazardous Material discovered at the Worksite has been removed, rendered or determined to be harmless by the Owner as certified by an independent testing laboratory and approved by the appropriate government agency.

3.12.2 If after the commencement of the Trade Contract Work a Hazardous Material is discovered at the Worksite, the Trade Contractor shall be entitled to immediately stop Trade Contract Work in the affected area. The Trade Contractor shall report the condition to the Owner, the Construction Manager, and, if required, the government agency with jurisdiction.

3.12.3 The Trade Contractor shall not be required to perform any Trade Contract Work relating to or in the area of Hazardous Material without written mutual agreement.

3.12.4 The Owner shall be responsible for retaining an independent testing laboratory to determine the nature of the Hazardous Material encountered and whether the material requires corrective measures or remedial action. Such measures shall be the sole responsibility of the Owner, and shall be performed in a manner minimizing any adverse effects upon the Trade Contract Work. The Trade Contractor shall resume Trade Contract Work in the area affected by any Hazardous Material only upon written agreement between the Parties after the Hazardous Material has been removed or rendered harmless



and only after approval, if necessary, of the governmental agency with jurisdiction.

3.12.5 If the Trade Contractor incurs additional costs or is delayed due to the presence or remediation of Hazardous Material, the Trade Contractor shall be entitled to an equitable adjustment in the Trade Contract Price or the Trade Contract Time.

3.12.6 To the extent not caused by the negligent acts or omissions of the Trade Contractor, its Subcontractors and Sub-subcontractors, and the agents, officers, directors and employees of each of them, the Owner shall defend, indemnify and hold harmless the Trade Contractor, its Subcontractors and Sub-subcontractors, and the agents, officers, directors and employees of each of them, from and against any and all direct claims, damages, losses, costs and expenses, including but not limited to attorney's fees, costs and expenses incurred in connection with any dispute resolution process, to the extent permitted pursuant to section 6.6, arising out of or relating to the performance of the Trade Contract Work in any area affected by Hazardous Material. To the extent portions of this paragraph are in conflict with SF 396 (codified at Iowa Code Section 537A.5) said portions are void and unenforceable.

### 3.12.7 MATERIALS BROUGHT TO THE WORKSITE

3.12.7.1 Material Safety Data (MSD) sheets as required by law and pertaining to materials or substances used or consumed in the performance of the Trade Contract Work, whether obtained by the Trade Contractor, Subcontractors, the Owner or Others, shall be maintained at the Worksite by the Trade Contractor and made available to the Owner, Construction Manager, Subcontractors and Others.

3.12.7.2 The Trade Contractor shall be responsible for the proper delivery, handling, application, storage, removal and disposal of all materials and substances brought to the Worksite by the Trade Contractor in accordance with the Trade Contract Documents and used or consumed in the performance of the Trade Contract Work.

3.12.7.3 The Trade Contractor shall indemnify and hold harmless the Owner, Construction Manager, their agents, officers, directors and employees, from and against any and all claims, damages, losses, costs and expenses, including but not limited to attorney's fees, costs and expenses incurred in connection with any dispute resolution procedure, arising out of or relating to the delivery, handling, application, storage, removal and disposal of all materials and substances brought to the Worksite by the Trade Contractor in accordance or not in accordance with the Trade Contract Documents. To the extent portions of this paragraph are in conflict with SF 396 (codified at Iowa Code Section 537A.5) said portions are void and unenforceable.

3.12.8 The terms of this section shall survive the completion of the Trade Work or any termination of this Agreement.

### 3.13 SUBMITTALS

3.13.1 The Trade Contractor shall submit to the Construction Manager, and the Design Professional, for review and approval all shop drawings, samples, product data and similar submittals required by the Trade Contract Documents. Submittals may be submitted in electronic form if required in accordance with ConsensusDocs 200.2 and subsection 4.4.1. The Trade Contractor shall be responsible to the Owner for the accuracy and conformity of its submittals to the Trade Contract Documents. The Trade Contractor shall prepare and deliver its submittals in a manner consistent with the Construction Schedule and in such time and sequence so as not to delay the performance of the Trade Contract Work or the work of the Owner and Others. When the Trade Contractor delivers its submittals the Trade Contractor shall identify in writing for each submittal all changes, deviations or substitutions from the requirements of the Trade Contract Documents. The review and approval of any Trade Contractor



submittal shall not be deemed to authorize changes, deviations or substitutions from the requirements of the Trade Contract Documents unless express written approval is obtained from the Owner specifically authorizing such deviation, substitution or change. To the extent a change, deviation or substitution causes an impact to the Contract Price or Contract Time, such approval shall be promptly memorialized in a Change Order. Further, the Construction Manager and Design Professional shall not make any change, deviation or substitution through the submittal process without specifically identifying and authorizing such deviation to the Trade Contractor. In the event that the Trade Contract Documents do not contain submittal requirements pertaining to the Trade Contract Work, the Trade Contractor agrees upon request to submit in a timely fashion to the Construction Manager and the Design Professional for review and approval any shop drawings, samples, product data, manufacturers' literature or similar submittals as may reasonably be required by the Owner, Construction Manager, or Design Professional.

3.13.2 The Owner shall be responsible for review and approval of submittals with reasonable promptness to avoid causing delay.

3.13.3 The Trade Contractor shall perform all Trade Contract Work strictly in accordance with approved submittals. Approval of shop drawings is not authorization to Trade Contractor to perform Changed Work, unless the procedures of ARTICLE 8 are followed. Approval does not relieve the Trade Contractor from responsibility for Defective Work resulting from errors or omissions of any kind on the approved Shop Drawings.

3.13.4 Record copies of the following, incorporating field changes and selections made during construction, shall be maintained by the Trade Contractor at the Project site and available to the Owner upon request: drawings, specifications, addenda, Trade Contract Change Order and other modifications, and required submittals including product data, samples and shop drawings.

3.13.5 No substitutions shall be made in the Trade Contract Work unless permitted in the Trade Contract Documents and then only after the Trade Contractor obtains approvals required under the Trade Contract Documents for substitutions. All such substitutions shall be promptly memorialized in a Change Order no later than seven (7) Days following approval by the Owner and, if applicable, provide for an adjustment in the Contract Price or Contract Time.

3.13.6 The Trade Contractor shall prepare and submit to the Construction Manager for submission to the Owner

(Check one only)

- final marked up as-built drawings
- updated electronic data, in accordance with ConsensusDocs 200.2 and section 4.4.1
- such documentation as defined by the Parties by attachment to this Agreement,

in general documenting how the various elements of the Trade Contract Work were actually constructed or installed.

### 3.14 PROFESSIONAL SERVICES

3.14.1 The Trade Contractor may be required to procure professional services in order to carry out its responsibilities for construction means, methods, techniques, sequences and procedures for such services specifically called for by the Contract Documents. The Trade Contractor shall obtain these professional services and any design certifications required from State of Iowa licensed design professionals. All drawings, specifications, calculations, certifications and submittals prepared by such



design professionals shall bear the signature and seal of such design professionals and the Owner and the Design Professional shall be entitled to rely upon the adequacy, accuracy and completeness of such design services. If professional services are specifically required by the Contract Documents, the Owner shall indicate all required performance and design criteria. The Trade Contractor shall not be responsible for the adequacy of such performance and design criteria. The Trade Contractor shall not be required to provide such services in violation of existing laws, rules and regulations in the jurisdiction where the Project is located.

### 3.15 WORKSITE CONDITIONS

3.15.1 WORKSITE VISIT The Trade Contractor acknowledges that it has visited, or has had the opportunity to visit, the Worksite to visually inspect the general and local conditions which could affect the Trade Contract Work.

3.15.2 CONCEALED OR UNKNOWN SITE CONDITIONS If the conditions at the Worksite are (a) subsurface or other concealed physical conditions which are materially different from those indicated in the Trade Contract Documents, or (b) unusual and unknown physical conditions which are materially different from conditions ordinarily encountered and generally recognized as inherent in Trade Contract Work provided for in the Trade Contract Documents, the Trade Contractor shall stop Trade Contract Work and give immediate written notice of the condition to the Owner, Construction Manager and the Design Professional. The Trade Contractor shall not be required to perform any work relating to the unknown condition without the written mutual agreement of the Parties. Any change in the Contract Price or the Contract Time as a result of the unknown condition shall be determined as provided in this article. The Trade Contractor shall provide the Owner and the Construction Manager with written notice of any claim as a result of unknown conditions within the time period set forth in section 8.4.

### 3.16 PERMITS AND TAXES

3.16.1 Trade Contractor shall give public authorities all notices required by law and, except for permits and fees which are the responsibility of the Owner pursuant to section 4.2, shall obtain and pay for all necessary permits, licenses and renewals pertaining to the Trade Contract Work. Trade Contractor shall provide to Owner copies of all notices, permits, licenses and renewals required under this Agreement.

3.16.2 Trade Contractor shall pay all applicable taxes legally enacted when bids are received or negotiations concluded for the Trade Contract Work provided by the Trade Contractor.

3.16.3 The Contract Price or Contract Time shall be equitably adjusted by Trade Contract Change Order for additional costs resulting from any changes in laws, ordinances, rules and regulations enacted after the date of this Agreement, including increased taxes.

3.16.3 (Deleted)

### 3.17 CUTTING, FITTING AND PATCHING

3.17.1 The Trade Contractor shall perform cutting, fitting and patching necessary to coordinate the various parts of the Trade Contract Work and to prepare its Trade Contract Work for the work of the Owner or Others.

3.17.2 Cutting, patching or altering the work of the Owner or Others shall be done with the prior written approval of the Owner. Such approval shall not be unreasonably withheld.

### 3.18 CLEANING UP

3.18.1 The Trade Contractor shall regularly remove debris and waste materials at the Worksite resulting



from the Trade Contract Work. Prior to discontinuing Trade Contract Work in an area, the Trade Contractor shall clean the area and remove all rubbish and its construction equipment, tools, machinery, waste and surplus materials. The Trade Contractor shall minimize and confine dust and debris resulting from construction activities. At the completion of the Trade Contract Work, the Trade Contractor shall remove from the Worksite all construction equipment, tools, surplus materials, waste materials and debris.

3.18.2 If the Trade Contractor fails to commence compliance with cleanup duties within two (2) business Days after written notification from the Owner or the Construction Manager of noncompliance, the Owner may implement appropriate cleanup measures without further notice and the cost shall be deducted from any amounts due or to become due the Trade Contractor in the next payment period.

3.19 ACCESS TO TRADE CONTRACT WORK The Trade Contractor shall facilitate the access of the Owner, Construction Manager, Design Professional and Others to Trade Contract Work in progress.

3.20 COST MONITORING The Trade Contractor shall provide the Construction Manager with cost monitoring information appropriate for the manner of Trade Contractor's compensation, to enable the Construction Manager to develop and track construction and project budgets, including amounts for work in progress, uncompleted work and proposed changes.

3.21 ROYALTIES, PATENTS AND COPYRIGHTS The Trade Contractor shall pay all royalties and license fees which may be due on the inclusion of any patented or copyrighted materials, methods or systems selected by the Trade Contractor and incorporated in the Trade Contract Work. The Trade Contractor shall defend, indemnify and hold the Owner harmless from all suits or claims for infringement of any patent rights or copyrights arising out of such selection. The Owner agrees to indemnify and hold the Trade Contractor harmless from any suits or claims of infringement of any patent rights or copyrights arising out of any patented or copyrighted materials, methods or systems specified by the Owner, Construction Manager and Design Professional. To the extent portions of this paragraph are in conflict with SF 396 (codified at Iowa Code Section 537A.5) said portions are void and unenforceable.

3.22 CONFIDENTIALITY The Owner shall treat as confidential information all of the Trade Contractor's estimating systems and historical and parameter cost data that may be disclosed to the Owner in connection with the performance of this Agreement if they are specified and marked as confidential and shall mark them. If a document is not marked as "Confidential" it will not be treated as such. Nothing contained herein, however, shall be interpreted in a manner that modifies or is in conflict with the purpose and application of the open records laws contained in the Code of Iowa.

## ARTICLE 4 OWNER'S RESPONSIBILITIES

### 4.1 INFORMATION SERVICES

4.1.1 FULL INFORMATION Any information or services to be provided by the Owner shall be provided in a timely manner so as not to delay the Trade Contract Work.

4.1.2 FINANCIAL INFORMATION Upon the written request of the Trade Contractor, the Owner shall provide the Trade Contractor with evidence of Project financing. If requested in writing, evidence of such financing shall be a condition precedent to the Trade Contractor's commencing or continuing the Trade Contract Work. The Trade Contractor shall be notified by the Owner prior to any material change in Project financing.

4.1.3 WORKSITE INFORMATION Except to the extent that the Trade Contractor knows of any inaccuracy, the Trade Contractor is entitled to rely on Worksite information furnished by the Owner pursuant to this subsection. To the extent the Owner has obtained, or is required elsewhere in the



Trade Contract Documents to obtain, the following Worksite information, the Owner shall provide at the Owner's expense and with reasonable promptness:

4.1.3.1 information describing the physical characteristics of the site, including surveys, site evaluations, legal descriptions, data or drawings depicting existing conditions, subsurface conditions and environmental studies, reports and investigations;

4.1.3.2 tests, inspections and other reports dealing with environmental matters, Hazardous Material and other existing conditions, including structural, mechanical and chemical tests, required by the Trade Contract Documents or by law; and

4.1.3.3 any other information or services requested in writing by the Trade Contractor which are relevant to the Trade Contractor's performance of the Trade Contract Work and under the Owner's control. The information required by subsection 4.1.3 shall be provided in reasonable detail. Legal descriptions shall include easements, title restrictions, boundaries, and zoning restrictions. Worksite descriptions shall include existing buildings and other construction and all other pertinent site conditions. Adjacent property descriptions shall include structures, streets, sidewalks, alleys, and other features relevant to the Trade Contract Work. Utility details shall include available services, lines at the Worksite and adjacent and connection points. The information shall include public and private information, subsurface information, grades, contours, and elevations, drainage data, exact locations and dimensions, and benchmarks that can be used by the Trade Contractor in laying out the Trade Contract Work. The Trade Contractor shall in writing request from the Owner any information identified in Paragraph 4.1.3 that the Trade Contractor believes the Owner has obtained but has not provided to the Trade Contractor.

4.1.3.4 OWNER'S REPRESENTATIVE The Owner's representative is test. The Owner's representative shall have authority to bind the Owner in all matters relating to this Agreement including, without limitation, all matters requiring the Owner's approval, authorization or written notice. If the Owner changes its representative as listed above, the Owner shall notify the Trade Contractor in advance in writing. The Owner's Representative is also authorized to resolve disputes in accordance with Section 12.2 of this Agreement. The Construction Manager, while unauthorized to modify the Agreement or settle a dispute without the Owner's approval, however, does have the requisite authority to act as the Owner's agent throughout the construction of the Project in accordance with the contract between the Owner and the Construction Manager (ConsensusDOCS 801 as modified by the State of Iowa).

4.2 BUILDING PERMIT, FEES AND APPROVALS Except for those permits and fees related to the Trade Contract Work which are the responsibility of the Trade Contractor pursuant to subsection 3.16.1, the Owner shall secure and pay for all other permits, approvals, easements, assessments and fees required for the development, construction, use or occupancy of permanent structures or for permanent changes in existing facilities, including the building permit.

4.3 Deleted

4.4 TRADE CONTRACT DOCUMENTS Unless otherwise specified, Owner shall provide One (1) copies of the Trade Contract Documents to the Trade Contractor without cost. Additional copies will be provided to the Trade Contractor at cost. This paragraph is not intended to be in conflict with Iowa Code Section 26.3 requirement that a sufficient number of copies of the contract documents be made available to bidders without charge (but a deposit not to exceed \$250 per set may be required). If the Trade Contractor was required to make a deposit for a set of Trade Contract Documents for purposes of bidding then the Trade Contractor may elect to have the deposit returned instead of being provided with an additional copy.



4.4.1 DIGITIZED DOCUMENTS If the Owner requires that the Owner, Design Professional, Construction Manager and Trade Contractor exchange documents and data in electronic or digital form, prior to any such exchange, the Owner, Design Professional, Construction Manager and Trade Contractor shall agree on a written protocol governing all exchanges in ConsensusDocs 200.2 or a separate Agreement, which, at a minimum, shall specify: (a) the definition of documents and data to be accepted in electronic or digital form or to be transmitted electronically or digitally; (b) management and coordination responsibilities; (c) necessary equipment, software and services; (d) acceptable formats, transmission methods and verification procedures; (e) methods for maintaining version control; (f) privacy and security requirements; and (g) storage and retrieval requirements. Except as otherwise agreed to by the Parties in writing, the Parties shall each bear their own costs as identified in the protocol. In the absence of a written protocol, use of documents and data in electronic or digital form shall be at the sole risk of the recipient.

4.5 OWNER'S CUTTING AND PATCHING Cutting, patching or altering the Trade Contract Work by the Owner or Others shall be done with the prior written approval of the Trade Contractor, which approval shall not be unreasonably withheld.

4.6 OWNER'S RIGHT TO CLEAN UP In case of a dispute between the Trade Contractor and Others with regard to respective responsibilities for cleaning up at the Worksite, the Owner may implement appropriate cleanup measures after two (2) business Days' notice and allocate the cost among those responsible during the following pay period.

4.7 COST OF CORRECTING DAMAGED OR DESTROYED WORK With regard to damage or loss attributable to the acts or omissions of the Owner or Others and not to the Trade Contractor, the Owner may either (a) promptly remedy the damage or loss or (b) accept the damage or loss. If the Trade Contractor incurs additional costs or is delayed due to such loss or damage, the Trade Contractor shall be entitled to an equitable adjustment in the Trade Contract Price or Trade Contract Time.

## ARTICLE 5 SUBCONTRACTS

5.1 SUBCONTRACTORS The Trade Contract Work not performed by the Trade Contractor with its own forces shall be performed by Subcontractors.

### 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE TRADE CONTRACT WORK

5.2.0 The Trade Contractor must identify all Subcontractors and suppliers within 48 hours of the published date and time for which bids must be submitted, in accordance with Iowa Code Section 8A.311, as amended by House File 646 in 2011. Subcontractors and suppliers may not be changed without the approval of the Owner. Requests for changing a Subcontractor or supplier must identify the reason for the proposed change, the name of the new Subcontractor or supplier, and the change in the subcontractor or supplier price as a result of the change. Any reduction in subcontractor or supplier price as a result of the change, if the change is approved by the Owner, shall be deducted from the Trade Contract Price via a deductive Change Order. Any such changes, if approved by the Owner, which result in an increase in the Trade Contract Price shall be borne by the Trade Contractor.

5.2.1 If the Owner has a reasonable objection to any proposed subcontractor or material supplier, the Owner shall notify the Trade Contractor in writing.

5.2.2 If the Owner has reasonably and promptly objected as provided in subsection 5.2.1, the Trade Contractor shall not contract with the proposed subcontractor or material supplier, and the Trade Contractor shall propose another Subcontractor acceptable to the Owner. To the extent the substitution results in an increase or decrease in the Trade Contract Price or Trade Contract Time, an appropriate



Trade Contract Change Order shall be issued as provided in ARTICLE 8.

5.3 BINDING OF SUBCONTRACTORS The Trade Contractor agrees to bind every Subcontractor (and require every Subcontractor to so bind its subcontractors) to all the provisions of this Agreement and the Trade Contract Documents as they apply to the Subcontractor's portion of the Trade Contract Work.

5.4 Deleted

#### 5.5 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.5.1 If this Agreement is terminated, each subcontract agreement shall be assigned by the Trade Contractor to the Owner, subject to the prior rights of any surety, provided that:

5.5.1.1 this Agreement is terminated by the Owner pursuant to sections 11.3 or 11.4; and

5.5.1.2 the Owner accepts such assignment after termination by notifying the Subcontractor and Trade Contractor in writing, and assumes all rights and obligations of the Contractor pursuant to each subcontract agreement.

5.5.2 If the Owner accepts such an assignment, and the Work has been suspended for more than thirty (30) consecutive Days, following termination, if appropriate, the Subcontractor's compensation shall be equitably adjusted as a result of the suspension.

### ARTICLE 6 TRADE CONTRACT TIME

#### 6.1 PERFORMANCE OF THE TRADE CONTRACT WORK

6.1.1 DATE OF COMMENCEMENT The Date of Commencement is the date of Owner's written notice to proceed unless otherwise set forth below:

6.1.2 TIME Substantial Completion of the Trade Contract Work shall be achieved in xxx (xx) Days from the Date of Commencement. Unless otherwise specified in the Certificate of Substantial Completion, the Trade Contractor shall achieve Final Completion within 30 Days after the date of Substantial Completion, subject to adjustments as provided for in the Trade Contract Documents.

6.1.3 Time limits stated above are of the essence of this Agreement.

6.1.4 Unless instructed by the Owner in writing, the Trade Contractor shall not knowingly commence the Trade Contract Work before the effective date of insurance to be provided by the Trade Contractor and Owner as required by the Trade Contract Documents.

6.2 CONSTRUCTION SCHEDULE Prior to the commencement of the construction of the Trade Contract Work, the Trade Contractor shall submit a copy of its critical path method (CPM) construction schedule showing the completion of the Trade Contract Work within the allowable number of days identified above. The Trade Contractor shall regularly update its CPM construction schedule for the Trade Contract Work and promptly furnish the Construction Manager on an ongoing basis scheduling information requested by the Construction Manager for the Trade Contract Work. In consultation with the Trade Contractor, the Construction Manager shall incorporate the Trade Contract Work and work of other trade contractors into an overall Construction Schedule for the entire Project. The Trade Contractor shall be bound by the Construction. Nothing in this Trade Contractor Agreement shall relieve the Trade Contractor of any liability for any unexcused failure to comply with its original schedule, the Construction Schedule, or any completion dates. The Construction Manager shall have the right to coordinate the Trade Contractors, including the right, if necessary, to change the time, order and priority in which the various portions of the Trade Contract Work and the other work associated with the Project shall be performed.



### 6.3 DELAYS AND EXTENSIONS OF TIME

6.3.1 If the Trade Contractor is delayed at any time in the commencement or progress of the Work by any cause beyond the control of the Trade Contractor, the Trade Contractor shall be entitled to an equitable extension of the Trade Contract Time if the Trade Contractor is able to show that the critical path of the Trade Contract Work was delayed by causes beyond the control of the Trade Contractor. Examples of causes beyond the control of the Trade Contractor include, but are not limited to, the following: acts or omissions of the Owner, the Design Professional, Construction Manager or Others; changes in the Work or the sequencing of the Work ordered by the Owner, or arising from decisions of the Owner that impact the time of performance of the Work; transportation delays not reasonably foreseeable; labor disputes not involving the Trade Contractor; general labor disputes impacting the Project but not specifically related to the Worksite; fire; terrorism, epidemics, adverse governmental actions, unavoidable accidents or circumstances; adverse weather conditions not reasonably anticipated; encountering Hazardous Materials; concealed or unknown conditions; delay authorized by the Owner pending dispute resolution; and suspension by the Owner under section 11.1. The Trade Contractor shall submit any requests for equitable extensions of Contract Time in accordance with the provisions of ARTICLE 8.

6.3.2 In addition, if the Trade Contractor is able to show that it incurred additional costs because the critical path of the Trade Contract Work was delayed by acts or omissions of the Owner, the Design Professional, Construction Manager or Others, changes in the Work or the sequencing of the Work ordered by the Owner, or arising from decisions of the Owner that impact the time of performance of the Work, encountering Hazardous Materials, or concealed or unknown conditions, delay authorized by the Owner pending dispute resolution or suspension by the Owner under section 11.1, then the Trade Contractor shall be entitled to an equitable adjustment in the Trade Contract Price subject to section 6.6.

6.3.3 NOTICE OF DELAYS In the event delays to the Trade Contract Work are encountered for any reason, the Trade Contractor shall provide prompt written notice to the Owner and the Construction Manager of the cause of such delays after Trade Contractor first recognizes the delay. The Owner and Trade Contractor agree to undertake reasonable steps to mitigate the effect of such delays.

6.4 NOTICE OF DELAY CLAIMS If the Trade Contractor believes it is due an equitable extension of Trade Contract Time or an equitable adjustment in Trade Contract Price as a result of a delay described in subsection 6.3.1, the Trade Contractor shall give the Owner and the Construction Manager written notice of the claim in accordance with section 8.4. If the Trade Contractor causes delay in the completion of the Trade Contract Work, the Owner shall be entitled to recover its additional costs subject to subsection 6.6. The Owner shall process any such claim against the Trade Contractor in accordance with ARTICLE 8.

### 6.5 LIQUIDATED DAMAGES

6.5.1 SUBSTANTIAL COMPLETION The Owner and the Trade Contractor agree that this Agreement  shall /  shall not (indicate one) provide for the imposition of liquidated damages based on the Date of Substantial Completion.

6.5.1.1 The Trade Contractor understands that if the Date of Substantial Completion established by this Agreement, as may be amended by subsequent Trade Change Order, is not attained, the Owner will suffer damages which are difficult to determine and accurately specify. The Trade Contractor agrees that if the Date of Substantial Completion is not attained the Trade Contractor shall pay the Owner Zero Dollars and No Cents (\$0.00) as liquidated damages and not as a penalty for each day that Substantial Completion extends beyond the Date of Substantial Completion. The liquidated damages provided herein shall be in lieu of all liability for any and all



extra costs, losses, expenses, claims, penalties and any other damages of whatsoever nature incurred by the Owner which are occasioned by any delay in achieving the Date of Substantial Completion.

6.5.2 FINAL COMPLETION The Owner and the Trade Contractor agree that this Agreement  shall /  shall not (indicate one) provide for the imposition of liquidated damages based on the Date of Final Completion.

6.5.2.1 The Trade Contractor understands that if the Date of Final Completion established by this Agreement, as may be amended by subsequent Trade Change Order is not attained, the Owner will suffer damages which are difficult to determine and accurately specify. The Trade Contractor agrees that if the Date of Final Completion is not attained the Trade Contractor shall pay the Owner Zero Dollars and No Cents (\$0.00) as liquidated damages and not as a penalty for each day that Final Completion extends beyond the Date of Final Completion. The liquidated damages provided herein shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties and any other damages of whatsoever nature incurred by the Owner which are occasioned by any delay in achieving the Date of Final Completion.

6.5.3 OTHER LIQUIDATED DAMAGES The Owner and the Trade Contractor may agree upon the imposition of liquidated damages based on other project milestones or performance requirements. Such agreement shall be included as an exhibit to this Agreement.

6.6 LIMITED MUTUAL WAIVER OF CONSEQUENTIAL DAMAGES Except for damages mutually agreed upon by the Parties as liquidated damages in Section 6.5 and excluding losses covered by insurance required by the Trade Contract Documents, the Owner and the Trade Contractor agree to waive all claims against each other for any consequential damages that may arise out of or relate to this Agreement, except for those specific items of damages excluded from this waiver as mutually agreed upon by the Parties and identified below. The Owner agrees to waive damages including but not limited to the Owner's loss of use of the Project, any rental expenses incurred, loss of income, profit or financing related to the Project, as well as the loss of business, loss of financing, principal office overhead and expenses, loss of profits not related to this Project, loss of reputation, or insolvency. The Trade Contractor agrees to waive damages including but not limited to loss of business, loss of financing, principal office overhead and expenses, loss of profits not related to this Project, loss of bonding capacity, loss of reputation, or insolvency. The provisions of this section shall also apply to the termination of this Agreement and shall survive such termination.

6.6.1 The following items of damages are excluded from this mutual waiver: The provisions of this section shall also apply to the termination of this Agreement and shall survive such termination. The Owner and the Trade Contractor shall require similar waivers in contracts with Subcontractors and Others retained for the Project.

## ARTICLE 7 TRADE CONTRACT PRICE

7.1 LUMP SUM As full compensation for performance by the Trade Contractor of the Work in conformance with the Contract Documents, the Owner shall pay the Trade Contractor the lump sum price of: XX dollars and XX cents (\$XX.XX) . The lump sum price is hereinafter referred to as the Trade Contract Price, which shall be subject to increase or decrease as provided in article 8.

Lump Sum Price includes Base Bid of \$X.XX and Alternate #XX for {alternate description} for \$X.XX for a total Lump Sum Price of \$X.XX.

### 7.2 ALLOWANCES

7.2.1 All allowances stated in the Trade Contract Documents shall be included in the Trade Contract Price. The Owner shall select allowance items in a timely manner so as not to delay the Trade Contract



Work.

7.2.2 Allowances shall include the costs of materials, supplies and equipment delivered to the Worksite, less applicable trade discounts and including requisite taxes, unloading and handling at the Worksite, and labor and installation, unless specifically stated otherwise. The Trade Contractor's Overhead and profit for the allowances shall be included in the Trade Contract Price, but not in the allowances. The Trade Contract Price shall be adjusted by Trade Contract Change Order to reflect the actual costs when they are greater than or less than the allowances.

## ARTICLE 8 CHANGES

Changes in the Trade Contract Work that are within the general scope of this Agreement shall be accomplished, without invalidating this Agreement, by Trade Contract Change Order, and Trade Contract Interim Directed Change.

### 8.1 TRADE CHANGE ORDER

8.1.1 The Owner may order or the Trade Contractor may request changes in the Trade Contract Work or the timing or sequencing of the Trade Contract Work that impacts the Trade Contract Price or the Trade Contract Time. All such changes in the Trade Contract Work that affect Trade Contract Time or Trade Contract Price shall in the form of a Trade Contract Change Order. Any such requests for a change in the Trade Contract Price or the Trade Contract Time shall be processed in accordance with this article 8. Trade Contract Change Orders shall be executed on the ConsensusDOCS 813 - Trade Contract Change Order (CM as Owner's Agent) with attachments as necessary.

8.1.2 The Owner, with the assistance of the Construction Manager, and the Trade Contractor shall negotiate in good faith an appropriate adjustment to the Trade Contract Price or the Trade Contract Time and shall conclude these negotiations as expeditiously as possible. Acceptance of the Trade Contract Change Order and any adjustment in the Trade Contract Price or Trade Contract Time shall not be unreasonably withheld.

### 8.2 TRADE CONTRACT INTERIM DIRECTED CHANGE

8.2.1 The Construction Manager may issue a written Trade Contract Interim Directed Change signed by the Owner directing a change in the Trade Contract Work prior to reaching agreement with the Trade Contractor on the adjustment, if any, in the Trade Contract Price or the Trade Contract Time.

8.2.2 The Owner, with the assistance of the Construction Manager, and the Trade Contractor shall negotiate expeditiously and in good faith for appropriate adjustments, as applicable, to the Trade Contract Price or the Trade Contract Time arising out of a Trade Contract Interim Directed Change. As the Trade Contract Changed Work is performed, the Trade Contractor shall submit its costs for such work with its application for payment beginning with the next application for payment within thirty (30) Days of the issuance of the Trade Contract Interim Directed Change. If there is a dispute as to the cost to the Owner, the Trade Contractor shall continue to perform the Trade Contract Changed Work set forth in the Trade Contract Interim Directed Change and the Owner shall pay the requirements Trade Contractor the Cost of the Work, defined in 8.3.1.3 below upon receipt of an application for payment and the Owner's (and the Architect's and construction manger's) determination that the work has been completed. The Parties reserve their rights as to the disputed amount, subject to the requirements ARTICLE 12.

8.2.3 When the Owner and the Trade Contractor agree upon the adjustment in the Trade Contract Price or the Trade Contract Time, for a change in the Trade Contract Work directed by a Trade Contract Interim Directed Change, such agreement shall be the subject of a Trade Contract Change Order. The



Trade Contract Change Order shall include all outstanding Trade Contract Interim Directed Changes on which the Owner and Trade Contractor have reached agreement on Contract Price or Contract Time issued since the last Trade Contract Change Order.

### 8.3 DETERMINATION OF COST

8.3.1 An increase or decrease in the Trade Contract Price or the Trade Contract Time resulting from a change in the Trade Contract Work shall be determined by one or more of the following methods:

8.3.1.1 unit prices set forth in this Agreement or as subsequently agreed;

8.3.1.2 a mutually accepted, itemized lump sum;

8.3.1.3 **COST OF THE WORK** Cost of the Work as defined by this subsection plus 10.0 % for Overhead and 5.0 % for profit. "Cost of the Work" shall include the following costs reasonably incurred to perform a change in the Work

8.3.1.3.1 wages paid for labor in the direct employ of the Constructor in the performance of the Work;

8.3.1.3.2 salaries of the Trade Contractor's employees when stationed at the field office to the extent necessary to complete the applicable Work, employees engaged on the road expediting the production or transportation of material and equipment, and supervisory employees from the principal or branch office performing the functions listed below;

8.3.1.3.3 cost of applicable employee benefits and taxes, including but not limited to, workers' compensation, unemployment compensation, social security, health, welfare, retirement and other fringe benefits as required by law, labor agreements, or paid under the Trade Contractor's standard personnel policy, insofar as such costs are paid to employees of the Trade Contractor who are included in the Cost of the Work in subsections .1 and .2 immediately above;

8.3.1.3.4 reasonable transportation, travel, and hotel expenses of the Trade Contractor's personnel incurred in connection with the Work;

8.3.1.3.5 cost of all materials, supplies, and equipment incorporated in the Work, including costs of inspection and testing if not provided by the Owner, transportation, storage, and handling;

8.3.1.3.6 payments made by the Trade Contractor to Subcontractors for Work performed under this Agreement;

8.3.1.3.7 cost, including transportation and maintenance of all materials, supplies, equipment, temporary facilities, and hand tools not owned by the workers that are used or consumed in the performance of the Work, less salvage value or residual value; and cost less salvage value of such items used, but not consumed that remain the property of the Trade Contractor;

8.3.1.3.8 rental charges of all necessary machinery and equipment, exclusive of hand tools owned by workers, used at the Worksite, whether rented from the Trade Contractor or Others, including installation, repair and replacement, dismantling, removal, maintenance, transportation, and delivery costs. Rental from unrelated third parties shall be reimbursed at actual cost. Rentals from the Trade Contractor or its affiliates, subsidiaries, or related parties shall be reimbursed at the prevailing rates in the locality of the Worksite up to eighty-five percent (85%) of the value of the piece of equipment;

8.3.1.3.9 cost of the premiums for all insurance and surety bonds which the Trade Contractor is



required to procure or deems necessary, and approved by the Owner including any additional premium incurred as a result of any increase in the cost of the Work;

8.3.1.3.10 sales, use, gross receipts or other taxes, tariffs, or duties related to the Work for which the Trade Contractor is liable;

8.3.1.3.11 permits, fees, licenses, tests, and royalties;

8.3.1.3.12 reproduction costs, photographs, facsimile transmissions, long-distance telephone calls, data processing costs and services, postage, express delivery charges, data transmission, telephone service, and computer-related costs at the Worksite to the extent such items are used and consumed in the performance of the Work or are not capable of use after completion of the Work;

8.3.1.3.13 all water, power, and fuel costs necessary for the Work;

8.3.1.3.14 cost of removal of all nonhazardous substances, debris, and waste materials;

8.3.1.3.15 all costs directly incurred to perform a change in the Work which are reasonably inferable from the Contract Documents for the Changed Work;

8.3.1.3.16 DISCOUNTS All discounts for prompt payment shall accrue to the Owner to the extent such payments are made directly by the Owner. To the extent payments are made with funds of the Constructor, all cash discounts shall accrue to the Constructor. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment, shall be credited to the Cost of the Work;

8.3.1.3.17 COST REPORTING The Trade Contractor shall maintain in conformance with generally accepted accounting principles a complete and current set of records that are prepared or used by the Trade Contractor to calculate the Cost of Work. The Owner and Construction Manager shall be afforded access to the Trade Contractor's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda and similar data relating to requested payment for Cost of the Work. The Trade Contractor shall preserve all such records for a period of three years after the final payment or longer where required by law;

8.3.1.3.18 COST AND SCHEDULE ESTIMATES The Trade Contractor shall use reasonable skill and judgment in the preparation of a cost estimate or schedule for a change to the Work, but does not warrant or guarantee their accuracy

8.3.1.4 If an increase or decrease cannot be agreed to as set forth in Clauses .1 through .3 above, and the Owner or the Construction Manager issues a Trade Contract Interim Directed Change, the cost of the change in the Trade Contract Work shall be determined by the reasonable actual expense and savings of the performance of the Work resulting from the change. If there is a net increase in the Trade Contract Price, the Trade Contractor's Fee shall be adjusted accordingly. In case of a net decrease in the Trade Contract Price, the Trade Contractor's Fee shall not be adjusted unless ten percent (10%) or more of the Project is deleted. The Trade Contractor shall maintain a documented, itemized accounting evidencing the expenses and savings.

8.3.2 If unit prices are set forth in the Trade Contract Documents or are subsequently agreed to by the Parties, but the character or quantity of such unit items as originally contemplated is so different in a proposed Trade Change Order that the original unit prices will cause substantial inequity to the Owner or the Trade Contractor, such unit prices shall be equitably adjusted.

8.4 CLAIMS FOR ADDITIONAL COST OR TIME Except as provided in subsection 6.3.2 and section 6.4 for



any claim for an increase in the Trade Contract Price or the Trade Contract Time, the Trade Contractor shall give the Owner and the Construction Manager written notice of the claim within fourteen (14) Days after the occurrence giving rise to the claim or within fourteen (14) Days after the Trade Contractor first recognizes (or should have recognized) the condition giving rise to the claim, whichever is later. Except in an emergency, notice shall be given before proceeding with the Trade Contract Work. Thereafter, the Trade Contractor shall submit written documentation of its claim, including appropriate supporting documentation, within twenty-one (21) Days after giving notice, unless the Parties mutually agree upon a period of time. The Owner or Construction Manager shall respond in writing denying or approving the Trade Contractor's claim no later than fourteen (14) Days after receipt of the Trade Contractor's claim. Any change in the Trade Contract Price or the Trade Contract Time resulting from such claim shall be authorized by Trade Contract Change Order.

## ARTICLE 9 PAYMENT

9.1 GENERAL PROVISIONS Within fourteen (14) calendar Days from the date of execution of this Agreement, the Trade Contractor shall prepare and submit to the Construction Manager for approval a Schedule of Values apportioned to the various divisions or phases of the Trade Contract Work. Each line item contained in the Schedule of Values shall be assigned a monetary price such that the total of all such items shall equal the Trade Contract Price. The Schedule of Values shall be prepared in such detail and be supported by such documents and proof as may be required by the Construction Manager.

### 9.2 PROGRESS PAYMENTS

9.2.1 APPLICATIONS The Trade Contractor shall submit to the Construction Manager monthly notarized applications for payment. Trade Contractor's applications for payment shall be itemized and supported by the Trade Contractor's Schedule of Values and any other substantiating data as required by this Trade Contractor Agreement or requested by the Construction Manager or Design Professional. Payment applications may include payment requests on account of properly authorized Trade Contract Change Orders and Interim Directed Changes. The progress payment application shall include Trade Contract Work performed through the preceding calendar month. The Construction Manager will review the application and recommend to the Design professional and the Owner amounts payable by the Owner to the Trade Contractor. The Owner, in accordance with the determination of the Design Professional, shall pay the amount otherwise due on any payment application, less any amounts as set forth below, no later than thirty (30) calendar Days after the payment application, or portion thereof, is approved the Design Professional. The Owner may deduct, from any progress payment, such amounts as may be retained pursuant to subsection 9.2.4 below.

9.2.2 STORED MATERIALS AND EQUIPMENT Unless otherwise provided in the contract documents, applications for payment may include materials and equipment not yet incorporated into the Work but delivered to and suitably stored onsite or offsite including applicable insurance, storage and costs incurred transporting the materials to an offsite storage facility. Approval of payment applications for stored materials and equipment stored offsite shall be conditioned on submission by the Trade Contractor of bills of sale and proof of required insurance, or such other procedures satisfactory to the Owner to establish the proper valuation of the stored materials and equipment, the Owner's title to such materials and equipment, and to otherwise protect the Owner's interests therein, including transportation to the site.

### 9.2.3 CLAIM WAIVERS

9.2.3.1 PARTIAL CLAIMWAIVERS AND AFFIDAVITS As a prerequisite for payment, the Trade Contractor shall provide, in a form satisfactory to the Owner and the Construction Manager, partial claim waivers in the amount of the application for payment and affidavits from the Trade Contractor, and its Subcontractors, Material Suppliers for the completed Trade Contract Work.



Such waivers shall be effective upon payment. In no event shall the Trade Contractor be required to sign an unconditional waiver of claim, either partial or final, prior to receiving payment or in an amount in excess of what it has been paid.

9.2.4 **RETAINAGE** From each progress payment made to the Trade Contractor has the Owner shall retain FIVE (5) percent of the amount otherwise due after deduction of any amounts as provided in section 9.3 and in no event shall such percentage exceed any applicable statutory requirements of this Agreement. Retainage shall be withheld and administered in accordance with Iowa Code Chapter 572:

9.3 **ADJUSTMENT OF TRADE CONTRACTOR'S PAYMENT APPLICATION** The Owner or the Construction Manager, upon notification of the Design Professional, may reject or adjust a Trade Contractor payment application or nullify a previously approved Trade Contractor payment application, in whole or in part, as may reasonably be necessary to protect the Owner from loss or damage based upon the following, to the extent that the Trade Contractor is responsible therefor under this Trade Contractor Agreement:

9.3.1 the Trade Contractor's repeated failure to perform the Trade Contract Work as required by the Trade Contractor Agreement;

9.3.2 loss or damage arising out of or relating to the Trade Contractor Agreement and caused by the Trade Contractor to the Owner, or to the Construction Manager or others to whom the Owner may be liable;

9.3.3 the Trade Contractor's failure to properly pay for labor, materials, equipment or supplies furnished in connection with the Trade Contract Work;

9.3.4 nonconforming or defective Trade Contract Work which has not been corrected in a timely fashion;

9.3.5 reasonable evidence of delay in performance of the Trade Contract Work such that the work will not be completed within the Trade Contract Time, and that the unpaid balance of the Trade Contract Price is not sufficient to offset any liquidated damages or actual damages that may be sustained by the Owner as a result of the anticipated delay caused by the Trade Contractor;

9.3.6 reasonable evidence demonstrating that the unpaid balance of the Trade Contract Price is insufficient to cover the cost to complete the Trade Contract Work; and

9.3.7 third-party claims involving the Trade Contractor or reasonable evidence demonstrating that third-party claims are likely to be filed unless and until the Trade Contractor furnishes the Owner with adequate security in the form of a surety bond, letter of credit or other collateral or commitment which are sufficient to discharge such claims if established. No later than thirty (30) Days after receipt of an application for payment, the Owner or Construction Manager shall give written notice to the Trade Contractor, disapproving or nullifying it or a portion thereof, specifying the reasons for the disapproval or nullification. When the above reasons for disapproving or nullifying an application for payment are removed, payment will be made for amounts previously withheld.

9.4 **PAYMENT NOT ACCEPTANCE** Payment to the Trade Contractor does not constitute or imply acceptance of any portion of the Trade Contract Work.

9.5 **PAYMENT DELAY** If for any reason not the fault of the Trade Contractor, the Trade Contractor does not receive a progress payment from the Owner sixty (60) calendar Days after the time such payment is due, as defined in Subparagraph 9.2.1, then the Trade Contractor, upon giving within seven (7) calendar Days after written notice to the Owner, and without prejudice to and in addition to any other legal remedies, may stop its Trade Contract Work until payment of the full amount owing to the Trade Contractor has been received. The



Trade Contract Price and Trade Contract Time shall be equitably adjusted by a Trade Contract Change Order to reflect reasonable cost and delay resulting from shutdown, delay and start-up.

## 9.6 SUBSTANTIAL COMPLETION

9.6.1 The Trade Contractor shall notify the Owner, the Construction Manager and the Design Professional when it considers Substantial Completion of the Trade Contract Work or a designated portion to have been achieved. The Construction Manager and the Design Professional shall promptly conduct an inspection to determine whether the Trade Contract Work or designated portion can be occupied or utilized for its intended use by the Owner without excessive interference in completing any remaining unfinished Trade Contract Work by the Trade Contractor. If the Construction Manager and the Design Professional determine that the Trade Contract Work or designated portion has not reached Substantial Completion, the Design Professional, and the Construction Manager, shall promptly compile a list of items to be completed or corrected so the Owner may occupy or utilize the Trade Contract Work or designated portion for its intended use. The Trade Contractor shall promptly complete all items on the list.

9.6.2 When Substantial Completion of the Trade Contract Work or a designated portion is achieved, the Construction Manager and the Design Professional shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, and the respective responsibilities of the Owner and Trade Contractor for interim items such as security, maintenance, utilities, insurance and damage to the Trade Contract Work. The Owner shall assume all responsibilities for items such as security, maintenance, utilities, and insurance, and damage to the Work. The certificate shall also list the items to be completed or corrected, and establish the time for their completion or correction. The Certificate of Substantial Completion shall be submitted to the Trade Contractor for written acceptance of responsibilities assigned in the Certificate.

9.6.3 Unless otherwise provided in the Certificate of Substantial Completion, warranties required by the Trade Contract Documents shall commence on the date of Substantial Completion of the Trade Contract Work or a designated portion.

9.6.4 Uncompleted items shall be completed by the Trade Contractor by the Final Completion date set forth in the Agreement and/or Construction Schedule. The Trade Contractor may request early release of retainage in accordance with Iowa Code Section 26.13. Payment for completed work and retainage shall be made in accordance with Iowa Code Chapters 26 and 573.

9.7 PARTIAL OCCUPANCY OR USE The Owner may occupy or use completed or partially completed portions of the Trade Contract Work when (a) the portion of the Trade Contract Work is designated in a Certificate of Substantial Completion, (b) appropriate insurer(s) consent to the occupancy or use, and (c) appropriate public authorities authorize the occupancy or use. Such partial occupancy or use shall constitute Substantial Completion of that portion of the Trade Contract Work.

## 9.8 FINAL PAYMENT

9.8.1 APPLICATION Upon acceptance of the Trade Contract Work by the Construction Manager, and approval by the Design Professional, and upon the Trade Contractor furnishing evidence of fulfillment of the Trade Contractor's obligations in accordance with the Trade Contract Documents, the Trade Contractor shall submit its application for final payment. The Construction Manager will review the Trade Contractor's final payment application and recommend to the Design Professional and the Owner an amount payable by the Owner to the Trade Contractor. The Design Professional shall then recommend an amount to be paid by the Owner. Final payment shall be made in accordance with Iowa Code Chapters 26 and 573.



9.8.2 REQUIREMENTS Along with its application for final payment, the Trade Contractor shall furnish to the Construction Manager:

9.8.2.1 an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Trade Contract Work for which the Owner or its property or the Construction Manager or the Owner's surety might in any way be liable, have been paid or otherwise satisfied;

9.8.2.2 consent of the Trade Contractor's surety to final payment;

9.8.2.3 satisfaction of closeout procedures as may be required by the Trade Contractor Agreement;

9.8.2.4 certification (or other writing indicating) that insurance required by the Trade Contractor Agreement is and will remain effect beyond final payment pursuant to this Trade Contractor Agreement and

9.8.2.5 other data if required by the Owner or Construction Manager, such as receipts, releases, and waivers of liens effective upon payment to the extent and in such form as may be designated by the Owner or Construction Manager. Acceptance of final payment by the Trade Contractor shall constitute a waiver of all claims by the Trade Contractor except those previously made in writing and identified by the Trade Contractor as unsettled at the time of final application for payment.

9.8.3 TIME OF PAYMENT Final payment of the balance of the Trade Contract Price, less any amount retained pursuant to subsection 9.2.4 of this Agreement, and as required by Iowa Code Chapters 26 and 573, which among other things requires that twice the amount of an Iowa Code Chapter 573 subcontractor claim be withheld from final payment, shall be made to the Trade contractor within sixty (60) Days after the Trade Contractor has submitted a complete and accurate application for final payment.

9.8.4 LATE PAYMENT INTEREST Progress payments or final payment due and unpaid under this Trade Contractor Agreement shall bear interest from the date payment is due at the statutory rate prevailing at the place of the Project.

9.9 PAYMENT USE AND VERIFICATION The Trade Contractor is required to pay for all labor, materials and equipment used in the performance of the Trade Contract Work through the most current period applicable to progress payments received. Reasonable evidence, satisfactory to the Construction Manager, may be required to show that all obligations relating to the Trade Contract Work are current before releasing any payment due on the Trade Contract Work. If required by the Construction Manager, before final payment is made for the Trade Contract Work, the Trade Contractor shall submit evidence satisfactory to the Construction Manager that all payrolls, bills for materials and equipment, and all known indebtedness connected with the Trade Contract Work, have been paid or otherwise satisfied as set forth in subsection 9.8.2.

## ARTICLE 10 INDEMNITY, INSURANCE, WAIVERS AND BONDS

### 10.1 INDEMNITY

10.1A To the extent portions of this Article are in conflict with SF 396 (codified at Iowa Code Section 573A.5) said portions are void and unenforceable.

10.1.1 TRADE CONTRACTOR'S INDEMNITY To the fullest extent permitted by law, the Trade Contractor shall indemnify and hold harmless the Owner, the Owner's officers, directors, members,



consultants, agents and employees, from all claims for bodily injury and property damage, other than to the Work itself and other property insured under subsection 10.3.1, including reasonable attorneys' fees, costs and expenses, that may arise from the performance of the Work, but only to the extent caused by the negligent acts or omissions of the Trade Contractor, Subcontractors or anyone employed directly or indirectly by any of them or by anyone for whose acts any of them may be liable. The Trade Contractor shall be entitled to reimbursement of any defense costs paid above the Trade Contractor's percentage of liability for the underlying claim to the extent provided for under subsection 10.1.2.

10.1.2 OWNER'S INDEMNITY To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Trade Contractor, its officers, directors, members, consultants, agents, and employees, from all claims for bodily injury and property damage, other than property insured under subsection 10.3.1, including reasonable attorneys' fees, costs and expenses, that may arise from the performance of work by Owner, Design Professional or Others, but only to the extent caused by the negligent acts or omissions of the Owner, Design Professional or Others. The Owner shall be entitled to reimbursement of any defense costs paid above Owner's percentage of liability for the underlying claim to the extent provided for under subsection 10.1.1.

10.1.3 CONSTRUCTION MANAGER AND DESIGN PROFESSIONAL INDEMNITY The Owner shall cause the Construction Manager and the Design Professional to agree to indemnify and hold harmless the Owner from all claims for bodily injury and property damage, other than to the Work itself and other property insured under section 10.3, that may arise from the Construction Manager's or the Design Professional's services, but only to the extent that such claims result from the negligent acts or omissions of the Construction Manager or the Design Professional, respectively, or anyone for whose acts or omissions the Construction Manager or Design Professional, respectively, is liable. Such provisions shall be in a form no less protective of the Parties than the Construction Manager's Indemnity provided in ConsensusDocs 801 (2011) or the Design Professional's indemnity provided in ConsensusDocs 803 (2011) respectively, and shall be reasonably satisfactory to the Owner and the Trade Contractor.

10.1.4 ADJACENT PROPERTY INDEMNIFICATION To the extent of the limits of Trade Contractor's Commercial General Liability Insurance specified in subsection 10.2.1 or Zero Dollars and No Cents (\$0.00) whichever is more, the Trade Contractor shall indemnify and hold harmless the Owner against any and all liability, claims, demands, damages, losses and expenses, including attorney's fees, in connection with or arising out of any damage or alleged damage to any of Owner's existing adjacent property that may arise from the performance of the Trade Contract Work, but only to the extent of the negligent acts or omissions of the Trade Contractor, Subcontractor or anyone employed directly or indirectly by any of them or by anyone for whose acts any of them may be liable.

10.1.5 NO LIMITATION ON LIABILITY In any and all claims against the Indemnitees by any employee of the Trade Contractor, anyone directly or indirectly employed by the Trade Contractor or anyone for whose acts the Trade Contractor may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Trade Contractor under Workers' Compensation acts, disability benefit acts or other employment benefit acts.

## 10.2 TRADE CONTRACTOR'S INSURANCE

10.2.1 Prior to the start of the Work, the Trade Contractor shall procure and maintain in force Workers Compensation/Employers' Liability Insurance, Business Automobile Liability Insurance, and Commercial General Liability Insurance (CGL). The CGL policy shall include coverage for liability arising from premises, operations, independent contractors, products-completed operations, personal injury and



advertising injury, contractual liability, and broad form property damage. The Trade Contractor's liability policies, as required in this Subparagraph 10.2.1, shall be written on an occurrence basis with at least the following limits of liability:

10.2.1.1 Workers' Compensation- amount required by the laws of Iowa

10.2.1.2 Employers' Liability Insurance - \$500,000 or an amount required by Iowa law, whichever is greater.

10.2.1.3 Business Automobile Liability Insurance

a. \$1,000,000 Each Accident

10.2.1.4 Commercial General Liability Insurance

a. \$1,000,000 Each Occurrence b. \$2,000,000 General Aggregate c. \$1,000,000 Products/Completed Operations Aggregate d. \$1,000,000 Personal and Advertising Injury Limit

10.2.2 The Trade Contractor Must also carry and maintain Excess or Umbrella Liability coverage for the policies in subsection 10.2.1 in the amounts as listed below:

Trade Contractor Contract Amount: <\$1,000,000 - \$2 Million Umbrella or more \$1,000,000 - \$5,000,000 - \$5 Million Umbrella or more >\$5,000,000 - \$10 Million Umbrella or more

10.2.3 The Trade Contractor shall maintain in effect all insurance coverage required under subsection 10.2.1 with insurance companies lawfully authorized to do business in Iowa. Such insurance companies shall have a minimum A.M. Best Rating of A-VI (Consult instructions and insurance advisor). If the Trade Contractor fails to obtain or maintain any insurance coverage required under this Agreement, the Owner may purchase such coverage and charge the expense to the Trade Contractor, or terminate this Agreement.

10.2.4 To the extent commercially available, the policies of insurance required under Subparagraph 10.2.1 shall contain a provision that the insurance company or its designee must give the Owner written notice transmitted in paper or electronic format: (a) 30 days before coverage is nonrenewed by the insurance company and (b) with 10 business days after cancellation of coverage by the insurance company. The Trade Contractor shall maintain completed operations liability insurance for one year after acceptance of the Contract Documents, whichever is longer. Prior to commencement of services, the Trade Contractor shall furnish the Owner with certificates evidencing the required coverages. In addition, if any insurance policy required under subsection 10.2.1 is not to be immediately replaced without a lapse in coverage when it expires, exhausts its limits, or is to be, cancelled, the Trade Contractor shall give Owner prompt written notice upon actual or constructive knowledge of such condition.

#### 10.2.5 ADDITIONAL LIABILITY COVERAGE

10.2.5.1 The Owner  shall /  shall not (indicate one) require the Trade Contractor to purchase and maintain liability coverage, primary to the Owner's coverage under subsection 10.3.1.

10.2.5.2 If required by subsection 10.2.5.1, the additional liability coverage required of the Trade Contractor shall be:

1. Additional Insured Owner shall be named as an additional insured on Trade Contractor's Commercial General Liability Insurance specified for operations and completed operations,



but only with respect to liability for bodily injury, property damage or personal and advertising injury to the extent caused by the negligent acts or omissions of Trade Contractor, or those acting on Trade Contractor's behalf, in the performance of Trade Contractor's Work for.

2. OCP Trade Contractor shall provide an Owners' and Contractors' Protective Liability Insurance ("OCP") policy with limits equal to the limits on Commercial General Liability Insurance specified or limits as otherwise required by Owner.

Any documented additional cost in the form of a surcharge associated with procuring the additional liability coverage in accordance with this subsection shall be paid by the Owner directly or the costs may be reimbursed by the Owner to the Trade Contractor by increasing the Trade Contract Price to correspond to the actual cost required to purchase and maintain the additional liability coverage. Prior to commencement of the Work, the Trade Contractor shall obtain and furnish to the Owner a certificate evidencing that the additional liability coverages have been procured.

10.2.6 PROFESSIONAL LIABILITY INSURANCE To the extent the Trade Contractor is required to procure design services under this Agreement, in accordance with section 3.14, the Trade Contractor shall require the designers to obtain professional liability insurance for claims arising from the negligent performance of professional services under this Agreement, with a company reasonably satisfactory to the Owner, including coverage for all professional liability caused by any of the Designer's(s') consultants, written for not less than \$1,000,000 per claim and in the aggregate with the deductible not to exceed \$2,000,000. The deductible shall be paid by the Designer.

### 10.3 OWNER'S INSURANCE

10.3.1 Deleted.

10.3.2 Deleted.

### 10.4 PROPERTY INSURANCE

10.4.1 Before the start of Trade Contract Work, the Owner shall obtain and maintain Builder's Risk Policy insurance with minimum coverage limits equal to the full cost of replacement of the Project at the time of loss. This insurance shall also name the Trade Contractor, Subcontractors, Material Suppliers, Construction Manager and Design Professional as insureds. This insurance shall be written as a Builder's Risk Policy or equivalent form to cover all risks of physical loss except those specifically excluded by the policy, and shall insure at least against the perils of fire, lightning, explosion, windstorm, hail, smoke, aircraft and vehicles, riot and civil commotion, theft, vandalism, malicious mischief, debris removal, flood (subject to sublimits), earthquake (subject to sublimits), earth movement, water damage, wind damage, testing if applicable, collapse however caused, and shall include coverage for, material, or equipment stored offsite, onsite or in transit. This policy shall provide for a waiver of subrogation in favor of the Trade Contractor, Subcontractors, Material Suppliers, Construction Manager and Design Professional. This insurance shall remain in effect until the Substantial Completion of the Work, final payment has been made or until no person or entity other than the Owner has an insurable interest in the property to be covered by this insurance, whichever is sooner. Partial occupancy or use of the Work shall not commence until the Owner has secured the consent of the insurance company or companies providing the coverage required in this Subparagraph 10.4.1.

10.4.2 If the Owner does not intend to purchase the property insurance required by this Agreement, including all of the coverages and deductibles described herein, the Owner shall give written notice to the Trade Contractor, the Design Professional and the Construction Manager before the Trade Contract



Work is commenced. The Trade Contractor may then provide insurance to protect its interests and the interests of the Subcontractors, including the coverage of deductibles. The cost of this insurance shall be charged to the Owner in a Change Order. The Owner shall be responsible for all of Trade Contractor's costs reasonably attributed to the Owner's failure or neglect in purchasing or maintaining the coverage described above.

10.4.2.1 The Owner will not obtain insurance to cover the risk of physical loss resulting from Terrorism. The Construction Manager is not required to purchase this type of insurance but may purchase this type of insurance if it chooses. If purchased, the cost of this insurance shall be borne by the Construction manager.

10.4.3 POLICIES The Owner shall provide the Trade Contractor with a copy of all policies including all endorsements upon request.

## 10.5 PROPERTY INSURANCE LOSS ADJUSTMENT

10.5.1 LOSS ADJUSTMENT Any insured loss shall be adjusted with the Owner and the Trade Contractor and made payable to the Owner as trustee for the insureds, as their interests may appear.

10.5.2 DISTRIBUTION OF PROCEEDS Following the occurrence of an insured loss, monies received will be deposited in a separate account and the trustee shall make distribution in accordance with the agreement of the Parties in interest.

## 10.6 WAIVERS

10.6.1 PROPERTY DAMAGE The Owner and Trade Contractor waive all claims and other rights they may have against each other for loss of or damage to (a) the Project, (b) all materials, machinery, equipment and other items used in accomplishing the Trade Contract Work or services or to be incorporated into the Project, while the same are in transit, at the Project Site, during erection and otherwise, and (c) all property owned by or in the custody of Owner and its affiliates, however such loss or damage shall occur, to the extent such damage is covered by property insurance. The proceeds of such insurance shall be held by the Owner as trustee.

10.6.2 WAIVER OF SUBROGATION The Owner shall have its insurers waive all rights of subrogation they may have against the Construction Manager, Design Professional, Trade Contractors, and their Subcontractors and Material Suppliers on all policies carried by the Owner on the Project and adjacent properties, including, after final payment, those policies to be provided on the completed Project not intended to insure the Project during construction.

10.6.3 ENDORSEMENT If the policies of insurance referred to in this section require an endorsement to provide for continued coverage where there is a waiver of subrogation, the Owner will cause them to be so endorsed.

10.7 RISK OF LOSS Except to the extent a loss is covered by property insurance, carried by the owner, risk of loss or damage to the Work shall be upon the Trade Contractor until the Date of Final Completion, unless otherwise agreed to by the Parties.

## 10.8 BONDS Performance and Payment Bonds

are

are not

required of the Trade Contractor that meet the requirements of Iowa Code Chapter 573. A deposit in lieu of a



bond may be acceptable if it meets the requirements of Iowa Code Section 573.4. Such bonds shall be issued by a surety admitted in the State in which the Project is located and must be acceptable to the Owner. The Owner's acceptance shall not be withheld without reasonable cause. The penal sum of the Payment Bond and of the Performance Bond shall each be one hundred percent (100%) of the original Contract Price. Any increase in the Contract Price that exceeds ten percent (10%) in the aggregate shall require a rider to the Bonds increasing penal sums accordingly. Up to such ten percent (10%) amount, the penal sum of the Bond shall remain equal to one hundred percent (100%) of the Contract Price. The Trade Contractor shall endeavor to keep its surety advised of changes potentially impacting the Contract Time and Contract Price, though the Trade Contractor shall require that its surety waives any requirement to be notified of any alteration or extension of time. The Trade Contractor's Payment Bond for the Project, if any, shall be made available by the Owner for review and copying by the Subcontractor. Iowa Code Chapter 573 shall control and take precedence over any conflicting term or condition in this Agreement

## ARTICLE 11 SUSPENSION, NOTICE TO CURE AND TERMINATION OF AGREEMENT

### 11.1 SUSPENSION BY OWNER FOR CONVENIENCE

11.1.1 OWNER SUSPENSION Should the Owner order the Trade Contractor in writing to suspend, delay, or interrupt the performance of the Trade Contract Work for such period of time as may be determined to be appropriate for the convenience of the Owner and not due to any act or omission of the Trade Contractor or any person or entity for whose acts or omissions the Trade Contractor may be liable, then the Trade Contractor shall immediately suspend, delay or interrupt that portion of the Trade Contract Work as ordered by the Owner. The Trade Contract Price and the Trade Contract Time shall be equitably adjusted by Trade Contract Change Order for the cost and delay resulting from any such suspension.

11.1.2 Any action taken by the Owner that is permitted by any other provision of the Trade Contract Documents and that results in a suspension of part or all of the Trade Contract Work does not constitute a suspension of Trade Contract Work under this section.

11.2 NOTICE TO CURE A DEFAULT If the Trade Contractor persistently refuses or fails to supply enough properly skilled workers, proper materials, or equipment to maintain the approved Construction Schedule in accordance with ARTICLE 6, or fails to make prompt payment to its workers, Subcontractors or Material Suppliers; disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction; or is otherwise guilty of a material breach of a provision of this Agreement, the Trade Contractor may be deemed in default. If the Trade Contractor fails within seven (7) business Days after receipt of written notification to commence and continue satisfactory correction of such default with diligence and promptness, then the Owner shall give the Trade Contractor a second notice to correct the default within a three (3) Day period. If the Trade Contractor fails to promptly commence and continue satisfactory correction of the default following receipt of such second notice, the Owner without prejudice to any other rights or remedies may:

11.2.1 supply workers and materials, equipment and other facilities as the Owner or Construction Manager deems necessary for the satisfactory correction of the default, and charge the cost to the Trade Contractor, who shall be liable for the payment of same including reasonable Overhead, profit and attorneys' fees;

11.2.2 contract with Others to perform such part of the Trade Contract Work as the Owner or Construction Manager determines shall provide the most expeditious correction of the default, and charge the cost to the Trade Contractor;

11.2.3 withhold payment due the Trade Contractor in accordance with section 9.3; and

11.2.4 in the event of an emergency affecting the safety of persons or property, immediately commence



and continue satisfactory correction of such default as provided in subsections 11.2.1 and 11.2.2 without first giving written notice to the Trade Contractor, but shall give prompt written notice of such action to the Trade Contractor following commencement of the action.

### 11.3 OWNER'S RIGHT TO TERMINATE FOR DEFAULT

11.3.1 TERMINATION BY OWNER FOR DEFAULT If, within seven (7) Days of receipt of a notice to cure pursuant to section 11.2, the Trade Contractor fails to commence and satisfactorily continue correction of the default set forth in the notice to cure, the Owner may notify the Trade Contractor that it intends to terminate this Agreement for default absent appropriate corrective action within fourteen additional Days. After the expiration of the additional fourteen (14) Day period, the Owner may terminate this Agreement by written notice absent appropriate corrective action. Termination for default is in addition to any other remedies available to Owner under section 11.2. If the Owner's cost arising out of the Trade Contractor's failure to cure, including the cost of completing the Trade Contract Work and reasonable attorneys' fees, exceeds the unpaid Trade Contract Price, the Trade Contractor shall be liable to the Owner for such excess costs. If the Owner's costs are less than the unpaid Trade Contract Price, the Owner shall pay the difference to the Trade Contractor. In the event the Owner exercises its rights under this section, upon the request of the Trade Contractor the Owner shall furnish to the Trade Contractor a detailed accounting of the cost incurred by the Owner.

11.3.2 USE OF TRADE CONTRACTOR'S MATERIALS, SUPPLIES AND EQUIPMENT If the Owner or Others perform work under this section, the Owner shall have the right to take and use any materials, supplies and equipment belonging to the Trade Contractor and located at the Worksite for the purpose of completing any remaining Trade Contract Work. Immediately upon completion of the Work, any remaining materials, supplies or equipment not consumed or incorporated in the Trade Contract Work shall be returned to the Trade Contractor in substantially the same condition as when they were taken, reasonable wear and tear excepted.

11.3.3 If the Trade Contractor files a petition under the Bankruptcy Code, this Agreement may be terminated for cause at the may be terminated for cause at the Owner.

11.3.3 If the Trade Contractor files a petition under the Bankruptcy Code, this Agreement may be terminated for cause at the may be terminated for cause at the Owner.

11.3.4 The Owner shall make reasonable efforts to mitigate damages arising from Trade Contractor default, and shall promptly invoice the Trade Contractor for all amounts due pursuant to sections 11.2 and 11.3.

### 11.4 TERMINATION BY OWNER FOR CONVENIENCE

11.4.1 Upon written notice to the Trade Contractor, the Owner may, without cause, terminate this Agreement. The Trade Contractor shall immediately stop the Work, follow the Owner's or Construction Manager's instructions regarding shutdown and termination procedures, and strive to minimize any further costs.

11.4.2 If the Owner terminates this Agreement pursuant to this section, the Trade Contractor shall be paid:

11.4.2.1 for the Work performed to date including Overhead and profit; and

11.4.2.2 for all demobilization costs and costs incurred as a result of the termination but not including Overhead or profit on work not performed;

11.4.2A Upon written notice to the Trade Contractor the Owner has the right to terminate this



Agreement without penalty as a result of the following: 1) the legislature or governor fail to appropriate funds sufficient to allow the Owner to operate as required and fulfill its obligations under this Agreement, 2) funds are de-appropriated or not allocated, 3) the Owner's authorization to operate is withdrawn or there is a material alteration in the programs administered by the owner, or 4) the Owner's duties are substantially modified. If such a termination results then the Trade Contractor shall be paid in the manner set forth in subparagraph 11.4.2. If, however, an appropriation to cover the cost of this Agreement becomes available within sixty (60) days subsequent to termination under this paragraph then the Owner agrees to re-enter into a modified version of this Agreement that accounts for the termination and reinstatement.

11.4.3 If the Owner terminates this Agreement pursuant to sections 11.3 or 11.4, the Trade Contractor shall:

11.4.3 If the Owner terminates this Agreement pursuant to sections 11.3 or 11.4, the Trade Contractor shall:

11.4.3.1 execute and deliver to the Owner all papers and take all action required to assign, transfer and vest in the Owner the rights of the Trade Contractor to all materials, supplies and equipment for which payment has or will be made in accordance with the Trade Contract Documents and all subcontracts, orders and commitments which have been made in accordance with the Trade Contract Documents;

11.4.3.2 exert reasonable effort to reduce to a minimum the Owner's liability for subcontracts, orders and commitments that have not been fulfilled at the time of the termination;

11.4.3.3 cancel any subcontracts, orders and commitments as the Owner or Construction Manager directs; and

11.4.3.4 sell at prices approved by the Owner or Construction Manager any materials, supplies and equipment as the Owner or Construction Manager directs, with all proceeds paid or credited to the Owner.

## 11.5 TRADE CONTRACTOR'S RIGHT TO TERMINATE

11.5.1 Upon seven (7) Days' written notice to the Owner and Construction Manager, the Trade Contractor may terminate this Agreement if the Trade Contract Work has been stopped for a thirty (30) Day period through no fault of the Trade Contractor for any of the following reasons:

11.5.1.1 under court order or order of other governmental authorities having jurisdiction;

11.5.1.2 as a result of the declaration of a national emergency or other governmental act during which, through no act or fault of the Trade Contractor, materials are not available; or

11.5.1.3 suspension by the Owner for convenience pursuant to section 11.1

11.5.2 In addition, upon seven (7) Days' written notice to the Owner and Construction Manager, the Trade Contractor may terminate the Agreement if the Owner:

11.5.2.1 fails to furnish reasonable evidence pursuant to section 4.1.2 that sufficient funds are available and committed for Project financing, or

11.5.2.2 assigns this Agreement over the Trade Contractor's reasonable objection, or

11.5.2.3 fails to pay the Trade Contractor in accordance with this Agreement and the Trade Contractor has complied with the notice provisions of section 9.5, or



11.5.2.4 otherwise materially breaches this Agreement.

11.5.3 Upon termination by the Trade Contractor in accordance with this section, the Trade Contractor shall be entitled to recover from the Owner payment for all Trade Contract Work executed and for any proven loss, cost or expense in connection with the Trade Contract Work, including all demobilization costs plus reasonable Overhead and profit on work not performed.

11.6 OBLIGATIONS ARISING BEFORE TERMINATION Even after termination pursuant to ARTICLE 11, the provisions of this Agreement still apply to any Trade Contract Work performed, payments made, events occurring, costs charged or incurred or obligations arising before the termination date.

## ARTICLE 12 DISPUTE MITIGATION AND RESOLUTION

12.1 WORK CONTINUANCE AND PAYMENT Unless otherwise agreed in writing, the Trade Contractor shall continue the Trade Contract Work and maintain the Construction Schedule during any dispute mitigation or resolution proceedings. If the Trade Contractor continues to perform, the Owner shall continue to make payments in accordance with this Agreement.

12.2 DIRECT DISCUSSIONS If the Parties cannot reach resolution on a matter relating to or arising out of the Agreement, the Parties shall endeavor to reach resolution through good faith direct discussions between the Parties' representatives, who shall possess the necessary authority to resolve such matter and who shall record the date of first discussions. The authorized representative for the Trade Contractor is identified in Paragraph 3.4 of the Agreement. The authorized representative for the Owner is identified in Paragraph 4.2 of the Agreement. The parties' authorized representative are, among other things, authorized to resolve matters of disagreement and disputes between the Parties. If the dispute remains unresolved after fifteen (15) Days from the date of first discussion, the Parties shall submit such matter to the dispute mitigation and dispute resolution procedures selected herein.

12.3 MITIGATION The Parties agree that dispute mitigation procedures provided in this Project. Disputes remaining unresolved after direct discussions shall be directed to the selected mitigation procedure immediately below. The dispute mitigation procedure shall result in nonbinding finding on the matter. This may be introduced as evidence at a subsequent binding adjudication of the matter, as designee on Paragraph 12.5. The Parties agree that the dispute mitigation procedure shall be

(Designate only one.)

Project Neutral

Dispute Review Board

12.3.1 MITIGATION PROCEDURES The Project Neutral/Dispute Review Board shall be mutually selected and appointed by the Parties and shall execute a retainer agreement with the Parties establishing the scope of the Project Neutral/Dispute Review Board's responsibilities. The costs and expenses of the Project Neutral/Dispute Review Board shall be shared equally by the Parties. The Project Neutral/Dispute Review Board shall be available to either Party, upon request, throughout the course of the Project, and shall make regular visits to the Project so as to maintain an up-to-date understanding of the Project progress and issues and to enable the Project Neutral/Dispute Review Board to address matters in dispute between the Parties promptly and knowledgeably. The Project Neutral/Dispute Review Board shall issue nonbinding findings within five (5) business Days of referral of the matter to the Project Neutral, unless good cause is shown.

12.3.2 If the matter remains unresolved following the issuance of the nonbinding finding by the mitigation procedure or if the Project Neutral/Dispute Review Board fails to issue nonbinding findings



within five (5) Days of the referral, the Parties shall submit the matter to the binding dispute resolution procedure designated in section 12.5.

12.4 MEDIATION If direct discussions pursuant to section 12.2 do not result in resolution of the matter and no dispute mitigation procedure is selected under section 12.3, the Parties shall endeavor to resolve the matter by mediation through the current Construction Industry Mediation Rules of the American Arbitration Association, or the Parties may mutually agree to select another set of mediation rules. The administration of the mediation shall be as mutually agreed by the Parties. The mediation shall be convened within thirty (30) business Days of the matter first being discussed and shall conclude within forty-five (45) business Days of the matter first being discussed. Either Party may terminate the mediation at any time after the first session, but the decision to terminate shall be delivered in person by the terminating Party to the non-terminating Party and to the mediator. The costs of the mediation shall be shared equally by the Parties.

12.5 BINDING DISPUTE RESOLUTION If the matter is unresolved after submission of the matter to a mitigation procedure or to mediation, the Parties shall submit the matter to the binding dispute resolution procedure designated herein.

(Designate only one.)

Arbitration using the current Construction Industry Arbitration Rules of the American Arbitration Association

Litigation in either the state or federal court having jurisdiction of the matter in the location of the Project.

12.5.1 The costs of any binding dispute resolution procedures shall be borne by the non-prevailing Party, as determined by the adjudicator of the dispute. However, the costs of binding dispute resolution does not include attorney fees. The Parties are each responsible for paying for their own attorney fees.

12.5.2 VENUE The venue of any binding dispute resolution procedure shall be Des Moines, Iowa.

12.6 MULTIPARTY PROCEEDING All parties necessary to resolve a claim shall be parties to the same dispute resolution proceeding. Appropriate provisions shall be included in all other contracts relating to the Work to provide for the joinder or consolidation of such dispute resolution procedures.

12.7 LIEN RIGHTS The Trade Contractor acknowledges that it has no mechanic's lien rights on this Project because it is a public improvement project.

### ARTICLE 13 MISCELLANEOUS PROVISIONS

13.1 ASSIGNMENT Neither the Owner nor the Trade Contractor shall assign their interest in this Agreement without the written consent of the other except as to the assignment of proceeds. The terms and conditions of this Agreement shall be binding upon both Parties, their partners, successors, assigns and legal representatives. Neither Party to this Agreement shall assign the Agreement as a whole without written consent of the other. If either Party attempts to make such an assignment, that Party shall nevertheless remain legally responsible for all obligations under this Agreement, unless otherwise agreed by the other Party.

13.2 GOVERNING LAW This Agreement and all disputes arising there from shall be governed by the Iowa law.

13.3 SEVERABILITY The partial or complete invalidity of any one or more provisions of this Agreement shall not affect the validity or continuing force and effect of any other provision.



13.4 NO WAIVER OF PERFORMANCE The failure of either Party to insist, in any one or more instances, on the performance of any of the terms, covenants or conditions of this Agreement, or to exercise any of its rights, shall not be construed as a waiver or relinquishment of such term, covenant, condition or right with respect to further performance or any other term, covenant, condition or right.

13.5 TITLES AND GROUPINGS The titles given to the articles of this Agreement are for ease of reference only and shall not be relied upon or cited for any other purpose. The grouping of the articles in this Agreement and of the Owner's specifications under the various headings is solely for the purpose of convenient organization and in no event shall the grouping of provisions, the use of sections or the use of headings be construed to limit or alter the meaning of any provisions.

13.6 ASSISTANCE OF COUNSEL AND INTERPRETATION The Parties agree that they had the opportunity to obtain the assistance of counsel in reviewing the Agreement terms prior to execution. This Agreement shall be construed neither against nor in favor of either Party, but shall be construed in a neutral manner.

13.7 RIGHTS AND REMEDIES The Parties' rights, liabilities, responsibilities and remedies with respect to this Agreement, whether in contract, tort, negligence or otherwise, shall be exclusively those expressly set forth in this Agreement.

13.8 ADDITIONAL PROVISIONS (Insert here other provisions, if any, that pertain to this Agreement See Below.)

13.9 COMPLIANCE WITH LAW AND REGULATIONS The Trade Contractor shall comply with all applicable federal, state, and local laws, rules, ordinances, regulations and orders when performing services and/or performing work under this Agreement, including without limitation, all laws applicable to the prevention of discrimination in employment and the use of targeted small businesses as subcontractors or suppliers. The Trade Contractor declares that it has complied with all federal, state and local laws regarding business permits and licenses that may be required to provide the services and work required by this Agreement. The Trade Contractor further acknowledges that if this Project is a recipient of Federal financial assistance that it may be subject to requirements of Federal Acts and Executive Orders as mandated by Federal agencies having authority and jurisdiction to enforce and ensure compliance with such laws and regulations including, but not necessarily limited to, the Davis Bacon Act and other Federal Acts and Executive Orders.

13.10 EMPLOYMENT PRACTICES: It is the intent of the Iowa Department of Administrative Services to assure equal employment opportunity in all contract work as required by law. Vendors, are required to take affirmative action to ensure that applicants employed or seeking employment with them are treated equally as required by law. Vendors shall not illegally discriminate against any employee. During the course of the Project, the Vendor may be required to show compliance with the EEO and Affirmative Action requirements. Noncompliance with the provisions set forth at the time of contract award may result in termination or suspension of the Agreement in whole or in part. All vendors and service providers working under the terms of this Agreement are prohibited from engaging in discriminatory employment practices forbidden by Iowa law. Vendors shall complete and submit the Nondiscrimination Clause form for the Owner's approval.

13.11 RECIPROCAL BIDDER PREFERENCE In accordance with Iowa Code Section 73A.21, as amended in 2011 by HF 648, if the Trade Contractor is not a resident bidder of Iowa, as defined by law, then the Trade Contractor must specifically identify in writing with its bid any and all preferences or preferential treatment (including preferences related to labor) enforced by the state or foreign country in which the Trade Contractor is a resident. If the low bid Trade Contractor is not a resident bidder of Iowa and the Trade Contractor's foreign State of residence enforces such a preference then the Owner shall reciprocally enforce the preference in favor of a resident bidder of Iowa. Failure on the part of the Trade Contractor to completely and accurately abide by this legal requirement may, among other things, result in civil penalties and void this Agreement. The Trade Contractor should contact its attorney regarding this legal requirement if the Trade



Contractor has questions regarding its meaning or application.

13.12 LABOR RELATIONS The Trade Contractor shall comply with all Iowa and Federal labor laws. In accordance with Executive Order Number 69, issued by the Governor of Iowa on or about January 14, 2011, no project labor agreement (also known as a PLA), or similar, will be used on this Project. Iowa is a right to work state. No consultant, contractor, or employee shall be obligated to contract with or join any labor organization as a condition of performing work on this Project.

#### ARTICLE 14 TRADE CONTRACT DOCUMENTS

14.1 The Trade Contract Documents in existence at the time of execution of this Agreement are as follows:

RFBXXXXXXXXX Bid Package X

#### 14.2 INTERPRETATION OF TRADE CONTRACT DOCUMENTS

14.2.1 The drawings and specifications are complementary. If Trade Contract Work is shown only on one but not on the other, the Trade Contractor shall perform the Trade Contract Work as though fully described on both consistent with the Trade Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

14.2.2 In case of conflicts between the drawings and specifications, the specifications shall govern. In any case of omissions or errors in figures, drawings or specifications, the Trade Contractor shall immediately submit the matter to the Owner for clarification. The Owner's clarifications are final and binding on all Parties, subject to an equitable adjustment in Trade Contract Time or Price pursuant to ARTICLE 6 and ARTICLE 7 or dispute resolution in accordance with ARTICLE 12.

14.2.3 Where figures are given, they shall be preferred to scaled dimensions.

14.2.4 Any terms that have well-known technical or trade meanings, unless otherwise specifically defined in this Agreement, shall be interpreted in accordance with their well-known meanings. This Agreement entered into as of the date entered in ARTICLE 1.

14.2.5 PRECEDENCE In case of any inconsistency, conflict or ambiguity among the Trade Contract Documents, the documents shall govern in the following order: (a) Trade Contract Change Orders and written amendments to this Agreement; (b) this Agreement; (c) subject to subsection 14.2.2 the drawings, specifications and addenda issued prior to the execution of this Agreement; (d) approved submittals; (e) information furnished by the Owner pursuant to subsection 4.1.3; (f) other documents listed in this Agreement. Among all the Trade Contract Documents, the term or provision that is most specific or includes the latest date shall control. Information identified in one Trade Contract Document and not identified in another shall not be considered to be a conflict or inconsistency.

This Agreement entered into as of the date entered in ARTICLE 1.

OWNER State of Iowa, Department of Administrative Services



Trade Contractor: *Contractor Name*

By: \_\_\_\_\_

(Authorized Representative)

Name:

Title:

Date:

Owner: State of Iowa - DAS

By: \_\_\_\_\_

(Authorized Representative)

Name:

Title:

Date:

END OF DOCUMENT.

DRAFT



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**SECTION 00 6000**

**PERFORMANCE AND PAYMENT BOND**

**PART 1 - GENERAL**

**1.01 PERFORMANCE AND PAYMENT BOND**

- A. Performance and payment bonds to be used on this project, ConsensusDocs 260 and 261 are attached for reference following this page. ConsensusDocs performance and payment bonds are not required (other standard forms are acceptable to the State of Iowa).

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**



## CONSENSUSDOCS 260 PERFORMANCE BOND

This document was developed through a collaborative effort of organizations representing a wide cross-section of the design and construction industry. The organizations endorsing this document believe it represents a fair allocation of risk and responsibilities for all project participants.

Endorsing organizations recognize that this document must be reviewed and adapted to meet specific needs and applicable laws. This document has important legal and insurance consequences. You are encouraged to consult legal, insurance and surety advisors before completing or modifying this document. The software includes a notes section indicating where information is to be inserted to complete this document. Further information and endorsing organizations' perspectives are available at [www.consensusdocs.org/guidebook](http://www.consensusdocs.org/guidebook).

For Use with ConsensusDOCS 200, Standard Form of Agreement and General Conditions Between Owner and Constructor (Where the Contract Price is a Lump Sum) and ConsensusDOCS 500, Standard Agreement and General Conditions Between Owner and Construction Manager.

The Owner, \_\_\_\_\_, (the "Owner") and the Constructor, \_\_\_\_\_, (the "Constructor") have entered into a Contract (the "Contract") dated \_\_\_\_\_ for \_\_\_\_\_ (the "Project"). The Contract is incorporated by reference into this Performance Bond (the "Bond").

By virtue of this Bond, the Constructor as Principal and \_\_\_\_\_ as Surety ("Surety"), are bound to the Owner as Obligee in the maximum amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (the "Bond Sum"). The Constructor and Surety hereby bind themselves, their heirs, executors,

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**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.

administrators, successors and assigns, jointly and severally, as provided herein.

1. **GENERAL CONDITIONS** It is the condition of this Bond that if the Constructor performs its Contract obligations (the "Work"), the Surety's obligations under this Bond are null and void. Otherwise the Surety's obligations shall remain in full force and effect. The Surety waives any requirement to be notified of alterations or extensions of time made by the Owner in the Contract. The Owner may not invoke the provisions of this Bond unless the Owner has performed its obligations pursuant to the Contract. Upon making demand on this Bond, the Owner shall make the Contract Balance (the total amount payable by the Owner to the Constructor pursuant to the Contract less amounts properly paid by the Owner to the Constructor) available to the Surety for completion of the Work.

2. **SURETY OBLIGATIONS** If the Constructor is in default pursuant to the Contract and the Owner has declared the Constructor in default, the Surety promptly may remedy the default or shall:

- a. Complete the Work, with the consent of the Owner, through the Constructor or otherwise;
- b. Arrange for the completion of the Work by a Constructor acceptable to the Owner and secured by performance and payment bonds equivalent to those for the Contract issued by a qualified surety. The Surety shall make available as the Work progresses sufficient funds to pay the cost of completion of the Work less the Contract Balance up to the Bond Sum; or
- c. Waive its right to complete the Work and reimburse the Owner the amount of its reasonable costs, not to exceed the Bond Sum, to complete the Work less the Contract Balance.

3. **DISPUTE RESOLUTION** All disputes pursuant to this Bond shall be instituted in any court of competent jurisdiction in the location in which the Project is located and shall be commenced within two years after default of the Constructor or Substantial Completion of the Work, whichever occurs first. If this provision is prohibited by law, the minimum period of limitation available to sureties in the jurisdiction shall be applicable.

This Bond is entered into as of \_\_\_\_\_.

SURETY \_\_\_\_\_ (seal)

By: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

(Attach Power of Attorney)

Witness: .....

CONSTRUCTOR \_\_\_\_\_ (seal)

By: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Witness: .....

(Additional signatures, if any, appear on attached page)

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## CONSENSUSDOCS 261 PAYMENT BOND

This document was developed through a collaborative effort of organizations representing a wide cross-section of the design and construction industry. The organizations endorsing this document believe it represents a fair allocation of risk and responsibilities for all project participants.

Endorsing organizations recognize that this document must be reviewed and adapted to meet specific needs and applicable laws. This document has important legal and insurance consequences. You are encouraged to consult legal, insurance and surety advisors before completing or modifying this document. The software includes a notes section indicating where information is to be inserted to complete this document. Further information and endorsing organizations' perspectives are available at [www.consensusdocs.org/guidebook](http://www.consensusdocs.org/guidebook).

For Use with ConsensusDOCS 200, Standard Form of Agreement and General Conditions Between Owner and Constructor (Where the Contract Price is a Lump Sum) and ConsensusDOCS 500, Standard Agreement and General Conditions Between Owner and Construction Manager.

The Owner, \_\_\_\_\_, (the "Owner ")  
and the Constructor, \_\_\_\_\_,  
(the "Constructor") have entered into a Contract (the "Contract") dated \_\_\_\_\_ for  
\_\_\_\_\_ (the "Project"). The Contract is  
incorporated by reference into this Payment Bond (the "Bond").

By virtue of this Bond, the Constructor as Principal and \_\_\_\_\_ as  
Surety ("Surety"), are bound to the Owner as Obligee in the maximum amount of  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (the  
"Bond Sum"). The Constructor and Surety hereby bind themselves, their heirs, executors,

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**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.

administrators, successors and assigns, jointly and severally, as provided herein.

1. GENERAL CONDITIONS It is the condition of this Bond that if the Constructor promptly makes payment of all sums for all labor, materials, and equipment furnished for use in the performance of the work required by the Contract, the Surety's obligations pursuant to this Bond are null and void. Otherwise the Surety's obligations shall remain in full force and effect. The Surety waives any requirement to be notified of alterations or extensions of time made by the Owner in the Contract.

2. SURETY OBLIGATION Every Claimant who has not been paid in full before the expiration of a period of ninety (90) Days after such Claimant provided or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, may have a right of action on this Bond. The Surety's obligation to the Claimant(s) shall not exceed the Bond Sum.

3. LIMITATION OF ACTION No suit or action shall be commenced on this Bond by any Claimant:

a. Unless Claimant, other than one having a direct Contract with the Constructor, shall have given written notice to the Constructor, the Owner and the Surety within ninety (90) Days after the Claimant provided or performed the last of the work or labor, or furnished the last of the materials for which the claim is made, stating with substantial accuracy the amount claimed and the name of the Party to whom the materials were furnished, or for whom the work or labor was provided or performed. Such notice shall be served by any means which provides written third party verification of delivery to the Constructor at any place it maintains an office or conducts business, or served in any manner in which legal process may be served in the state in which the Project is located.

b. After the expiration of one (1) year from the date on which the Claimant last performed labor or furnished materials or equipment on the Project. If this provision is prohibited by law, the minimum period of limitation available to sureties in the jurisdiction shall be applicable.

c. Other than in any court of competent jurisdiction in the location in which the Project is located.

4. CLAIMANT A Claimant is defined as an individual or entity having a direct contract with the Constructor or having a contract with a subcontractor having a direct contract with the Constructor to furnish labor, materials or equipment for use in the performance of the Contract.

This Bond is entered into as of \_\_\_\_\_.

SURETY \_\_\_\_\_ (seal)

By: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

(Attach Power of Attorney)

Witness: .....

CONSTRUCTOR \_\_\_\_\_ (seal)

By: .....

Print Name: \_\_\_\_\_

**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.

Print Title: \_\_\_\_\_

Witness: .....

(Additional signatures, if any, appear on attached page)

## SECTION 01 1200

### CONTRACT SUMMARY

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Project Information
- B. Project Summary
- C. Bid Scope Summary
- D. Work Hour Restrictions
- E. Access to Site
- F. Coordination with Occupants
- G. Rules for Construction Workers
- H. Bid Package Instructions

##### 1.02 PROJECT INFORMATION

- A. Facility Name/Location: Clarinda Correctional Facility (CCF) 2000 N. 16<sup>th</sup> St., Clarinda, IA 51632
- B. DAS Project #: 9223.00
- C. Owner: State of Iowa, Department of Administrative Services, Hoover State Office Building, Level 3, 1305 East Walnut Street, Des Moines, IA 50319
- D. Owner's Representative: Brad Tonyan, Iowa Department of Administrative Services, 109 SE 13th Street, Des Moines, IA 50319
- E. Construction Manager: Brian Polzin, The Samuels Group, 2929 Westown Parkway Suite 200, West Des Moines, IA 50266

##### 1.03 PROJECT SUMMARY

- A. The project includes the construction of a new kitchen and laundry building for the Clarinda Correctional Facility. Scope of the project includes general construction, concrete, masonry, precast, structural steel, EPDM roofing, food service equipment, fire suppression, plumbing, HVAC, electrical, communications, electronic safety/security, earthwork, paving, utilities, etc.
- B. Target date to provide substantial completion is August 12, 2025.

##### 1.04 BID SCOPE SUMMARY

- A. Scope Applicable to All Bid Packages:
  - 1. The Contractor's Work includes all labor, supervision, materials, equipment, services, supplies, tools, facilities, transportation, hoisting, storage, receiving, licenses, inspections, certifications, overhead, profit, or other items required or reasonably inferable to properly and timely perform and complete all work and services to be performed by the Contractor pursuant to this Agreement. Unless specifically stated otherwise, incidental work required to accomplish the work of this Bid Package shall be included in the bid. This would include, but not be limited to, temporary facilities, protection of the work, security of equipment, materials, and work in progress, etc. **Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.**
  - 2. The Contractor is responsible for all labor and equipment to unload, account for all material delivered, stock, and delivery for this scope of work. Storage and delivery of materials and equipment at the Site shall be permitted only to the extent approved in advance by the Construction Manager, and if anything so stored obstructs the progress

- of any portion of the work, it shall be promptly removed or relocated by the Contractor without reimbursement.
3. On-site supervision by Prime Contractor at all times work by that contractor or their subcontractors/suppliers is taking place.
  4. Provide all temporary facilities required for this scope of work including trailer, trailer power, telephone, secured storage, temporary power for work, temporary and task lighting for work, etc. as determined necessary by Contractor. Coordinate location of trailers, material storage and utility lines with Construction Manager. Limited space is available, and permission to bring any such facility or excess materials to the site shall be approved by the Construction Manager.
  5. Contractor shall provide all equipment and tools for Contractor's own cleanup. Clean up shall be done at the end of every shift or more frequently if required for the Contractor to perform their work, for other Contractors to perform their work, as required by the Owner's operations, and at the discretion of the Construction Manager.
  6. All turf, landscaping, and subgrade disturbances caused by equipment traffic or other activities related to the Contractor's scope shall be repaired or restored to proper conditions by the Contractor.
  7. Protect adjacent existing building elements from damage from Scope of work. Repair existing building elements damaged during Contractor's Scope of work.
  8. Work occurring in occupied areas of the prison can be shut down by the facility manager or construction manager at any time for noise, vibration, or any inconvenience to the facility's everyday operation. Coordinate disruptive work with the Construction Manager and give adequate notice for all shutdowns and inconvenient work. Work causing noise, vibration, or other interruption needs to be coordinated at least 72 hours before the start of work.
  9. Work occurring in occupied areas of the prison will need to be performed at the convenience of the Owner. The work will likely need to be performed after normal working hours (nights) or on weekends. Any shutdown of an existing utility must be conducted during off hours.
  10. Each Trade Contractor is responsible for protecting their work until acceptance by the owner. Each Trade Contractor is responsible for respecting the work completed by all other Trade Contractors and shall be responsible for replacing anything damaged.
  11. Each Trade Contractor shall provide daily jobsite clean-up for debris and dust generated by the installation of their scope of work. Haul debris to the dumpster provided by the Construction Manager. Daily jobsite clean-up shall consist of all prime contractor's employees cleaning the work area for at least 30 minutes before leaving.
  12. Each Trade Contractor shall provide all layout and surveying as required to complete their scope of work. The cost of testing and inspections shall be paid by the Owner as required by the Contract Documents. All testing and inspections shall be called for by each Trade Contractor and tests shall be coordinated with the Construction Manager. Retesting due to failed tests will be the responsibility of the Trade Contractor.
  13. All work to be completed in accordance with the schedule and phasing included in the specification section and as noted in the Contract Documents. The contractor shall include additional mobilizations as required to meet the schedule and phasing as noted.
  14. Each trade contractor is responsible to field verify all dimensions prior to fabrication of products.
  15. Trade contractors and employees shall be responsible for following OSHA construction standards and compliance with such standards for the project.
  16. Weekly meetings shall be conducted on site for construction activities, safety, scheduling, and overall project activities. A representative (Foreman, Lead Employee) from each bid package shall participate.

#### 1.05 WORK HOUR RESTRICTIONS (Refer to Drawing G0.1 for zones A and B)

- A. **Zone A (Construction Zone):** Gate opens at 6:30 AM and gate closes at 6:30 PM. (Monday through Friday). Standard Work hours are from 7:00 AM to 3:30 PM but can be extended to 6:30 PM, Monday through Friday. Saturday and Sunday work requests shall be submitted two weeks in advance to the CM's on-site superintendent and project manager.
- B. **Zone B (Restricted Construction Zone With Tool Control):** Work hours are from 7:00 AM to 5:00 PM, Monday through Friday only. Saturday and Sunday construction is prohibited in this area. Tool control will be in effect for any work in the Secure Construction Zone area.

#### 1.06 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Limited to areas noted on Drawings.
- B. Provide access to and from site as required by law and Owner:
  - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
  - 2. Do not obstruct roadways, sidewalks, or other public ways without permission of Owner and permit if required.
- C. Facility will be occupied at all times during duration of work. Contractor personnel shall conduct themselves in an agreeable manner at all times. Failure to do so may result in removal from the work site.
- D. Parking in the West Parking lot of the Clarinda Correctional Facility is off limits. Contractors shall park in the designated parking areas noted on the project drawings and/or as directed by the construction manager and correctional facility.
- E. **All Trade Contractors shall be responsible for the cleanup of their own work. Provide means and methods to ensure construction debris and materials are collected and removed to dumpsters on a daily basis.**
- F. All ladders shall be taken down at the end of the workday and secured with locking devices.

#### 1.07 OWNER OCCUPANCY

- A. Owner intends to occupy the Project upon Substantial Completion.
- B. Cooperate with the Owner to minimize conflict and facilitate the Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.
- D. Coordinate disruption of utilities, fire alarm system, electrical system, plumbing/HVAC systems, etc. with the facility a minimum of 72 hours prior to commencement of any work.

#### 1.08 RULES FOR CONSTRUCTION WORKERS

- A. The staff of the State of Iowa has a responsibility to protect the public by providing a secure environment. All work site rules must be followed to the letter, at all times.
- B. All construction workers must have a background check completed prior to entering the campus to perform work.
- C. Hot Work Permit Processes and Fire Watch, when necessary, will be adhered to for this project.
- D. All State properties are tobacco-free. No smoking will be permitted or tolerated on campus unless in designated areas.
- E. You are permitted access only to the work site and no other area of the institution.
- F. **No drugs, alcohol, or firearms are allowed on the work site.**
- G. Do not leave money, drugs, alcohol, or firearms in your personal vehicle.
- H. Company and personal vehicles are to be parked and locked in designated or authorized area of the work.
- I. Secure all tools at the end of the day.

- J. Maintain control of all tools, supplies, and debris at all times during the work.
- K. Never leave keys in any vehicle. If a security officer finds keys in a vehicle, they are under orders to turn them in to a security supervisor.
- L. Do not give anything to residents or take anything from residents; if they offer, inform your supervisor.
- M. Secure all tools at the end of each day. Never leave tools unattended. All tools shall be checked in at the beginning of the day and checked out at the end of the day. If security officers find loose tools, they are under orders to turn them into their supervisor.
- N. All delivery vehicles must go directly to the job site. Extra time should be anticipated for all deliveries. Provide 24-hour notice to the facility of deliveries.
- O. Contractors shall be responsible for the coordination and receiving of all deliveries. The Clarinda Correctional Facility shall not be responsible for receiving of contractor related materials, equipment, or deliveries.
- P. During an emergency, follow the instructions of the security staff.
- Q. Contractors shall wear clothing of a different color, pattern, fashion, etc., to distinguish themselves from inmates. **High Visibility Orange shall not be worn by contractors.**
- R. Contractors shall conduct all construction work under OSHA compliance.
- S. **All ladders shall be taken down at the end of the workday and secured with locking devices.**

#### 1.09 BID PACKAGE INSTRUCTIONS –

- A. **Bid Package #01 – General Construction:** Trade Contractor shall include all of the following, but not limited to, as part of the contract:
  - 1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project to provide and install Concrete, Masonry, Metals, Woods, Plastic, Composites, Thermal/Moisture Protection, Openings, Finishes, Specialties, and Furnishings based on all contract drawings and specifications.
  - 2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
  - 3. Includes:

##### **DIVISION 02 - DEMOLITION**

- 02 4100 Demolition (As Applies to this Bid Package)

##### **DIVISION 03 - CONCRETE**

- 03 3000 Cast-in-Place Concrete
- 03 3511 Concrete Floor Finishes

##### **DIVISION 03 CLARIFICATIONS:**

- Includes installation of embedded plates supplied by precast contractor.
- Includes provide and install of grout and reinforced concrete wearing slabs at coolers and freezers after F.S.E.C. installation of cooler and freezer insulated screed.
- Includes excavation and backfill of footings and foundations.
- Excess spoils of footings and foundations excavation (fill material, organics, black dirt) shall be stocked piled at a location noted on site.
- Includes housekeeping pads, mechanical pads, generator pad, and site bollards.

##### **DIVISION 04 - MASONRY**

- 04 2000 Unit Masonry

##### **DIVISION 04 CLARIFICATIONS:**

- Includes installation of embedded plates supplied by precast contractor.

- Coordinate location of mixing tower and water access with CM.

#### **DIVISION 05 - METALS**

- 05 1200 Structural Steel Framing
- 05 2100 Steel Joist Framing
- 05 3100 Steel Decking
- 05 4000 Cold-Formed Metal Framing
- 05 5000 Metal Fabrications
- 05 5100 Metal Stairs

#### **DIVISION 05 CLARIFICATIONS:**

- Includes coordination with precast/precast erector for removal of bracing.

#### **DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES**

- 06 1000 Rough Carpentry
- 06 4100 Architectural Wood Casework

#### **DIVISION 06 CLARIFICATIONS:**

- Includes provide and install of treated wood roof curbs for walk-in freezers and coolers condensing units
- Includes roof blocking and plywood at the roof area and parapet walls.

#### **DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

- 07 2100 Thermal Insulation
- 07 2500 Weather Barriers
- 07 4213.19 Insulated Metal Wall Panels
- 07 8400 Firestopping (As Applies to this Bid Package)
- 07 9200 Joint Sealants (As Applies to this Bid Package)

#### **DIVISION 07 CLARIFICATIONS:**

- Includes provide and install vapor barrier and slab insulation after installation of walk-in coolers and freezers insulated screed.

#### **DIVISION 08 - OPENINGS**

- 08 1113 Hollow Metal Doors and Frames
- 08 3323 Overhead Coiling Doors
- 08 7100 Door Hardware
- 08 8000 Glazing

#### **DIVISION 08 CLARIFICATIONS:**

- Coordinate prep of doors and frames with controls and electrical.
- Coordinate keying and door prep requirements with owner.

#### **DIVISION 09 - FINISHES**

- 09 2116 Gypsum Board Assemblies
- 09 2216 Non-structural Metal Framing
- 09 3000 Tiling
- 09 5100 Acoustical Ceilings
- 09 9123 Interior Painting
- 09 9600 High-Performance Coatings

#### **DIVISION 10 - SPECIALTIES**

- 10 1401 Code-Required Signage
- 10 2600 Wall and Door Protection
- 10 2800 Toilet, Bath, and Laundry Accessories
- 10 4400 Fire Protection Specialties

#### **DIVISION 11 - EQUIPMENT**

- 11 1900 Detention Security Equipment
- 11 1910 Detention Hollow Metal

#### **DIVISION 12 - FURNISHINGS**

- 12 3600 Countertops
4. Bid Package #01 Unit Prices:
- A. **Unit Price #01A** – Over Ex/Backfill with Engineered Fill (1 Cubic yard): Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Provide a unit cost to excavate one cubic yard of soils and place one cubic yard of engineered compacted fill for over excavation requirements.
  2. Reference Team Services Geotechnical Evaluation Report dated April 12, 2022.
  3. Excess spoils (fill material, organics, black dirt) shall be stocked piled at a location noted on site.
  4. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
  5. Owner reserves the right to reject Contractor's measurements of work in place that involves use of established unit prices and to have this work measured, at the Owner's expense, by an independent surveyor acceptable to the Contractor.
- B. **Unit Price #01B** – Over Ex/Backfill with Lean Concrete (1 Cubic yard): Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Provide a unit cost to excavate one cubic yard of soils and place one cubic yard of lean concrete fill for over excavation requirements.
  2. Reference Team Services Geotechnical Evaluation Report dated April 12, 2022.
  3. Excess spoils (fill material, organics, black dirt) shall be stocked piled at a location noted on site.
  4. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
  5. Owner reserves the right to reject Contractor's measurements of work in place that involves use of established unit prices and to have this work measured, at the Owner's expense, by an independent surveyor acceptable to the Contractor.
5. Bid Package #01 Alternate:
- A. **Alternate #1** – Laundry Equipment Opening Surrounds: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Provide all labor, material, and equipment for the opening surrounds as noted in detail 17/A8.1 for washer units and dryer units at Laundry Room 1204.
  2. Reference Plans and specifications for additional information. General Information included on Drawing G0.1.
  3. Reference Drawing A1.1 for location of Security and Screen Walls and Doors.
  4. Includes Section 11 1940 Security and Screen Walls and Doors.
  5. Include deduct off building elements provided in base bid for washer and dryer openings.
  6. Coordinate work with other trades for installation.
  7. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  8. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
  9. Execute accepted alternates under the same conditions as other work of the Contract
6. **ADDITIONAL CLARIFICATIONS BID PACKAGE #01:**

- A. Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
  - B. All activities must be coordinated with the Construction Manager.
  - C. All activities must be coordinated with the other Trade Contractors.
  - D. Includes all temporary barricades, enclosures, and protection for this Bid Package Scope of Work.
  - E. Includes all core drilling, penetrations, cutting, and patching required to complete the work.
  - F. Includes daily cleanup, removal, and lawful disposal of all scrap materials and debris generated from the site operation and installation of the work included in this Bid Package.
  - G. Debris shall be removed during normal construction hours. Dumpsters are supplied by Owner unless clarified in Bid Package.
  - H. Includes all caulking/sealant as it pertains to this Bid Package.
  - I. Level 2, Mechanical Room Louver OAL-1: Section of insulated wall panel below Louver OAL-1 shall be installed after all AHU and DOAS units have been installed by HVAC contractor. Coordinate install with all trades.
- B. **Bid Package #02 – Precast:** Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project to provide and install Precast Architectural Concrete based on all contract drawings and specifications.
  2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
  3. Includes:

**DIVISION 03 – CONCRETE**

- 03 4500 Precast Architectural Concrete

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

- 07 9200 Joint Sealants (As Applies to this Bid Package)

4. **ADDITIONAL CLARIFICATIONS BID PACKAGE #02:**

- A. Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
- B. All activities must be coordinated with the Construction Manager.
- C. All activities must be coordinated with the other Trade Contractors.
- D. Coordinate with all trade contractors for location of embeds and openings.
- E. Includes all temporary barricades, enclosures, and protection for this Bid Package Scope of Work.
- F. Precast Contractor to provide site specific safety plan.
- G. Includes all core drilling, penetrations, cutting, and patching required to complete the work.
- H. Includes daily cleanup, removal, and lawful disposal of all scrap materials and debris generated from the site operation and installation of the work included in this Bid Package.
- I. Debris shall be removed during normal construction hours. Dumpsters are supplied by Owner unless clarified in Bid Package.
- J. Preinstallation Meeting: Convene one week prior to commencing work.
- K. Includes all caulking/sealant as it pertains to this Bid Category. Seal all precast perimeter and intermediate joints (interior and exterior) in accordance with Section 07 9200.
- L. Includes shims and 1" grout fill at precast to foundation wall.

- M. Includes Embed plates (top of foundation walls). Installed by others.
- N. Includes bracing, bracing anchoring needs, and removal of these components.
- O. Coordinate removal of precast bracing components with steel erection.
- P. Coordinate installation of 12' x 12' knock out panel area at south wall elevation with construction manager. The tentative date of knock out panel installation is May 2025.

C. **Bid Package #03 – Roofing/Gutters/Downspouts:** Trade Contractor shall include all of the following, but not limited to, as part of the contract:

- 1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project to provide and install EPDM roofing system, sheet metal flashing/trim, parapet cap, gutters, and downspouts based on all contract drawings and specifications.
- 2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
- 3. Includes:

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

- 07 5300 Elastomeric Membrane Roofing
- 07 6200 Sheet Metal Flashing and Trim
- 07 7100 Roof Specialties
- 07 7123 Manufactured Gutters and Downspouts
- 07 7200 Roof Accessories
- 07 7260 Roof Fall Protection
- 07 9200 Joints Sealants (As Applies to this Bid Package)

4. **ADDITIONAL CLARIFICATIONS BID PACKAGE #03:**

- A. Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
- B. All activities must be coordinated with the Construction Manager.
- C. All activities must be coordinated with the other Trade Contractors.
- D. Includes all temporary barricades, enclosures, and protection for this Bid Package Scope of Work.
- E. Includes all core drilling, penetrations, cutting, and patching required to complete the work.
- F. Includes daily cleanup, removal, and lawful disposal of all scrap materials and debris generated from the site operation and installation of the work included in this Bid Package.
- G. Debris shall be removed during normal construction hours. Dumpsters are supplied by Owner unless clarified in Bid Package.
- H. Includes all caulking/sealant as it pertains to this Bid Package.
- I. Includes pre-finished tamper proof gutter covers.
- J. Includes saw cutting of reveal for metal flashing at connection to existing building.
- K. Turn over Roof Fall Protection to owner.

D. **Bid Package #04 – Food Service:** Trade Contractor shall include all of the following, but not limited to, as part of the contract:

- 1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project to provide and install food service equipment based on all contract drawings and specifications.
- 2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be

performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope

3. Includes:

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

- 07 8400 Firestopping (As Applies to this Bid Package)
- 07 9200 Joints Sealants (As Applies to this Bid Package)

**DIVISION 11 - EQUIPMENT**

- 11 4000 Foodservice Equipment

4. Bid Package #04 Alternate:

A. **Alternate #2** – Alternate Bakery Equipment: Trade Contractor shall include all of the following, but not limited to, as part of the contract:

1. Provide all labor, material, and equipment to supply and install bakery equipment.
2. Reference Plans and specifications for additional information. General Information included on Drawing G0.1.
3. Final Electrical, Plumbing, and HVAC connections by others. Coordinate work.
4. Coordinate work with other trades for installation.
5. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
6. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
7. Execute accepted alternates under the same conditions as other work of the Contract.

5. **ADDITIONAL CLARIFICATIONS BID PACKAGE #04:**

- A. Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
- B. All activities must be coordinated with the Construction Manager.
- C. All activities must be coordinated with the other Trade Contractors.
- D. Includes all temporary barricades, enclosures, and protection for this Bid Package Scope of Work.
- E. Includes daily cleanup, removal, and lawful disposal of all scrap materials and debris generated from the site operation and installation of the work included in this Bid Package.
- F. Debris shall be removed during normal construction hours. Dumpsters are supplied by Owner unless clarified in Bid Package.
- G. Includes all caulking/sealant as it pertains to this Bid Category.

E. **Bid Package #05 – Fire Suppression:** Trade Contractor shall include all of the following, but not limited to, as part of the contract:

1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project to provide and install Fire Suppression system based on all contract drawings and specifications.
2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
3. Includes Fire Suppression items noted in the Food Service Equipment MEP Drawings.
4. Includes:

**DIVISION 02 – EXISTING CONDITIONS**

- 02 4100 Demolition (As Applies to this Bid Package)

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

- 07 8400 Firestopping (As Applies to this Bid Package)
- 07 9200 Joints Sealants (As Applies to this Bid Package)

**DIVISION 21 – FIRE SUPPRESSION**

- 21 0500 Basic Fire Suppression Requirements
- 21 0505 Fire Suppression Demolition for Remodeling
- 21 0529 Fire Suppression Supports and Anchors
- 21 1300 Fire Protection Systems

**5. ADDITIONAL CLARIFICATIONS BID PACKAGE #05:**

- A. Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
- B. All activities must be coordinated with the Construction Manager.
- C. All activities must be coordinated with the other Trade Contractors.
- D. Includes all temporary barricades, enclosures, and protection for this Bid Package Scope of Work.
- E. Includes all core drilling, penetrations, cutting, and patching required to complete the work.
- F. Includes daily cleanup, removal, and lawful disposal of all scrap materials and debris generated from the site operation and installation of the work included in this Bid Package.
- G. Debris shall be removed during normal construction hours. Dumpsters are supplied by Owner unless clarified in Bid Package.
- H. Includes firestopping and sealant associated to this contractor's scope of work.
- I. Includes removal and resetting of existing ceiling tile for work associated to this bid package.
- J. Submit all shop drawings to the State Fire Marshal office (SFM) for approval. Includes all fees associated with permits and inspections.

- F. **Bid Package #06 – Plumbing and HVAC:** Trade Contractor shall include all of the following Scope of Work, but not limited to, as part of the contract:

1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project to provide and install complete Plumbing and Heating/Ventilating/Air-Conditioning (HVAC) systems based on all contract drawings and specifications.
2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
3. Includes Mechanical, Plumbing, and HVAC items noted in the Food Service Equipment MEP Drawings.
4. Includes:

**DIVISION 02 – EXISTING CONDITIONS**

- 02 4100 Demolition (As Applies to this Bid Package)

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

- 07 8400 Firestopping (As Applies to this Bid Package)
- 07 9200 Joints Sealants (As Applies to this Bid Package)

**DIVISION 22 – PLUMBING**

- 22 0500 Basic Plumbing Requirements
- 22 0505 Plumbing Demolition for Remodeling
- 22 0513 Motors
- 22 0516 Plumbing Expansion Compensation

- 22 0529 Plumbing Supports and Anchors
- 22 0548 Plumbing Vibration Isolation/Vibration Isolation Submittal Form
- 22 0553 Plumbing Identification
- 22 0716 Plumbing Equipment Insulation
- 22 0719 Plumbing Piping Insulation
- 22 0900 Instrumentation
- 22 1000 Plumbing Piping
- 22 1023 Natural Gas Piping
- 22 1030 Plumbing Specialties
- 22 1200 Tanks - Plumbing
- 22 1519 Compressed Air Systems
- 22 3000 Plumbing Equipment
- 22 4000 Plumbing Fixtures

**DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)**

- 23 0500 Basic HVAC Requirements
- 23 0505 HVAC Demolition for Remodeling
- 23 0513 Motors
- 23 0529 HVAC Supports and Anchors
- 23 0530 Roof Support and Wind Bracing
- 23 0548 HVAC Vibration Isolation, Vibration Isolation Submittal Form
- 23 0553 HVAC Identification
- 23 0593 Testing, Adjusting, and Balancing
- 23 0713 Ductwork Insulation
- 23 0719 HVAC Piping Insulation
- 23 0800 HVAC Commissioning Requirements
- 23 0900 Controls
- 23 0913 Instrumentation
- 23 2300 Refrigeration Piping and Specialties
- 23 3100 Ductwork
- 23 3300 Ductwork Accessories
- 23 3423 Power Ventilators
- 23 3600 Air Terminal Units
- 23 3700 Air Inlets and Outlets
- 23 4000 Air Cleaning
- 23 6213 Air Cooled Condensing Units
- 23 7313 Indoor Modular Air Handling Units
- 23 8200 Terminal Heat Transfer Units

5. Bid Package #06 Alternates:

- A. **Alternate #1** – Laundry Equipment Plumbing and HVAC: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Provide all labor, material, and equipment for the plumbing and HVAC needs to supply and install washer units and dryer units for Laundry Room 1204.
  2. Includes supply of washer units and dryer units.
  3. Reference Plans and specifications for additional information. General Information included on Drawing G0.1.
  4. Coordinate work with other trades for installation.
  5. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  6. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
  7. Execute accepted alternates under the same conditions as other work of the Contract.

- B. **Alternate #2** – Alternate Bakery Plumbing and HVAC: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Provide all labor, material, and equipment for the plumbing and HVAC needs for this alternate.
  2. Reference Plans and specifications for additional information. General Information included on Drawing G0.1.
  3. Coordinate work with other trades for installation.
  4. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  5. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
  6. Execute accepted alternates under the same conditions as other work of the Contract.
6. **ADDITIONAL CLARIFICATIONS BID PACKAGE #06:**
- A. Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
  - B. All activities must be coordinated with the Construction Manager.
  - C. All activities must be coordinated with the other Trade Contractors.
  - D. Coordinate with the local utilities.
  - E. Includes all temporary barricades, enclosures, and protection for this Bid Package Scope of Work.
  - F. Includes daily cleanup, removal, and lawful disposal of all scrap materials and debris generated from the site operation and installation of the work included in this Bid Package.
  - G. Includes all core drilling, penetrations, cutting, and patching required to complete the work.
  - H. Includes firestopping and sealant associated to this contractor's scope of work.
  - I. Includes removal and resetting of existing ceiling tile for work associated to this bid package.
  - J. Cover ends of pipes and ductwork while stored and after installation.
  - K. Provide TAB services as called out in documents.
  - L. Coordinate and provide access to the commissioning agent for equipment to be reviewed.
  - M. Level 2, Mechanical Room Louver OAL-1: Section of insulated wall panel below Louver OAL-1 shall be installed after all AHU and DOAS units have been installed by HVAC contractor. Coordinate install with all trades.
- G. **Bid Package #07 – Electrical:** Trade Contractor shall include all of the following Scope of Work, but not limited to, as part of the contract:
1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project to provide and install complete electrical, communications, and electronic safety/security systems based on all contract drawings and specifications.
  2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
  3. Includes Electrical items noted in the Food Service Equipment MEP Drawings.
  4. Includes:

**DIVISION 02 – EXISTING CONDITIONS**

- 02 4100 Demolition (As Applies to this Bid Package)

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

- 07 8400 Firestopping (As Applies to this Bid Package)
- 07 9200 Joints Sealants (As Applies to this Bid Package)

**DIVISION 26 – ELECTRICAL**

- 26 0500 Basic Electrical Requirements
- 26 0505 Electrical Demolition for Remodeling
- 26 0513 Wire and Cable
- 26 0526 Grounding and Bonding
- 26 0527 Supporting Devices
- 26 0533 Conduit and Boxes
- 26 0553 Electrical Identification
- 26 0573 Power System Study
- 26 0800 Commissioning of Electrical
- 26 0913 Power Monitoring and Control System
- 26 0933 Lighting Control Systems
- 26 2200 Dry Type Transformers
- 26 2416 Panelboards
- 26 2419 Motor Control
- 26 2726 Wiring Devices
- 26 2813 Fuses
- 26 2816 Disconnect Switches
- 26 2923 Variable Frequency Drives
- 26 3213 Packaged Engine Generator Systems
- 26 3600 Transfer Switch
- 26 4100 Lightning Protection Systems
- 26 4300 Surge Protection Devices
- 26 5119 LED Lighting

**DIVISION – 27 COMMUNICATIONS**

- 27 0500 Basic Communications Systems Requirements
- 27 0505 Technology Demolition For Remodeling
- 27 0526 Communications Bonding
- 27 0528 Interior Communication Pathways
- 27 0553 Identification and Administration
- 27 1100 Communication Equipment Rooms (CER)
- 27 1500 Horizontal Cabling Requirements
- 27 1710 Testing
- 27 1720 Structured Cabling System Warranty
- 27 5113 Paging Systems

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

- 28 0500 Basic Electronic Safety and Security Systems
- 28 1300 Electronic Access Control
- 28 2300 Video Surveillance 28 2300 Video Surveillance (VIDEO SURVEILLANCE EQUIPMENT PROVIDED AND INSTALLED BY OWNER. SPECIFICATION PROVIDED AS REFERENCE ONLY”.
- 28 3100 Fire Alarm and Detection Systems

5. Bid Package #07 Alternates:

- A. **Alternate #1** – Laundry Equipment Electrical: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Provide all labor, material, and equipment for electrical needs for Laundry Equipment (Washers and Dryers) for Laundry Room 1204.
  2. Reference Plans and specifications for additional information. General Information included on Drawing G0.1.

3. Coordinate work with other trades for installation.
  4. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  5. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
  6. Execute accepted alternates under the same conditions as other work of the Contract.
- B. **Alternate #2** – Alternate Bakery Equipment Electrical: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Provide all labor, material, and equipment for electrical needs for Bakery Equipment.
  2. Reference Plans and specifications for additional information. General Information included on Drawing G0.1.
  3. Coordinate work with other trades for installation.
  4. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  5. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
  6. Execute accepted alternates under the same conditions as other work of the Contract.
6. **ADDITIONAL CLARIFICATIONS BID PACKAGE #07:**
- A. Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
  - B. All activities must be coordinated with the Construction Manager.
  - C. All activities must be coordinated with all other Trade Contractors.
  - D. Coordinate with the local utilities.
  - E. Includes all temporary barricades, enclosures, and protection for this Bid Package Scope of Work.
  - F. Includes temporary lighting and power for the building addition. Connect to existing power located on second floor Administration Building electrical room. Temp. lighting and temp. power to be OSHA compliant. Provide minimum qty. of two (2), 200 amp. temporary service panels with power outlets for the construction area.
  - G. Provide temporary lighting with footcandle requirements per OSHA standards.
  - H. Dumpsters supplied by Owner unless clarified in Bid Package.
  - I. Includes daily cleanup, removal, and lawful disposal of all scrap materials and debris generated from the site operation and installation of the work included in this Bid Package.
  - J. Includes all core drilling, penetrations, cutting, and patching required to complete the work.
  - K. Includes firestopping and sealant associated to this contractor's scope of work.
  - L. Includes removal and resetting of existing ceiling tile for work associated to this bid package.
  - M. Obtain electrical permit and coordinate electrical inspections via the State Fire Marshall Office (SFM).
- H. **Bid Package #08 – Civil:** Trade Contractor shall include all of the following Scope of Work, but not limited to, as part of the contract:
1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project for earthwork, exterior improvements, and utilities based on all contract drawings and specifications.

2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
3. Includes:

**DIVISION 02 – EXISTING CONDITIONS**

- 02 4100 Demolition (As Applies to this Bid Package)

**DIVISION 31 – EARTHWORK**

- 31 1000 Site Clearing
- 31 2000 Earthwork
- 31 2005 Earth Moving for Building
- 31 2333 Trenching and Backfilling (As Applies to this Bid Package)
- 31 3500 Erosion and Sediment Control

**DIVISION 32 – EXTERIOR IMPROVEMENTS**

- 32 1123 Aggregate Base Courses
- 32 1313 Concrete Paving
- 32 1373 Pavement Joint Sealants
- 32 1723 Pavement Markings
- 32 9119 Landscape Grading
- 32 9219 Seeding

**DIVISION 33 - UTILITIES**

- 33 3100 Sanitary Sewerage Piping
- 33 3101 Sanitary Sewer Manholes
- 33 4000 Storm Sewer and Drainage
- 33 4900 Storm Drainage Structures

4. Bid Package #08 Unit Prices:

- A. **Unit Price #08A** - Over Ex/Backfill with Engineered Fill (1 Cubic Yard): Trade Contractor shall include all of the following, but not limited to, as part of the contract:
  1. Provide a unit cost to excavate one cubic yard of soil and place one cubic yard of engineered compacted fill for over excavation requirements.
  2. Reference Team Services Geotechnical Evaluation Report dated April 12, 2022.
  3. Excess spoils (fill material, organics, black dirt) shall be stocked piled at a location noted on site.
  4. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
  5. The owner reserves the right to reject Contractor's measurements of work in place that involves use of established unit prices and to have this work measured, at the Owner's expense, by an independent surveyor acceptable to the Contractor.

5. **ADDITIONAL CLARIFICATIONS BID PACKAGE #08:**

- A. Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
- B. All activities must be coordinated with the Construction Manager.
- C. All activities must be coordinated with the other Trade Contractors.
- D. Successful bidders will have access to a full set of construction documents ("CD") via Procore.
- E. Includes all temporary barricades, enclosures, and protection for this Scope of Work.
- F. Includes all safety material necessary to protect personnel in and from open trenches and excavations. Excavations shall be closed as soon as possible.

- G. Demolition and offsite disposal of existing storm structures and piping shall be included and be at the expense of this bid package.
  - H. Excess spoils (fill material, organics, black dirt) shall be stocked piled at a location noted on site.
  - I. Demolished concrete paving shall be stockpiled at a location noted on site.
  - J. Dumpsters supplied by Owner unless clarified in Bid Package.
  - K. Includes daily cleanup, removal, and lawful disposal of all scrap materials and debris generated from the site operation and installation of the work included in this Bid Package.
  - L. Includes all cutting and patching required to complete the work.
  - M. Trenching and backfilling of footings and foundations by others.
- I. **Bid Package #09 – Video Surveillance:** Trade Contractor shall include all of the following Scope of Work, but not limited to, as part of the contract:
- 1. Provide all labor, material, and equipment for the Clarinda Kitchen & Laundry Addition project to provide and install complete electrical, communications, and electronic safety/security systems based on all contract drawings and specifications.
  - 2. Includes Divisions 00 and 01 including project management and supervision during construction activities associated with this Scope of Work. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

- 28 2300 Video Surveillance
  
  - **DIVISION 26 – ELECTRICAL** - (Specification Provided as Reference Only)
  - 26 0513 Wire and Cable
  - 26 0533 Conduit and Boxes
  
  - **DIVISION – 27 COMMUNICATIONS** - (Specification Provided as Reference Only)
  - 27 1500 Horizontal Cabling Requirements
  
  - **DIVISION 28 – ELECTRONIC SAFETY AND SECURITY** - (Specification Provided as Reference Only)
  - 28 0500 Basic Electronic Safety and Security Systems
  - 28 3100 Fire Alarm and Detection Systems
3. **ADDITIONAL CLARIFICATIONS BID PACKAGE #09:**  
Follow working hours as noted in the specifications for Zone A (Construction Zone) and Zone B (Restricted Construction Zone with Tool Control) – coordinate with the Construction Manager.
- A. All activities must be coordinated with the Construction Manager.
  - B. All activities must be coordinated with all other Trade Contractors.
  - C. Coordinate with the local utilities.
  - D. Includes all temporary barricades, enclosures, and protection for this Bid Package Scope of Work.
  - E. Dumpsters supplied by Owner unless clarified in Bid Package.
  - F. Includes daily cleanup, removal, and lawful disposal of all scrap materials and generated from the site operation and installation of the work included in this Bid Package.
  - G. Includes all core drilling, penetrations, cutting, and patching required to complete the work.
  - H. Includes firestopping and sealant associated to this contractor's scope of work.

I. Includes removal and resetting of existing ceiling tile for work associated to this bid package.

J. **Work Performed by Owner:** The Clarinda Correctional Facility will perform the following work items:

1. Relocate all movable furniture, fixtures, and equipment (FF&E), including window treatments; and personal materials from each sequenced work area prior to demolition and construction activities and after new construction is completed.
2. Provide and install temporary walkways and security fence along existing cell pod.
3. Provide and install 16' Wide sliding gate/with motor at sally port road.
4. Provide and install temporary gates at the south perimeter security fence.
5. Provide and install west temporary road and west trailer pad area as noted on drawing C2.1.
6. Site snow removal will be performed by the Owner.

K. **Owner Furnished Products:** The Clarinda Correctional Facility will provide the following materials for installation by the contractor:

1. No items noted.

**PART 2 - PRODUCTS – NOT USED**  
**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

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**SECTION 01 2500****SUBSTITUTION PROCEDURES****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Substitution Procedures
- B. Request for Substitution form

**PART 2 - PRODUCTS – NOT USED****PART 3 - EXECUTION****3.01 SUBSTITUTION PROCEDURES**

- A. Where the Bidding Documents stipulate a specific product be provided by naming one or more manufacturer and model, a substitute product will be considered when written request is received by the date and time identified in Section 00 1113 NOTICE TO BIDDERS. Substitution requests will be considered for all products, even if the specification does not include a statement such as “or equal,” “equal to,” “equivalent to,” or “basis of design,” unless noted otherwise.
- B. References in the Bidding Documents to brand or trade names are intended to illustrate the general characteristics of the item and not to limit competition unless noted otherwise.
- C. The written request shall be on the “Request for Substitution” form included in the Project Manual. If no such form is included, the request shall be provided on the letterhead of the company making the request.
- D. Substitution requests received after the specified date will be viewed in the context of a Change Order to the Contract, and consideration will only be given in the event a product becomes unavailable or not practical due to no fault of the Contractor, or the substitution is substantially to the Owner’s advantage (equal product for less cost or higher quality product at no change in Contract Sum).
- E. Document each substitution request with complete data substantiating compliance of the proposed substitution with the Bidding Documents. Each request shall identify the specified product for which the substitution is requested, and shall clearly describe the product for which approval is requested. The burden shall be on the requester to demonstrate the proposed substitute product’s suitability for use in the Work and its equivalency or superiority in function, appearance, quality, and performance with the product named in the Bidding Documents.
- F. A description of any changes to the Bidding Documents that the proposed substitution will require shall be included with the request. The requester shall affirm that dimensions shown on the Drawings will not be affected by the substitute product, and that it will have no adverse effect on other trades, the construction schedule, or specified warranty requirements. The request for use of a substitute product shall be signed by an authorized representative of the firm submitting the request, who shall state that the firm will pay for any changes to the building design, including Design Professional’s design, detailing, and construction cost caused by the requested substitution if the substitution is approved for use in the Work.
- G. All such substitute products approved for use in the Work during the established period of time before receipt of Bids will be identified in a subsequent Addendum to the Bidding Documents.

**3.02 REQUEST FOR SUBSTITUTION FORM**

- A. A Request for Substitution Form is attached following this page.
- B. Substitution requests shall be emailed to the Issuing Officer at the email address provided in Instructions to Bidders Section 1.04.

**END OF SECTION**

### SUBSTITUTION REQUEST FORM

---

Project: \_\_\_\_\_ Substitution Request Number: \_\_\_\_\_  
\_\_\_\_\_  
From: \_\_\_\_\_  
To: \_\_\_\_\_ Date: \_\_\_\_\_  
\_\_\_\_\_  
A/E Project Number: \_\_\_\_\_  
Re: \_\_\_\_\_

---

Specification Title: \_\_\_\_\_ Description: \_\_\_\_\_  
Section: \_\_\_\_\_ Page: \_\_\_\_\_ Article/Paragraph: \_\_\_\_\_

---

Proposed Substitution: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_ Address: \_\_\_\_\_ Phone: \_\_\_\_\_  
Trade Name: \_\_\_\_\_ Model No.: \_\_\_\_\_  
\_\_\_\_\_

History:  New product  2-5 years old  5-10 yrs old  More than 10 years old  
Differences between proposed substitution and specified product: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Point-by-point comparative data prepared by contractor and attached - REQUIRED BY A/E

---

Reason for not providing specified item: \_\_\_\_\_  
\_\_\_\_\_

Similar Installation:  
Project: \_\_\_\_\_ Architect: \_\_\_\_\_  
Address: \_\_\_\_\_ Owner: \_\_\_\_\_  
\_\_\_\_\_ Date Installed: \_\_\_\_\_

Proposed substitution affects other parts of Work:  No  Yes; explain \_\_\_\_\_  
\_\_\_\_\_

---

Supporting Data Attached:  Drawings  Product Data  Samples  Tests  Reports  \_\_\_\_\_

---

### SUBSTITUTION REQUEST FORM

(Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: \_\_\_\_\_

Signed by: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Attachments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01 3300.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01 3300.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

Additional Comments:  Contractor  Subcontractor  Supplier  Manufacturer  A/E  \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## SECTION 01 2600

### CONTRACT MODIFICATION PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Change procedures

##### 1.02 CHANGE PROCEDURES

- A. The Design Professional will advise of minor changes in the work not involving an adjustment to Contract Sum/Price or contract time as authorized.
- B. The Construction Manager may issue a Proposal Request that includes a detailed description of a proposed change with supplementary or revised drawings and specifications and a change in contract time for executing the change as provided by the Design Professional. The Trade Contractor will prepare and submit an estimate within 7 calendar days. Estimates shall be provided for the project at no cost, regardless of acceptance or rejection of proposal.
- C. The Trade Contractor may propose changes by submitting a Request for Information to the Construction Manager, describing the proposed change and its full effect on the work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and contract time with full documentation and a statement describing the effect on work by separate or other contractors. Document any requested substitutions in accordance with the specifications. Construction Manager will forward the Request for Information on to the Design Professional for their official response.
- D. Stipulated Sum/Price Change Order: Based on executed Change Order and contractor's fixed price quotation.
- E. Unit Price Change Order: The change order will be executed on a fixed unit price basis for pre-determined unit prices and quantities. Changes in contract price or contract time will be computed as specified for time and material change orders.
- F. Time and Material Change Order: The change order will be executed on a not to exceed basis. Design professional and Construction Manager will determine the not to exceed estimated cost based on contractor's proposal for hourly rates and material costs. Maintain detailed records of work done on time and material basis. Time and Material tickets must be submitted daily to the Construction Manager for verification. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the work. Submit itemized account and supporting data after completion of change. A final deductive change order will be issued to reconcile final cost to the initial change order.
- G. Change Order Forms: CONSENSUSDOC Forms provided by Owner.
- H. Execution of Change Orders: The Construction Manager will issue change orders for signature of parties as provided in the Conditions of the Contract.
- I. With respect to pricing change orders, the percentage mark-up for overhead and profit is subject to the following limits:
  - 1. Fifteen (15) percent maximum for work directly performed by employees of the Constructor, Subcontractor or Sub-subcontractor.
  - 2. Five (5) percent maximum for work performed or passed through by a Subcontractor and passed through to the Owner by the Constructor.
  - 3. Five (5) percent maximum Subcontractor's mark-up for Work performed by a Sub-Subcontractor and passed through to the Owner by the Subcontractor and Constructor.
  - 4. The maximum allowable mark-up shall be twenty-five (25) percent passed through to the Owner by the Constructor under any circumstances. Overhead and profit shall be shown separately for the Constructor and each Subcontractor of any tier performing the Change Order Work.

- J. Contractor and subcontractor agree to provide and require all suppliers to provide, a detailed breakdown of labor, labor burden, materials, installation, rental, and fuel costs.
- K. **Please refer to Article 8 of CONSENSUDOCS 802- STANDARD FORM OR AGREEMENT BETWEEN OWNER AND TRADE CONTRACTOR for additional Change Procedures.**

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

## SECTION 01 2900

### PAYMENT PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Schedule of values
- B. Application for payment

##### 1.02 SCHEDULE OF VALUES

- A. Coordination: Trade Contactor will coordinate preparation of the Schedule of Values with preparation of the Construction Manager's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule, and Construction Manager's Construction Schedule.
  - 2. Submit original Schedule of Values in Procore within 14 days after date of Owner-Trade Contractor Agreement. Schedule of Values must be approved by Owner prior to submission for first application for payment.
- B. Format: Utilize the Table of Contents of this project manual. Identify each line item with number and title of the major specification section. Each major specification section should be further itemized by materials cost, labor cost and subcontractor cost for each building separately for the base bid and all accepted alternates. Identify site mobilization, bonds and insurance.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name and address of Owner, Trade Contractor, Construction Manager and Design Team.
    - c. DAS Project Number.
    - d. Date of Submittal.
  - 2. Revise the Schedule of Values to list approved Change Orders with each Application for Payment.

##### 1.03 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications for payments as certified by the Design Professional and paid for by Owner.
  - 1. Application for Payment at time of Substantial Completion and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement. Progress payments shall be submitted to the Construction Manager. Any request for payment for work completed prior to June 30<sup>th</sup> of any year needs to be submitted by July 15<sup>th</sup> of the same calendar year.
- C. Payment Application Forms: Use AIA form G702 and G703 as the form for the Application for Payment or an equivalent approved by the owner.
- D. Include lien waiver forms required by the owner when applicable.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of the Trade Contractor. Construction Manager will return incomplete applications without action.
  - 1. Include amounts of Change Orders issued before last day of construction period covered by application.

- F. Waivers of Mechanic's Lien: If requested by Owner with each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment when applicable.
  - 1. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  - 2. Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede submittal of first Application for Payment include the following:
  - 1. Schedule of Values
  - 2. Certificates of insurance and insurance policies.
  - 3. Lists of vendors and any subcontractors.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for the portion of the Work claimed as substantially complete.
  - 1. Include documentation supporting the claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  - 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. 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:
  - 1. Evidence of completion of Project closeout requirements.
  - 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  - 3. Updated final statement, accounting for final changes to the Contract Sum.
  - 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  - 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  - 6. AIA Document G707, "Consent of Surety to Final Payment."
  - 7. Letter of Notification to all sub-contractors and suppliers of application for release of retainage.
  - 8. Evidence that claims have been settled.
- J. Payments will be made to the extent of the value of the work performed in the previous month less a retainage amount of 5% of the value of the work performed. Upon substantial completion for the entire work, a sum sufficient to decrease the total retained to 5% of the contract sum, plus such other retainage as the engineer shall determine for all incomplete work and unsettled claims will be authorized.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

**SECTION 01 3100**

**PROJECT MANAGEMENT AND COORDINATION**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Coordination
- B. Pre-construction meeting
- C. Progress meetings
- D. Coordination Meetings
- E. Requests for Interpretation (RFIs)
- F. Background Checks

**1.02 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the project manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative procedures: The Trade Contractor will coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Trade Contractor's Construction Schedule.
  - 2. Provide updated information for Construction Manager's Construction Schedule.
  - 3. Preparation of Schedule of Values.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Pre-installation conferences.
  - 7. Project closeout activities
- C. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work, which are indicated diagrammatically on drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated conceal pipes and wiring within the construction. Coordinate locations of piping with finish elements.
- F. Coordinate completion and cleanup of work of separate sections in preparation for Substantial Completion.
- G. After owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of owner's activities.
- H. During construction coordinate use of site and facilities through Construction Manager.
- I. Comply with Construction Manager and Owner's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

- J. Make the following types of submittal to Architect through the Construction Manager via Procure:
1. Request for Information/Interpretation.
  2. Request for substitution.
  3. Shop drawings, product data, and samples.
  4. Test and inspection reports.
  5. Design data.
  6. Manufacturer's instructions and field reports.
  7. Applications for payment and change order requests.
  8. Progress schedules.
  9. Coordination drawings.
  10. Correction punch list and final correction punch list for substantial completion
  11. Closeout submittals

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION**

**3.01 PRE-CONSTRUCTION MEETING**

- A. The Construction Manager and Owner will schedule a meeting after Notice of Award.
- B. Required: Design Professional, Owner, Construction Manager, Trade Contractor and any Sub Contractors.
- C. Agenda:
  1. Execution of Owner-Contractor Agreement.
  2. Submission of executed bonds and insurance certificates.
  3. Distribution of Contract Documents.
  4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
  5. Designation of personnel representing the parties in Contract.
  6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, change orders, RFIs and contract closeout procedures
  7. Tentative construction schedule.
  8. Critical work sequencing and long-lead items.
  9. Procedures for testing and inspecting.
  10. Preparation of Record Documents.
  11. Safety Procedures.
  12. Owner's requirements.
  13. Security and housekeeping procedures.
  14. Background Checks.
  15. Responsibility for temporary facilities and controls.
  16. Construction waste management.
  17. Logistics (use of premise, parking, work restrictions, maintain egress, etc.)
- D. The Construction Manager is to record minutes and distribute copies within two days after meeting to participants, with one copy to owner, participants, and those affected by decisions made.

**3.02 PROGRESS MEETINGS**

- A. The Construction Manager shall schedule and administer meetings throughout progress of the work at **bi-weekly** intervals.
- B. The Construction Manager is to make arrangements for meetings, prepare an agenda with copies for participants, and preside at meetings, record minutes and distribute copies within two days to those affected by decisions made.

- C. Attendees may include: Project superintendent, major subcontractors and suppliers, Owner, Construction Manager, Architect/Engineer, as appropriate to agenda topics for each meeting. All participants at the conference call shall be familiar with the Project and authorized to conclude matters relating to the Work.
- D. Agenda:
  - 1. Review minutes of previous meetings.
  - 2. Review the Construction Manager's Construction Schedule.
  - 3. Field observations, problems, and decisions.
  - 4. Identification of problems that impede planned progress.
  - 5. Review of submittals schedule and status of submittals.
  - 6. Review of RFI's.
  - 7. Review of off-site fabrication and delivery schedules.
  - 8. Corrective measures to regain projected schedules.
  - 9. Planned progress during succeeding work period.
  - 10. Coordination of projected progress.
  - 11. Maintenance of quality and work standards.
  - 12. Effect of proposed changes on progress schedule and coordination.
  - 13. Other business relating to work.
  - 14. Access, temporary facilities and controls, housekeeping and progress cleaning.
  - 15. Safety.
  - 16. Status of proposal requests, pending changes, official Change Orders.
- E. Minutes:
  - 1. Following the meeting, the meeting minutes will be published in Procore by the Construction Manager for all parties.

### **3.03 COORDINATION MEETINGS**

- A. Coordination meetings will be held at the discretion of the construction manager.

### **3.04 REQUESTS FOR INTERPRETATION (RFIs)**

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, prepare and submit an RFI in Procore.
  - 1. RFIs shall originate with Trade Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in the Work.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
  - 1. Specification Section number and title and related paragraphs, as appropriate.
  - 2. Drawing number and detail references, as appropriate.
  - 3. Field dimensions and conditions, as appropriate.
  - 4. Trade Contractor's suggested solution(s). If Trade Contractor's solution(s) impact the Contract Time or the Contract Sum, Trade Contractor shall state impact in the RFI.
  - 5. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
- C. Design Professional's Action: Design Professional will review each RFI, determine action required, and return it. Allow seven (7) working days for Design Professional's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day. The following RFIs will be returned without action:
  - 1. Requests for approval of submittals.
  - 2. Requests for approval of substitutions.
  - 3. Requests for coordination information already indicated in the Contract Documents.
  - 4. Requests for adjustments in the Contract Time or the Contract Sum.
  - 5. Requests for interpretation of Design Professional's actions on submittals.

6. Incomplete RFIs or RFIs with numerous errors.
  7. Design Professional's action may include a request for additional information, in which case Design Professional's time for response will start again.
- D. Design Professional's action on RFIs that may result in a change to the Contract Time or the Contract Sum/Price.
1. If Trade Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Construction Manager in writing within ten (10) days of receipt of the RFI response.
- E. On receipt of Design Professional's response in Procore, review the response and notify Design Professional within seven (7) days if Trade Contractor disagrees with response.

### **3.05 BACKGROUND CHECKS**

- A. Background checks must be performed on all on site employees, including sub-contractors.
- B. The Contractor hereby explicitly authorized the Iowa DAS to conduct criminal history and/or other background investigation(s) of the Contractor, its officers, supervisory personnel, employees, and other staff retained by the Contractor or their sub-contractors for the performance of the contract.
- C. A state of Iowa record check request form will be provided at the pre-construction meeting. Information required may include:
  1. Last Name
  2. First Name
  3. Middle Name
  4. Date of Birth
  5. State Driver's License or State ID #
  6. Social Security #

### **3.06 PREA (PRISON RAPE ELIMINATION ACT) AND FACILITY ORIENTATION**

- A. Required for all on-site employees, including sub-contractors.
- B. All contractor personnel shall be required to take an online PREA training course (Approximately 30 minutes) and facility orientation (Approximately One Hour) on site prior to access to the facility.
- C. PREA link:  
[https://docs.google.com/presentation/d/1\\_8lcvvpMCYdqasseVuOxzY2ISqjS3RUI6Oups7t6-zA/pub?start=false&loop=false&delayms=3000&slide=id.p](https://docs.google.com/presentation/d/1_8lcvvpMCYdqasseVuOxzY2ISqjS3RUI6Oups7t6-zA/pub?start=false&loop=false&delayms=3000&slide=id.p)

**END OF SECTION**

## SECTION 01 3100.01

### WEB BASED CONSTRUCTION MANAGEMENT

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Owner and Contractor shall utilize **Procore Technologies, Inc. Procore** system for electronic submittal of all data and documents (unless specified otherwise by the owner's representative) throughout the duration of the Contract. **Procore** is a web-based electronic media site that is hosted by **Procore Technologies, Inc.**, utilizing their **Procore** web solution. **Procore** will be made available to all contractors' project personnel, subcontractor personnel, suppliers, consultants and the Designer of Record. The joint use of this system is to facilitate; electronic exchange of information, automation of key processes, and overall management of the contract. **Procore** shall be the primary means of project information submission and management. When required by the Owners representative, paper documents will also be provided. In the event of discrepancy between the electronic version and paper documents, the paper documents will govern. **Procore** is a registered trademark of **Procore Technologies, Inc.**

##### 1.02 USER ACCESS LIMITATIONS

- A. The Owner's Representative/Construction Manager will control the Contractor's access to **Procore** by allowing access and assigning user profiles to accepted Contractor personnel. User profiles will define levels of access into the system, determine assigned function-based authorizations (determines what can be seen) and user privileges (determines what they can do). Sub-contractors and suppliers will be given access to **Procore** through the Contractor. Entry of information exchanged and transferred between the Contractor and its sub-contractors and suppliers on **Procore** shall be the responsibility of the Contractor.
1. Joint Ownership of Data: Data entered in a collaborative mode (entered with the intent to share as determined by permissions and workflows within the **Procore** system) by the Owner's Representative and the Contractor will be jointly owned.

##### 1.03 AUTOMATED SYSTEM NOTIFICATION AND AUDIT LOG TRACKING

- A. Review comments made (or lack thereof) by the Owner on Contractor submitted documentation shall not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for managing, tracking, and documenting the Work to comply with the requirements of the Contract Documents. Owner's acceptance via automated system notifications or audit logs extends only to the face value of the submitted documentation and does not constitute validation of the Contractor's submitted information.

##### 1.04 SUBMITTALS

- A. See Section 01 3300 SUBMITTAL PROCEDURES:  
B. Preconstruction Submittals
1. List of Contractor's key **Procore** personnel. Include descriptions of key personnel's roles and responsibilities for this project. Contractor should also identify their organization's administrator on the list.

## 1.05 COMPUTER REQUIREMENTS

- A. The Contractor shall use computer hardware and software that meets the requirements of the **Procore** system as recommended by **Procore Technologies, Inc.** to access and utilize **Procore**. As recommendations are modified by **Procore**, the Contractor will upgrade their system(s) to meet the recommendations or better. Upgrading of the Contractor's computer systems will not be justification for a cost or time modification to the Contract. The contractor will ensure that connectivity to the **Procore** system (whether at the home office or job site) is accomplished through DSL, cable, T-1 or wireless communications systems. The minimum bandwidth requirement for using the system is 128kb/s. It is recommended a faster connection be used when uploading pictures and files into the system. **Procore** supports the current and prior two major versions of Chrome, Firefox, Internet Explorer, and Safari.
- B. The Contractor shall be responsible for the validity of their information placed in **Procore** and for the abilities of their personnel. Accepted users shall be knowledgeable in the use of computers, including Internet Browsers, email programs, cad drawing applications, and Adobe Portable Document Format (PDF) document distribution program. The Contractor shall utilize the existing forms in **Procore** to the maximum extent possible. If a form does not exist in **Procore** the Contractor must include a form of their own or provided by the Owner representative as an attachment to a submittal. Adobe PDF documents will be created through electronic conversion rather than optically scanned whenever possible. The Contractor is responsible for the training of their personnel in the use of **Procore** (outside what is provided by the owner) and the other programs indicated above as needed.
- C. User Access Administration: Provide a list of Contractor's key **Procore** personnel for the Owner's Representative acceptance. Contractor is responsible for adding and removing users from the system. The Owners Representative reserves the right to perform a security check on all potential users. The Contractor will be allowed to add additional personnel and sub-contractors to **Procore**.

## 1.06 CONNECTIVITY PROBLEMS

- A. **Procore** is a web-based environment and therefore subject to the inherent speed and connectivity problems of the Internet. The Contractor is responsible for its own connectivity to the Internet. **Procore** response time is dependent on the Contractor's equipment, including processor speed, Internet access speed, etc. and current traffic on the Internet. The Owner will not be liable for any delays associated from the usage of **Procore** including, but not limited to: slow response time, down time periods, connectivity problems, or loss of information. The contractor will ensure that connectivity to the **Procore** system (whether at the home office or job site) is accomplished through DSL, cable, T-1 or wireless communications systems. The minimum bandwidth requirement for using the system is 128kb/s. It is recommended a faster connection be used when uploading pictures and files into the system. Under no circumstances shall the usage of the **Procore** be grounds for a time extension or cost adjustment to the contract.

## 1.07 TRAINING

- A. The Construction Manager shall provide the necessary training to the Prime Contractor.

## PART 2 - PRODUCTS

### 2.01 DESCRIPTION

- A. **Procore** project management application (no equal) Provided by Procore Technologies, Inc.

www.Procore.com

## PART 3 - EXECUTION

### 3.01 PROCORE UTILIZATION

- A. **Procore** shall be utilized in connection with submittal preparation and information management required by Sections:
1. PROJECT MANAGEMENT AND COORDINATION
  2. CONSTRUCTION PROGRESS DOCUMENTATION
  3. SUBMITTAL PROCEDURES
  4. QUALITY REQUIREMENTS
  5. Other Division One sections.
  6. Requirements of this section are in addition to requirements of all other sections of the specifications.
- B. Design Document Submittals
1. All design drawings and specifications shall be submitted as cad .dwg files or PDF attachments to the **Procore** submittal work flow process and form.
- C. Shop Drawings
1. Shop drawing and design data documents shall be submitted as cad .dwg files or PDF attachments to the **Procore** submittal work flow process and form. Examples of shop drawings include, but are not limited to:
  2. Standard manufacturer installation drawings.
  3. Drawings prepared to illustrate portions of the work designed or developed by the Contractor.
  4. Steel fabrication, piece, and erection drawings.
- D. Product Data
1. Product catalog data and manufacturer's instructions shall be submitted as
  2. PDF attachments to the **Procore** submittal work flow process and form. Examples of product data include, but are not limited to:
  3. Manufacturer's printed literature.
  4. Preprinted product specification data and installation instructions.
- E. Samples
1. Sample submittals shall be physically submitted as specified in Section 01 3300 SUBMITTAL PROCEDURES. Contractor shall enter submittal data information into **Procore** with a copy of the submittal form(s) attached to the sample. Examples of samples include, but are not limited to:
  2. Product finishes and color selection samples.
  3. Product finishes and color verification samples.
  4. Finish/color boards.
  5. Physical samples of materials.
- F. Administrative Submittals
1. All correspondence and pre-construction submittals shall be submitted using **Procore**. Examples of administrative submittals include, but are not limited to:
  2. Digging permits and notices for excavation.
  3. List of product substitutions
  4. List of contact personnel.
  5. Notices for roadway interruption, work outside regular hours, and utility cut overs.

6. Requests for Information (RFI).
  7. Construction progress Schedules and associated reports and updates.
    - a. Each schedule submittal specified in CONSTRUCTION PROGRESS DOCUMENTATION shall be submitted as a native backed-up file (.PRX or .STX) of the scheduling program being used. The schedule will also be posted as a PDF file in the format.
  8. Plans for safety, demolition, environmental protection, and similar activities.
  9. Quality Control Plan(s), Testing Plan and Log, Quality Control Reports, Production Reports, Quality Control Specialist Reports, Preparatory Phase Checklist, Initial Phase Checklist, Field Test reports, Summary reports, Rework Items List, etc.
  10. Meeting minutes for quality control meetings, progress meetings, pre-installation meetings, etc.
  11. Any general correspondence submitted.
- G. Compliance Submittals
1. Test reports, certificates, and manufacture field report submittals shall be submitted on **Procore** as PDF attachments. Examples of compliance submittals include, but are not limited to:
    - a. Field test reports.
    - b. Quality Control certifications.
    - c. Manufacturer's documentation and certifications for quality of products and materials provided.
- H. Record and Closeout Submittals
1. Operation and maintenance data and closeout submittals shall be submitted on **Procore** as PDF documents during the approval and review stage as specified, with actual set of documents submitted for final. Examples of record submittals include, but are not limited to:
    - a. Operation and Maintenance Manuals: Final documents shall be submitted as specified.
    - b. As-built Drawings: Final documents shall be submitted as specified.
    - c. Extra Materials, Spare Stock, etc.: Submittal forms shall indicate when actual materials are submitted.
- I. Financial Submittals
1. Schedule of Value, Pay Applications and Change Request Proposals shall be submitted on **Procore**. Supporting material for Pay Applications and Change Requests shall be submitted on **Procore** as PDF attachments. Examples of compliance submittals include, but are not limited to:
    - a. Contractors Schedule of Values
    - b. Contractors Monthly Progress Payment Requests
    - c. Contract Change proposals requested by the project owner

**END OF SECTION**

**SECTION 01 3200**

**CONSTRUCTION PROGRESS DOCUMENTATION**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Construction Progress Schedule
- B. Construction Manager's Construction Schedule
- C. Submittal Schedule
- D. Daily Construction Reports
- E. Progress Photographs

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION**

**3.01 CONSTRUCTION MANAGER'S MASTER CONSTRUCTION SCHEDULE**

- A. Upon award of package, Contractor agrees to accept and meet or improve upon the schedule proposed in section **00 3113 PRELIMINARY SCHEDULE** with intermediate handoffs. Each package contractor will be required to participate in schedule coordination meetings with the Construction Manager.
- B. If the bid package contractor does not meet the handoff milestones in the master construction schedule, the bid package contractor shall take measures to increase work forces, increase work hours, initiate revisions to means and methods of construction, and/or other similar measures as required to make up lost time and complete the work in accordance with the construction schedule and remain consistent with project progress and overall construction schedule. Such measures shall be at no additional cost to the Owner. The Construction Manager shall have sole discretion on decisions to accelerate work.
- C. Updating the master construction schedule – Contractors are required to attend and participate in schedule coordination update meetings with the Construction Manager. This will be an opportunity for contractors to further define their scheduled scope of work in conjunction with other trades on site.
- D. Acceptance of revised master construction schedule – After an updated master construction schedule has been issued via Procore, Contractors will have 48 hours to dispute the new schedule. All contractors will be held to the last fully accepted master construction schedule.

**3.02 CONSTRUCTION PROGRESS SCHEDULE**

- A. Submit preliminary outline to the Construction Manager no later than 48 hours prior to the pre-construction meeting for coordination with Owner's requirements.
- B. Submit revised progress schedule with each application for payment.
- C. Schedules will be electronically submitted through Procore.
- D. Distribute copies of reviewed schedules to project site file, subcontractors, suppliers, and other concerned parties.
- E. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- F. Submit computer generated horizontal bar chart with separate line for each major portion of work

- or operation, identifying the first day of each week.
- G. Show complete sequence of construction activity, identifying work of separate stages and other logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration.
  - H. Indicate estimated percentage of completion for each item of work at each submission.
  - I. Participate in joint review and evaluation of schedule with Construction Manager.
  - J. Revisions to schedules:
    - 1. Indicate progress of each activity to date of submittal and projected completion date of each activity.
    - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
    - 3. Prepare narrative report to define problem areas, anticipate delays, and impact on schedule. Report corrective action taken, or proposed, and its effect including effect of changes on schedules of separate contractors.

### 3.03 **SUBMITTAL SCHEDULE**

- A. Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrications, and delivery when establishing dates.
  - 1. Coordinate submittal schedule with list of subcontractors, the schedule of values, and construction schedule.
  - 2. Submit concurrently with first complete submittal of contractor's construction schedule.

### 3.04 **DAILY CONSTRUCTION REPORTS**

- A. Daily Construction Reports: Submitted at weekly intervals.
  - 1. Daily Construction Reports will be submitted to Construction Manager.
- B. Prepare a daily construction report recording the following information concerning events at project site:
  - 1. Count of personnel at Project site
  - 2. Equipment at Project site
  - 3. Material Deliveries
  - 4. High and low temperatures and general weather conditions, including presence of rain or snow
  - 5. Accidents
  - 6. Meetings and significant decisions
  - 7. Unusual events
  - 8. Stoppages, delays, shortages, and losses
  - 9. Meter readings and similar recordings
  - 10. Emergency procedures
  - 11. Orders and requests of authorities having jurisdiction
  - 12. Change orders received and implemented
  - 13. Services connected and disconnected
  - 14. Equipment or system tests and startups
  - 15. Partial completions and occupancies
  - 16. Substantial completions authorized

3.05 **PROGRESS PHOTOGRAPHS**

- A. Progress photographs will be electronically submitted through Procore.
- B. Preconstruction Photographs: Before starting construction, take photographs of project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Construction manager.
  - 1. Take additional photographs as required to record existing damage to site, structure, equipment, or finishes.
- C. Periodic Construction Photographs: Take photographs at regular intervals. Select vantage points to show status of construction and progress since last photographs were taken.
- D. Field Completion Construction Photographs: Take photographs after date of Substantial Completion for submission as project record documents. Construction manager will inform of desired vantage points.

**END OF SECTION**

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**SECTION 01 3300**

**SUBMITTAL PROCEDURES**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Submittals for Review
- B. Submittals for Information
- C. Submittal Procedures
- D. Samples

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION**

**3.01 SUBMITTALS FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product Data
  - 2. Shop Drawings
  - 3. Samples for Selection
  - 4. Samples for Verification
- B. Submit to Construction Manager to forward to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record document purposes.

**3.02 SUBMITTALS FOR INFORMATION**

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other types indicated.
- B. Submit for Construction Manager, Architect, and Owner's knowledge. No action will be taken.

**3.03 SUBMITTAL PROCEDURES**

- A. Submittals will be electronically submitted through Procore. Contractor will be invited to join web based program after issue of Notice of Intent to award.
- B. Shop Drawing Procedures:
  - 1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the

- Contract Documents and coordinating related Work.
2. Do not reproduce the Contract Documents to create shop drawings.
  3. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.
- C. Transmit each submittal with a copy of approved submittal form.
  - D. Sequentially number the submittal form. Revise submittals with original number and a sequential numeric suffix.
  - E. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
  - F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
  - G. Schedule submittals to expedite the project and coordinate submission of related items.
  - H. For each submittal review, allow 15 days excluding delivery time to and from the contractor.
  - I. Identify variations from the Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
  - J. When revised for resubmission, identify all changes made since previous submission.
  - K. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
  - L. Submittals not requested will not be recognized or processed.

#### 3.04 **SAMPLES**

- A. Submit to Construction Manager to forward to Architect/Engineer for review for limited purpose for checking conformance with information given and design concept expressed in the Contract Documents.
- B. Samples for selection as specified in product sections:
  1. Submit to Construction Manager to forward to Architect/Engineer for aesthetic, color, or finish selections.
  2. Submit samples of finishes from full range of manufacturer's standard colors, textures, and patterns to Construction Manager to forward to Architect/Engineer for selection.
- C. Submit samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- D. Include identification on each sample, with full project information.
- E. Submit number of samples specified in individual specification sections.
- F. Photograph of submitted samples, along with transmittal sheet, shall be uploaded as a submittal in Procore.

**END OF SECTION**

**SECTION 01 4000**  
**QUALITY REQUIREMENTS**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. References
- B. Quality assurance and control of installation
- C. Tolerances
- D. Defect Assessment
- E. Inspection and testing laboratory services
- F. Manufacturer's field services and reports

**1.02 REFERENCES**

- A. Conform to reference standard in effect at date of contract.
- B. When required by contract documents, obtain copies of standards.
- C. Should specified reference standards conflict with contract documents request clarification from engineer before proceeding.
- D. The contractual relationship of the parties to the contract shall not be altered from the contract documents by mention or inference otherwise in any reference document.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION**

**3.01 QUALITY ASSURANCE/CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality.
- B. Comply fully with manufacturer's instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with contract documents, request clarification from the engineer prior to proceeding.
- D. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stress, vibration, physical distortion, or disfiguration.

**3.02 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of products to produce acceptable work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with contract documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

**3.03 DEFECT ASSESSMENT**

- A. Replace work or portions of work not conforming to specified requirements.

- B. If, in the option of the Owner, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or recommend adjusted payment.

### **3.04 INSPECTION AND TESTING**

- A. Owner shall include and pay for all required special inspections and testing required by IBC Section 1705, if applicable. This does not include inspections and testing required by other specification sections in this Project Manual. Copies of all testing and inspection reports shall be submitted to the Construction Manager and Design Professional by the testing and inspection agency.
- B. Testing Agency Duties:
  - 1. Provide qualified personnel at site. Cooperate with Architect, Construction Manager, and contractor in performance of services.
  - 2. Perform specified sampling and testing of products in accordance with specified standards.
  - 3. Ascertain compliance of materials and mixes with requirements of contract documents.
  - 4. Immediately notify the Construction Manager and contractor of observed irregularities or non-conformance of work or products.
  - 5. Perform additional testing and inspections required by the Owner
- C. Limits on Testing Agency/Inspection Agency Authority:
  - 1. Agency may not release, revoke, alter, or enlarge on requirement of contract documents.
  - 2. Agency may not approve or accept any portion of the work.
  - 3. Agency may not assume any duties of the contractor.
  - 4. Agency has no authority to stop the work.
- D. Contractor responsibilities:
  - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
  - 2. Cooperate with laboratory personnel, and provide access to the work and to manufacturer's facilities.
  - 3. Provide incidental labor and facilities:
    - a. To provide access to work to be tested/inspected.
    - b. To obtain and handle samples at the site or at source of products to be tested/inspected.
    - c. To facilitate test/inspections.
    - d. To provide storage and curing of test samples.
  - 4. Notify Construction Manager and laboratory 24 hours prior to expected time for operations requiring testing/inspection.
- E. Re-testing required because of non-conformance to specified requirements shall be performed by the same testing agency on instruction by Architect/Construction Manager.
- F. Re-testing required because of non-conformance to specified requirements shall be paid for by the Contractor.

### **3.05 MANUFACTURER'S FIELD SERVICES AND REPORTS**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start up of equipment, test, adjust and balance of equipment as applicable and to initiate instructions when necessary.
- B. Individuals are to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to the manufacturers' written instructions.
- C. Submit report in duplicate within 30 days of observation to Construction Manager for review.

**END OF SECTION**

**SECTION 01 4500  
SPECIAL INSPECTIONS AND TESTS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

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

**1.02 SUMMARY**

- A. Section includes minimum 2015 International Building Code (IBC) required inspections and frequency of inspections.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. Specific test and inspection requirements are not specified in this Section.

**1.03 CONFLICTING REQUIREMENTS**

- A. 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.

**1.04 REPORTS AND DOCUMENTS**

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.
  - 6. Description of the Work and test and inspection method.
  - 7. Identification of product and Specification Section.
  - 8. Complete test or inspection data.
  - 9. Test and inspection results and an interpretation of test results.
  - 10. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  - 11. Name and signature of laboratory inspector.
  - 12. Recommendations on retesting and reinspecting.

**1.05 SPECIAL INSPECTIONS AND TESTS**

- A. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Statement of Special Inspections included in this Section, and as follows:
- B. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
  - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- C. 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.
  - 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.
  - 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  - 3. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  - 4. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Owner, Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
  - 1. Notify Owner, Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service.
  - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  - 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  6. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION**

**3.01 TEST AND INSPECTION LOG**

- A. Test and Inspection Log: Prepare a record of tests and inspections.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log.

**3.02 REPAIR AND PROTECTION**

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
- B. Protect construction exposed by or for inspection activities.

**PART 4 - STATEMENT OF SPECIAL INSPECTIONS**

**4.01 Definitions:**

- A. Frequency of special inspections and tests:
  1. P (Perform): Perform these tasks for each welded joint, bolted connection, or each member. (AISC 360 & AISC 341)
  2. O (Observe): Observe these items on a random basis. Operations need not be delayed pending these inspections. (AISC 360 & AISC 341)
  3. P (Perform): Perform these tasks prior to final acceptance for each item or element. (SDI QA/QC)
  4. O (Observe): Inspect these items of an intermittent basis. Operations need not be delayed pending these inspection. (SDI QA/QC)
  5. D (Document): The inspector shall prepare reports indicating that the work has been performed in accordance with the contract documents. Only required for structures designed per AISC 341 – Seismic Provisions for Structural Steel Buildings. (AISC 341)

6. C (Continuous): Continuous special inspections is the constant monitoring of specific tasks by a special inspector. These inspections must be carried out continuously over the duration of the particular tasks. (2015 IBC)
7. P (Periodic): Periodic special inspection is inspections by the special inspector who is intermittently present where the work has been or is being performed. (2015 IBC)

**4.02 Statement of Special Inspections and Test**

Statement of Special Inspections and Test
2015 International Building Code
Project: Clarinda Correctional Facility – Kitchen & Laundry Addition

A. Steel Construction (IBC: 1705.2)				
1. Structural Steel (IBC: 1705.2.1; AISC 360; AISC 341)				
Required	Task	Perform	Observe	Referenced Standard
Inspection Tasks Prior to Welding				
<input checked="" type="checkbox"/>	a. Material identification (Type/Grade).	-	O	AISC 360 - Table N5.4-1, AISC 341 - Table J6-1
<input checked="" type="checkbox"/>	b. Fit-up of groove welds (including joint geometry).	-	O	AISC 360 - Table N5.4-1, AISC 341 - Table J6-1
<input checked="" type="checkbox"/>	c. Fit-up of fillet welds.	-	O	AISC 360 - Table N5.4-1, AISC 341 - Table J6-1
Inspection Tasks After Welding				
<input checked="" type="checkbox"/>	d. Welds cleaned.	-	O	AISC 360 - Table N5.4-3, AISC 341 - Table J6-3
<input checked="" type="checkbox"/>	e. Size, length and location of welds.	P	-	AISC 360 - Table N5.4-3, AISC 341 - Table J6-3
<input checked="" type="checkbox"/>	f. Welds meet visual acceptance criteria.	P, D	-	AISC 360 - Table N5.4-3, AISC 341 - Table J6-3
<input checked="" type="checkbox"/>	g. Repair activities.	P, D	-	AISC 360 - Table N5.4-3, AISC 341 - Table J6-3
<input checked="" type="checkbox"/>	h. Document acceptance or rejection of welded joint or member.	P	-	AISC 360 - Table N5.4-3
Nondestructive Testing of Welded Joints				
<input checked="" type="checkbox"/>	i. CJP welds (Risk Category III or IV).	-	O	AISC 360 - N5.5b
<input checked="" type="checkbox"/>	j. Fasteners marked in accordance with ASTM requirements.	-	O	AISC 360 - Table N5.6-1
<input checked="" type="checkbox"/>	k. Proper fasteners selected for the joint detail.	-	O	AISC 360 - Table N5.6-1, AISC 341 - Table J7-1
<input checked="" type="checkbox"/>	l. Proper bolting procedure selected for joint detail.	-	O	AISC 360 - Table N5.6-1, AISC 341 - Table J7-1
<input checked="" type="checkbox"/>	m. Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements.	-	O	AISC 360 - Table N5.6-1, AISC 341 - Table J7-1

<input checked="" type="checkbox"/>	n. Proper storage provided for bolts, nuts, washers and other fastener components.	-	O	AISC 360 - Table N5.6-1, AISC 341 - Table J7-1
Inspection Tasks During Bolting				
<input checked="" type="checkbox"/>	o. Fastener assemblies, of suitable condition, placed in all holes and washers (if required) are positioned as required.	-	O	AISC 360 - Table N5.6-2, AISC 341 - Table J7-2
<input checked="" type="checkbox"/>	p. Joint brought to the snug-tight condition prior to the pretensioning operation.	-	O	AISC 360 - Table N5.6-2, AISC 341 - Table J7-2
<input checked="" type="checkbox"/>	q. Fastener component not turned by the wrench prevented from rotating.	-	O	AISC 360 - Table N5.6-2, AISC 341 - Table J7-2
<input checked="" type="checkbox"/>	r. Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges.	-	O	AISC 360 - Table N5.6-2, AISC 341 - Table J7-2
Inspection Tasks After Bolting				
<input checked="" type="checkbox"/>	s. Document acceptance or rejection of bolted connections.	P, D	-	AISC 360 - Table N5.6-3, AISC 341 - Table J7-3
Other Inspection Task				
<input checked="" type="checkbox"/>	t. Anchor rod and other embedments supporting structural steel.	P	-	AISC 360 - N5.7
2. Cold-Formed Steel Deck (IBC: 1705.2.2, SDI QA/QC)				
Required	Verification and Inspection	Perform	Observe	Referenced Standard
Inspection or Execution Tasks Prior to Deck Placement (SDI QA/QC Table 1.1)				
<input checked="" type="checkbox"/>	a. Verify compliance of materials (deck and all deck accessories) with construction documents, including profiles, material properties, and base metal thickness.	P	-	
<input checked="" type="checkbox"/>	b. Document acceptance or rejection of deck and deck accessories.	P	-	
Inspection or Execution Tasks After Deck Placement (SDI QA/QC Table 1.2)				
<input checked="" type="checkbox"/>	c. Verify compliance of deck and all deck accessories installation with construction documents.	P	-	
<input checked="" type="checkbox"/>	d. Document acceptance or rejection of installation of deck and deck accessories.	P	-	
Inspection or Execution Tasks After Welding (SDI QA/QC Table 1.5)				

<input checked="" type="checkbox"/>	e. Verify size and location of welds, including support, sidelap, and perimeter welds.	P	-	
<input checked="" type="checkbox"/>	f. Welds meet visual acceptance criteria.	P	-	
<input checked="" type="checkbox"/>	g. Verify repair activities.	P	-	
<input checked="" type="checkbox"/>	h. Document acceptance or rejection of welds.	P	-	
Inspection or Execution Tasks Prior to Mechanical Fastening (SDI QA/QC Table 1.6)				
<input checked="" type="checkbox"/>	h. Proper tools available for fastener installation.	-	O	
<input checked="" type="checkbox"/>	j. Proper storage for mechanical fasteners.	-	O	
Inspection or Execution Tasks During to Mechanical Fastening (SDI QA/QC Table 1.7)				
<input checked="" type="checkbox"/>	k. Fasteners are positioned as required.	-	O	
<input checked="" type="checkbox"/>	l. Fasteners are installed in accordance with manufacturer's instructions.	-	O	
Inspection or Execution Tasks After Mechanical Fastening (SDI QA/QC Table 1.8)				
<input checked="" type="checkbox"/>	m. Check spacing, type, and installation of support fasteners.	P	-	
<input checked="" type="checkbox"/>	n. Check spacing, type and installation of sidelap fasteners.	P	-	
<input checked="" type="checkbox"/>	o. Check spacing, type, and installation of perimeter fasteners.	P	-	
<input checked="" type="checkbox"/>	p. Verify repair activities.	P	-	
<input checked="" type="checkbox"/>	q. Document acceptance or rejection of mechanical fasteners.	P	-	
3. Open-Web Steel Joist and Joist Girders (IBC: 1705.2.3, IBC Table 1705.2.3)				
Required	Verification and Inspection	Continuous	Periodic	Referenced Standard
Installation of Open-Web Steel Joists and Joist Girders				
<input checked="" type="checkbox"/>	a. End connections - welding or bolted.	-	P	SJI (CJ, K, LH/DLH, JG) Specification
<input checked="" type="checkbox"/>	b. Bridging (horizontal or diagonal) - Standard bridging.	-	P	SJI (CJ, K, LH/DLH, JG) Specification

B. Concrete Construction (IBC: 1705.3)					
1. Concrete Construction (IBC: Table 1705.3)					
Required	Verification and Inspection	Continuous	Periodic	Referenced Standard	IBC Reference
<input checked="" type="checkbox"/>	a. Inspection of reinforcing steel, and placement.	-	P	ACI 318: Ch. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4
<input checked="" type="checkbox"/>	b. Inspect anchors cast in concrete.	-	P	ACI 318: 17.8.2	

<input checked="" type="checkbox"/>	c. Inspect anchors post-installed in hardened concrete members: Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	C	-	ACI 318: 17.8.2.4	
<input checked="" type="checkbox"/>	d. Inspect anchors post-installed in hardened concrete members: Mechanical anchors and adhesive anchors not defined in B.1.f	-	P	ACI 318: 17.8.2	
<input checked="" type="checkbox"/>	e. Verify use of required design mix.	-	P	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
<input checked="" type="checkbox"/>	f. Fresh concrete tests: refer to section 03 30 00 for tests.	C	-	ASTM C172, ASTM C31, ACI 318: 26.4.5, 26.12	1908.1
<input checked="" type="checkbox"/>	g. Inspect concrete placement for proper application techniques.	C	-	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
<input checked="" type="checkbox"/>	h. Verify maintenance of specified curing temperature and techniques.	-	P	ACI 318: 26.4.7-26.4.9	1908.9
<input checked="" type="checkbox"/>	i. Inspect erection of precast concrete members.	-	P	ACI 318: Ch. 26.8	
<input checked="" type="checkbox"/>	j. Inspect formwork for shape, location and dimensions of the concrete member being formed.	-	P	ACI 318: 26.10.1 (b)	

C. Masonry Construction (IBC: 1705.4)					
1. Masonry Construction: Level B (TMS 402/ACI 530/ASCE 5: Table 3.1.2)					
Required	Verification and Inspection	Continuous	Periodic	Referenced for Criteria	
Minimum Tests					
<input checked="" type="checkbox"/>	a. Verification of f <sub>m</sub> and f <sub>AC</sub> C.	-	-	TMS 602/ ACI 530.1/ASCE 6: Art. 1.4 B	
Prior to Construction					
<input checked="" type="checkbox"/>	b. Verify compliance with the approved submittals.	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 1.5	
As Construction Begins					
<input checked="" type="checkbox"/>	c. Proportions of site-prepared mortar.	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 2.1, 2.6 A	
<input checked="" type="checkbox"/>	d. Construction of mortar joints.	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 3.3 B	
<input checked="" type="checkbox"/>	e. Location of reinforcement, connectors, .	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 3.4, 3.6 A	
Prior to Grouting					
<input checked="" type="checkbox"/>	f. Grout space.	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 3.2 D, 3.2 F	

<input checked="" type="checkbox"/>	g. Grade, type, and size of reinforcement and anchor bolts,.	-	P	TMS 402/ ACI 530/ASCE 5: Sec. 6.1 TMS 602/ ACI 530.1/ASCE 6: Art. 2.4, 3.4
<input checked="" type="checkbox"/>	h. Placement of reinforcement, connectors,.	-	P	TMS 402/ ACI 530/ASCE 5: Sec. 6.1, 6.2.1, 6.2.6, 6.2.7 TMS 602/ ACI 530.1/ASCE 6: Art. 3.2 E, 3.4, 3.6 A
<input checked="" type="checkbox"/>	i. Proportions of site-prepared.	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 2.6 B, 2.4 G.1.b
<input checked="" type="checkbox"/>	j. Construction of mortar joints.	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 3.3 B
During Construction				
<input checked="" type="checkbox"/>	k. Size and location of structural elements.	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 3.3 F
<input checked="" type="checkbox"/>	l. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames, or other construction.	-	P	TMS 402/ ACI 530/ASCE 5: Sec. 1.2.1 €, 6.1.4.3, 6.2.1
<input checked="" type="checkbox"/>	m. Preparation, construction, and protection of masonry during cold weather (temperature below 40°F (4.4°C)) or hot weather (temperature above 90°F (32.2°C)).	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 1.8 C, 1.8 D
<input checked="" type="checkbox"/>	n. Placement of grout is in compliance.	C	-	TMS 602/ ACI 530.1/ASCE 6: Art. 3.5, 3.6 C
<input checked="" type="checkbox"/>	o. Observe preparation of grout specimens, mortar specimens, and/or prisms.	-	P	TMS 602/ ACI 530.1/ASCE 6: Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

E. Soils (IBC: 1705.6)				
1. Soils (IBC: Table 1705.6)				
Required	Verification and Inspection	Continuous	Periodic	Referenced Standard
<input checked="" type="checkbox"/>	a. Verify materials below shallow foundation are adequate to achieve the design bearing capacity.	-	P	
<input checked="" type="checkbox"/>	b. Verify excavations are extended to proper depth and have reached proper material.	-	P	
<input checked="" type="checkbox"/>	c. Perform classification and testing of compacted fill materials.	-	P	
<input checked="" type="checkbox"/>	d. Verify use of proper materials, densities and lift thicknesses during placement	C	-	

	and compaction of compacted fill.			
<input checked="" type="checkbox"/>	e. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	-	P	

K. Fire-Resistance and Smoke Control					
Required	Verification and Inspection	Continuous	Periodic	Referenced Standard	IBC Reference
1. Sprayed Fire-Resistant Materials (IBC: 1705.14)					
<input checked="" type="checkbox"/>	a. Condition of substrates.	-	P		1705.14.2
<input checked="" type="checkbox"/>	b. Application.	-	P		1705.14.3
<input checked="" type="checkbox"/>	c. Thickness.	-	P		1705.14.4
<input checked="" type="checkbox"/>	d. Density.	-	P		1705.14.5
<input checked="" type="checkbox"/>	e. Bond strength adhesion/cohesion.	-	P		1705.14.6
2. Fire-Resistant Penetrations and Joints (IBC: 1705.17)					
<input checked="" type="checkbox"/>	a. Penetration firestops.	-	P	ASTM E 2174	1705.17.1
<input checked="" type="checkbox"/>	b. Fire-resistant joint systems.	-	P	ASTM E 2393	1705.17.2

**END OF SECTION**

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**SECTION 01 5000**

**TEMPORARY FACILITIES AND CONTROLS**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Temporary Utilities
- B. Temporary Sanitary Facilities
- C. Telephone Service
- D. Removal of Utilities, Facilities, and Controls
- E. Temporary Facilities
- F. Equipment
- G. Vehicular Access and Parking
- H. Traffic Regulation
- I. Barriers
- J. Enclosures and Fencing
- K. Waste Removal

**1.02 TEMPORARY UTILITIES**

- A. Owner will provide the following:
  - 1. Electrical Power Supply, consisting of connection to existing facilities.
  - 2. Water Supply, consisting of connection to existing facilities.
- B. The Contractor shall pay for installation, maintenance, and removal of temporary utilities. Temporary utilities shall not disrupt the Facility's need for continuous service.

**1.03 TEMPORARY SANITARY FACILITIES**

- A. Temporary Sanitary Facilities shall be by owner.

**1.04 TELEPHONE SERVICE**

- A. Provide, maintain, and pay for telephone service to field or use a cellular telephone.

**1.05 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS**

- A. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

**PART 2 - PRODUCTS**

**2.01 TEMPORARY FACILITIES**

- A. Field Offices: Coordinate with Construction Manager and Owner if applicable.

**2.02 EQUIPMENT**

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

**PART 3 - EXECUTION**

### **3.01 VEHICULAR ACCESS AND PARKING**

- A. Use designated existing on-site roads for construction traffic.
- B. Parking is as directed by Owner.
- C. When site space is not adequate, provide additional off-site parking.
- D. Use of designated existing on-site streets and driveways used for construction traffic is permitted. Track vehicles not allowed on paved areas.
- E. Use of designated areas of existing parking facilities used by construction personnel as permitted.
- F. Do not allow heavy vehicles or construction equipment in parking areas.
- G. Provide and maintain access to fire hydrants, free of obstructions.
- H. Provide means of removing mud from vehicle wheels before entering streets.

### **3.02 TRAFFIC REGULATION**

- A. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- B. Flares and lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- C. Haul Routes:
  - 1. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.
- D. Removal:
  - 1. Remove equipment and devices when no longer required.
  - 2. Repair damage caused by demolition.

### **3.03 BARRIERS**

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for Owner's use of site and to protect existing facilities and adjacent properties from damage during construction operations.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

### **3.04 ENCLOSURES AND FENCING**

- A. Provide temporary enclosures and fences as necessary to protect the public and secure the site.
- B. Provide security and facilities to protect work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

### **3.05 WASTE REMOVAL**

- A. Except for items or materials to be salvaged, recycled or otherwise reused, remove waste materials from project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.

- C. Waste Disposal Facilities: Provide waste collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.
- D. All Trade Contractors shall be responsible for the cleanup of their own work. Provide means and methods to ensure construction debris and materials are collected and removed to dumpsters on a daily basis.
- E. Each Trade Contractor shall provide daily jobsite clean-up for debris and dust generated by the installation of their scope of work. Haul debris to the dumpster provided by the Construction Manager. Daily jobsite clean-up shall consist of all prime contractor's employees cleaning the work area for at least 30 minutes before leaving.
- F. Roll Off Service (Dumpsters) shall be provided by the owner.

**END OF SECTION**

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## SECTION 01 6000

### PRODUCT REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. General product requirements
- B. Product options
- C. Maintenance materials
- D. Transportation and handling
- E. Storage and protections

#### PART 2 - PRODUCTS

##### 2.01 GENERAL PRODUCT REQUIREMENTS

- A. Provide new products unless specifically required or permitted by the contract documents.
- B. Do not use products having any of the following characteristics:
  - 1. Made using or containing CFC's or HCFC's
  - 2. Made of wood from newly cut old growth timber.
- C. Where all other criteria are met, contractor shall give preference to products that:
  - 1. If used on interior, have lower emissions
  - 2. If wet-applied, have lower VOC content
  - 3. Are extracted, harvested, and/or manufactured closer to the location of the project
  - 4. Have longer documented life span under normal used
  - 5. Result in less construction waste
  - 6. Are made of vegetable materials that are rapidly renewable

##### 2.02 PRODUCT OPTIONS

- 1. Products specified by reference standards or by description only: Use of any product meeting those standards or description.
- 2. Products specified by naming one or more manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- 3. Products specified by naming one or more manufacturers with a provision for substitutions: Submit a request for substitution for any manufacturer not named by the date specified in this project manual.

##### 2.03 MAINTENANCE MATERIALS

- 1. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- 2. Deliver to project site; obtain receipt prior to final payment.

#### PART 3 - EXECUTION

##### 3.01 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.02 STORAGE AND PROTECTIONS**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to the product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturers' warranty conditions, if any.
- H. Cover product subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

## SECTION 01 7300

### EXECUTION

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures
- B. Alteration project procedures
- C. Cutting and patching
- D. Cleaning and protection
- E. Adjusting

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

##### 3.01 EXAMINATION, PREPARATION, AND GENERAL INSTALLATION PROCEDURES

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or mis-production.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to cutting: Examine existing conditions prior to commencing work; include elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.
- G. Clean substrate surfaces prior to applying next material or substance.
- H. Seal cracks or openings of substrate prior to applying next material or substance.
- I. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.
- J. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- K. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- L. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- M. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- N. Make neat transitions between different surfaces, maintaining texture and appearance.

##### 3.02 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in product sections match existing products and work for patching and extending work.
- B. Employ skilled and experienced installer to perform alteration work.
- C. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

- D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished work.
- E. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finished to original condition.
- F. Remove debris and abandoned items from area and from concealed spaces.
- G. Refinish visible existing surfaces to remain in renovated rooms and spaces to specified condition for each material with a neat transition to adjacent finishes.
- H. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.
- I. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line of division and make recommendation to the Construction Manager. Prior to cutting get the Owner's approval.
- J. Where change of plane of ¼ inch or more occurs, submit recommendation for providing smooth transition to the Construction Manager for review.

### **3.03 CUTTING AND PATCHING**

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affect:
  - 1. Structural integrity of element.
  - 2. Integrity of weather-exposed or moisture-resistant elements.
  - 3. Efficiency, maintenance, or safety of element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of owner or separate contractor.
- C. Execute cutting, fitting, and patching to complete work, and to:
  - 1. Fit the several parts together, to integrate with other work.
  - 2. Uncover work to install or correct ill-timed work.
  - 3. Remove and replace defective and non-conforming work.
  - 4. Remove samples of installed work for testing.
  - 5. Provide openings in elements of work for penetrations of mechanical and electrical work.
- D. Execute work by methods to avoid damage to other work and which will provide proper surfaces to receive patching and finishing.
- E. Cut rigid materials using masonry saw or core drill.
- F. Cut masonry and concrete materials using masonry saw or core drill.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work tight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- I. Maintain integrity of wall, ceiling or floor construction; completely seal voids.
- J. Refinish surfaces to match adjacent finishes. Refinish to nearest intersection for continuous surfaces. Refinish entire unit for continuous surfaces for an assembly.
- K. Identify hazardous substances or conditions exposed during the work to the engineer for decision or remedy.

### **3.04 CLEANING AND PROTECTION**

- A. Progress cleaning
  - 1. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
  - 2. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.
- B. Protection of installed work
  - 1. Protect installed work from damage by construction operations.
  - 2. Provide special protection where specified in individual specification sections.

3. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
4. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.
5. Prohibit traffic from landscaped areas.

**3.05 ADJUSTING**

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

**END OF SECTION**

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## SECTION 01 7700

### CLOSEOUT PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Inspections
- B. Substantial Completion
- C. Project Record Documents
- D. Warranties
- E. Operations and Maintenance Manuals
- F. Operations and Maintenance Data for Materials and Finishes
- G. Operations and Maintenance Data for Equipment and Systems
- H. Training
- I. Final Completion
- J. Maintenance

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

##### 3.01 INSPECTIONS

- A. Ensure all state inspections have been completed by the authority having jurisdiction.
- B. Upload documentation of all test/inspections to Procore.
- C. Submit a written request for inspection of Substantial Completion. On receipt of request, The Design Professional will either proceed with inspection or notify contractor of unfulfilled requirements. The Design Professional will prepare the Certificate of Substantial Completion after inspection or will notify contractor of items, either on contractor's list or additional items identified by architect that must be completed or corrected before certificate will be issued.
  - 1. Re-inspection: Request re inspection when the work identified in previous inspections as incomplete is completed or corrected.
  - 2. Results of completed inspection will form the basis of requirements for Final Completion.

##### 3.02 SUBSTANTIAL COMPLETION

- A. A substantial completion checklist is attached for reference following this specification section.
- B. Make submittals that are required by governing or other authorities.
  - 1. Provide copies to the Construction Manager through upload to Procore.
- C. Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Submit written certification that contract documents have been reviewed, work has been inspected, and that work is completed in accordance with contract documents and ready for review
  - 2. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the work has not been completed.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Make final changeover of permanent locks and deliver key to the owner. Advise owner's personnel of changeover in security provisions.
  - 5. Complete startup testing of systems.

6. Submit test/adjust, balance records.
7. Terminate and remove temporary facilities from project site, along with mockups, construction tools, and similar elements.
8. Advise owner of changeover in heat and other utilities.
9. Submit changeover information related to owner's occupancy, use, operation, and maintenance.
10. Complete final cleaning requirements, including touch up painting.
11. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

### **3.03 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the work:
  1. Drawings
  2. Specifications
  3. Addenda
  4. Change orders and other modifications to the contract
  5. Reviewed shop drawings, product data, and samples
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  1. Manufacturer's name and product model and number.
  2. Product substitutions or alterations utilized.
  3. Changes made by Addenda and modifications.
- F. Record Drawings:
  1. Measured depths of foundations in relation to finish first floor datum.
  2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
  4. Field changes of dimension and detail.
  5. Details not on original contract drawings.
- G. Record Drawings shall be uploaded to Procore in pdf format.

### **3.04 WARRANTIES**

- A. Submit written warranties for designated portions of the work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Submit properly executed warranties in Procore prior to Final Completion.
- C. Verify that documents are in proper form, contain full information, and are notarized.
- D. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- E. Include warranties in operation and maintenance manuals.
- F. Items of work delayed beyond date of Substantial Completion, provide updated submittal after acceptance by Owner, listing date of acceptance as start of warranty period

### **3.05 OPERATIONS AND MAINTENANCE MANUALS**

- A. Format: Submit operations and maintenance manuals in the following format:

1. Portable Document Format (PDF) electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Owner and upload to Procore.
    - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
  2. Assemble with data arranged in the same sequence as, and identified by the specification sections. Where systems involve more than one specification section, provide separate index for each system.
  3. Include project directory listing title and address of project, names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.
  4. Include Table of Contents listing every item separated by index and specification section.
- B. Source Data: For each product or system, list names, addresses, and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use project record documents as maintenance drawings.
- E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

### **3.06 OPERATIONS AND MAINTENANCE DATA FOR MATERIALS AND FINISHES**

- A. For each product, applied material, and finish:
1. Product data, with catalog number, size, composition, and color and texture designations.
  2. Information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional information as specified in individual product specification sections.
- E. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specified products.

### **3.07 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS**

- A. For each item of equipment and each system:
1. Description of unit or system, and component parts
  2. Identify function, normal operating characteristics, and limiting conditions
  3. Include performance curves, with engineering data and tests
  4. Complete nomenclature and model number of replacement parts.
- B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specified products.
- C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- D. Include color coded wiring diagrams as installed.

- E. Operating procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- F. Maintenance requirements: Include routine procedure and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- G. Provide servicing and lubrication schedule and list of lubricants required.
- H. Include manufacturer's printed operation and maintenance instructions.
- I. Include sequence of operation by controls manufacturer.
- J. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- K. Provide control diagrams by controls manufacturer as installed.
- L. Provide contractor's coordination drawings, with color coded piping diagrams as installed.
- M. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- N. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- O. Include test and balancing reports.
- P. Additional requirements: As specified in individual specification sections.

### **3.08 TRAINING**

- A. Demonstrate operations of systems, subsystems, and equipment.
- B. Train in operation and maintenance of systems, subsystems, and equipment
- C. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- D. Submit written agenda to Construction Manager for approval prior to scheduling training.
- E. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

### **3.09 FINAL COMPLETION**

- A. A final completion checklist is attached for reference following this specification section.
- B. Before requesting final inspection for determining date of Final Completion, complete the following:
  - 1. Complete punch list items.
  - 2. Prepare and submit project record documents, operation and maintenance manuals, damage or settlement surveys, and similar final record information.
  - 3. Deliver tools, spare parts, extra materials, and similar items to location designated by owner. Label with manufacturer's name and model number where applicable.
  - 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
  - 5. All trailers, construction signs, unused, broken or demolition materials have been removed from the site and the premises returned to the original condition in the opinion of the Owner and Design Professional.
  - 6. Submit a final Application for Payment (retainage).
- C. Upon receipt of final payment complete final completion certificate in Procore.

**END OF SECTION**

**Substantial Completion Project Checklist**

Date: \_\_\_\_\_

DAS Project Number: \_\_\_\_\_

Project Title: \_\_\_\_\_

Location: \_\_\_\_\_

Contractor: \_\_\_\_\_

In order to process the 99% payment (100% pay app less closeout and retainage) on a Capital Project, the Department of Administrative Services needs the following information. Please complete this form and obtain the necessary documents.

**Have all state inspections been completed and documentation uploaded to Procore?**  
*(Including but not limited to the following inspections)*

- |                          |                              |                             |                              |
|--------------------------|------------------------------|-----------------------------|------------------------------|
| Boiler Inspection        | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Water Heater Inspection  | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Energy Code Inspection   | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Building Code Inspection | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Electrical Inspection    | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Elevator Inspection      | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| Other: _____             | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |

Occupancy Permit if applicable

Test and Balance has been performed

Certificate of Substantial Completion in Procore (Consensus Docs 814)

**Are there any disputes with the above mentioned vendor which need resolution?**

Yes (provide description below)  No

\_\_\_\_\_  
\_\_\_\_\_

**Can payment (less closeout and retainage) be released?**  Yes  No

## Final Completion Project Checklist

Date: \_\_\_\_\_

DAS Project Number: \_\_\_\_\_

Project Title: \_\_\_\_\_

Location: \_\_\_\_\_

Contractor: \_\_\_\_\_

In order to process the 100% payment and Retainage payment on a Capital Project, the Department of Administrative Services needs the following information. Please complete this form and obtain the necessary documents.

Have all Warranties been received?  Yes  No

Have the Operations and Maintenance Manuals been received?  Yes  No

Who is in possession of the O & M Manuals? \_\_\_\_\_

Has all training been completed?  Yes  No

Have all as-built drawings been scanned and uploaded into Procore?  Yes  No

Have electronic drawing/specification files been transferred to DAS?  Yes  No

Have all Test & Balance reports been received?  Yes  No

Have all punchlist items been corrected?  Yes  No

**573 Notification** (*To be obtained from the general contractor*): Copy of general contractor's notification of application for retainage to all subcontractors and suppliers. General contractor must follow IAC 26 section 23.13.2.

**AIA Form G706 – Contractor's Affidavit of Payment of Debts and Claims**

**AIA Form G706A – Contractor's Affidavit of Release of Liens**

**AIA Form G707 – Consent of Surety Company to Final Payment**

**Certificate of Final Completion in Procore (Consensus Docs 815)**

Are there any disputes with the above mentioned vendor which need resolution?

Yes (provide description below)  No

---

Can 100% payment and retainage payment be released?  Yes  No

**SECTION 01 9113  
GENERAL COMMISSIONING REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Commissioning is a systematic process of verifying and documenting that all building systems and assemblies are installed, checked out and perform interactively according to the Contract Documents and Owner's objectives and requirements. This is achieved during construction, and the warranty or occupancy period with actual verification of performance. The commissioning process shall encompass and coordinate the functions of system documentation, equipment installation, equipment startup, control calibration, testing and balancing, functional testing and training.
- B. The trade contractors and subcontractors are ultimately responsible for the commissioning responsibilities for their trades. If the trade contractors elects to outsource commissioning responsibilities, the Owner must approve the agent.
- C. Commissioning will be directed by a commissioning provider (CxP) that has been contracted directly to the Owner. Any CxP responsibilities are listed in the specifications as information to the trade contractors.
- D. Commissioning Team: The members of the commissioning team consist of the CxP, the Owner, the Contractor(s), the Architect and design engineers, the mechanical contractor, the electrical contractor, the testing adjusting and balancing representative, the contractors of automated controls, any other installing subcontractors or suppliers of commissioned equipment or assemblies and the Owner's building or plant operator/Engineer.
- E. The Commissioning Provider does not have authority or authorization to direct any changes or modifications to work. The Commissioning Provider may provide comments and recommendations. Decisions on changes to the contract documents lie with the architect and engineer of record, and the Owner.
- F. This Section includes a description of the commissioning process to be used for this Project and applies to all commissioned systems and assemblies.
- G. Commissioning Process Overview: The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur.
  - 1. Commissioning during construction begins with a kick-off meeting conducted by the CxP where the commissioning process is reviewed with the commissioning team members.
  - 2. Additional meetings will be required throughout construction, scheduled by the CxP with necessary parties attending. These will be held in conjunction with regular construction meetings when possible.
  - 3. Equipment and assembly documentation is submitted to the CxP concurrent with the Owner or design team review period, including product submittals, detailed start-up procedures and installation manuals.
  - 4. The CxP and/or Contractor(s) develop construction checklists to be completed by the Contractor during the installation and start-up process.
  - 5. The Contractor, under their own direction, execute and document the Startup Documentation Packages and perform start-up and initial checkout. The CxP documents that the checklists and start-up were completed through spot witnessing and reviewing Contractor's completed checklists and startup reports.
  - 6. The CxP performs periodic construction observation.
  - 7. The CxP and Contractor(s) develops specific written equipment and system functional test procedures for all commissioned equipment.
  - 8. The functional test procedures are executed by the Contractor(s), under the direction of the CxP.
  - 9. Items of non-compliance in material, installation or setup are corrected by the Contractor(s) and the system is re-tested.
  - 10. The CxP reviews the O&M manuals for clarity and completeness.

11. The CxP reviews the training program provided by the trade contractors and verifies that it is completed.
  12. Functional testing is complete before Substantial Completion.
  13. Opposite season or deferred testing and near-warranty-end activities are conducted, as specified.
- H. Abbreviations: The following are common abbreviations used in the Specifications and in the commissioning process.
- |      |                                                  |
|------|--------------------------------------------------|
| A/E  | Architect and Design Engineers                   |
| BAS  | Building Automation System                       |
| BOD  | Basis of Design                                  |
| CC   | Controls Contractor (building automation system) |
| CM   | Construction Manager                             |
| Cx   | Commissioning                                    |
| CxP  | Commissioning Provider                           |
| CxC  | Commissioning Coordinator                        |
| EC   | Electrical Contractor                            |
| FT   | Functional Test                                  |
| IST  | Integrated System Test                           |
| MC   | Mechanical Contractor                            |
| O&M  | Operation and Maintenance Manuals                |
| OPR  | Owner's Project Requirements                     |
| PC   | Plumbing Contractor                              |
| PFC  | Prefunctional Checklists                         |
| PM   | Project Manager (of the Owner)                   |
| SOO  | Sequence of Operations                           |
| Subs | Subcontractors / Trade Contractors               |
| TAB  | Test and Balance (Contractor)                    |

## 1.02 SYSTEMS TO BE COMMISSIONED

- A. HVAC:
  1. Air Handling Units
  2. Dedicated Outside Air Units
  3. Exhaust Fans
  4. Split System Heating / Cooling Units
  5. Terminal Heating Equipment
  6. Variable Air Volume Boxes
- B. Building Automation System:
  1. Graphics
  2. Sequences of Operation
- C. Electrical Systems:
  1. Generator and Transfer Switches
  2. Lighting Controls
- D. Plumbing Systems:
  1. Circulating Pumps
  2. Water Heaters

## 1.03 RELATED REQUIREMENTS

- A. Section 017800 - Closeout Submittals: Scope and procedures for operation and maintenance manuals and project record documents.
- B. Section 017900 - Demonstration and Training: Scope and procedures for Owner personnel training.
- C. Section 230800 – HVAC Commissioning Requirements.

D. Section 260800 – Electrical Commissioning Requirements.

#### **1.04 REFERENCE STANDARDS**

- A. ASHRAE Guideline 0-2013 – The Commissioning Process.
- B. ASHRAE Standard 202-2018 - Commissioning Process for Buildings and Systems.

#### **1.05 RESPONSIBILITIES BY PARTY**

- A. Architect and Mechanical and Electrical Engineers of Record (for contractor reference):
  - 1. Develop the Basis of Design and design narratives (if not already complete).
  - 2. At the request of either the Owner's Representative or CxP review selected functional test procedures and submit comments to the Owner's Representative.
  - 3. Attend commissioning kickoff meeting at start of construction phase and commissioning meetings as necessary.
  - 4. Assist in resolution of design related issues that are discovered during commissioning.
  - 5. Respond to commissioning requests for information and clarify design intent.
- B. Commissioning Provider (general overview for contractor reference):
  - 1. Coordinates the planning and execution of the commissioning process. Prepares a Commissioning Plan.
  - 2. Responsible for directing and documenting testing as delineated in this and other specification sections.
  - 3. Maintain the commissioning Issues Log.
  - 4. Lead commissioning kickoff meeting at start of construction phase and commissioning meetings as necessary.
  - 5. Prepare functional test procedures for each commissioned system.
  - 6. Review Contractor's submittals related to commissioned systems.
  - 7. Provide input for commissioning activities into the Contractor's schedule.
  - 8. Prepare and submit Observation Reports and the Issues Log as required.
  - 9. Verify that the Owner's maintenance personnel receive specified training.
  - 10. Prepare a Commissioning Report that includes a summary of overall commissioning process, including deficiencies found, deficiency corrections, unresolved deficiencies, approved equipment and systems, discrepancies between final design intent and as-built systems, completed commissioning checklists, test documentation, and other commissioning documentation.
  - 11. Perform a review of the building operation within 10 months after substantial completion.
- C. Owner (for contractor reference):
  - 1. Ensure the Contractor performs their commissioning responsibilities.
  - 2. Facilitate the coordination of the commissioning work by the CxP and resolution of design issues.
  - 3. Approve the commissioning work.
- D. Trade Contractor(s):
  - 1. The details of this article apply, as appropriate, to the trade contractor(s) and sub-tier contractors providing commissioned equipment.
  - 2. Coordinate and direct system installers in executing their commissioning tasks.
  - 3. Coordinate with the CxP to ensure that commissioning activities are integrated into the master schedule.
  - 4. Attend the commissioning planning and kick-off meetings and other necessary meetings scheduled by the CxP to facilitate the commissioning process.
  - 5. Oversee and document the execution of construction checklists and provide documentation of checklist completion and start-up reports to the CxP. Checklists shall be filled out only by parties having direct knowledge of the line item being signed off.
  - 6. Participate in the automated controls integration meetings coordinated by the CxP.

7. Furnish to the CxP a copy of all construction documents, addenda, requests for information, change orders and initial and approved submittals and shop drawings related to commissioned equipment
  8. Provide to the CxP manufacturer installation, start-up, operating, troubleshooting and maintenance procedures.
  9. Submit a written plan to the Owner and CxP for any temporary startup of equipment used for space conditioning. Obtain plan approval of Owner and CxP prior to such startup.
  10. Notify the Construction Manager and CxP when pipe and duct pressure testing, flushing, cleaning, start-up of each piece of equipment and testing adjusting, and balancing is complete.
  11. Be responsible for the resolution of contractor issues and deficiencies that are discovered during commissioning.
  12. Develop start-up plan using the manufacturer's installation and start-up procedures combined with the construction checklists from the CxP or Subcontractor for commissioned assemblies and equipment. Submit to CxP for review and approval prior to start-up.
  13. Review functional test procedures developed by the CxP to ensure feasibility, safety and equipment protection.
  14. Prior to functional testing, review the functional test procedures, run the equipment through the test procedures and confirm the equipment and system is ready for and will pass functional testing with the CxP.
  15. As assigned in this or other specification sections, write step-by-step test procedures and documentation forms for commissioned equipment and assemblies. Execute testing for selected systems and assemblies under the direction of the CxP. Assist and cooperate with the CxP by putting all commissioned equipment and systems into operation and continuing the operation during each working day of testing, as required.
  16. Provide all tools and equipment or the use of tools to start, checkout and test equipment and systems, except for specified testing with portable data-loggers, which shall be supplied and installed by the CxP. Submit a list of the measuring instrument tools with their accuracy specs and calibration dates to the CxP for approval at least two weeks prior to testing.
  17. Provide skilled technicians and perform testing under the direction of the CxP. Skilled technicians shall be familiar with the specific equipment and the specific automated control programming on this project.
  18. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty during occupancy. Provide this information to the CxP.
- E. Equipment Suppliers and Vendors of Commissioned Assemblies and Equipment
1. Provide requested submittal data including startup and checkout instructions. Provide specific responsibilities of the Owner to keep warranties in force for all commissioned equipment or assemblies.
  2. Assist the installing contractor in filling in construction checklist, startup and checkout documentation for equipment supplier or vendor installs and/or starts up.
  3. Provide information requested by CxP regarding equipment sequence of operation and testing procedures.
  4. Submit startup reports to Contractor within two days of startup.
  5. Review CxP test procedures for equipment installed by factory representatives.
  6. Assist in functional testing of equipment as needed by the Contractor and according to the specifications, including assisting CxP with execution of the functional tests for equipment with packaged controls, including demonstrating all controller setup screens.
  7. For larger primary equipment provide the technician that conducted start-up to support the first part of testing by the CxP, including chillers, boilers, large air handlers.
  8. Provide expert qualified staff for equipment training.

## 1.06 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.

1. Make all submittals specified in this section, and elsewhere where indicated for commissioning purposes, directly to the Commissioning Provider, unless they require review by Architect; in that case, submit to Architect first.
  2. Submit one copy to the Commissioning Provider or provide access to electronic / cloud-based system for submittals.
  3. As soon as possible after submittals made to Architect are approved, submit copy of approved submittal to the Commissioning Provider.
- B. Product Data: If submittals to Architect do not include the following, submit copies as soon as possible:
1. Manufacturer's product data, cut sheets, and shop drawings.
  2. Manufacturer's installation instructions.
  3. Startup, operating, and troubleshooting procedures.
  4. Fan and pump curves.
  5. Factory test reports.
  6. Warranty information, including details of Owner's responsibilities in regard to keeping warranties in force.
- C. Manufacturers' Instructions: Submit copies of all manufacturer-provided instructions that are shipped with the equipment as soon as the equipment is delivered.
- D. Startup Plans and Reports.
- E. Commissioning Issues Log:
1. Construction observations.
  2. Supporting photographs.
- F. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and supplementary instructions given.

## **PART 2 PRODUCTS**

### **2.01 TEST EQUIPMENT**

- A. Provide all standard testing equipment required to perform startup and initial checkout and required Functional Testing; unless otherwise noted such testing equipment will NOT become the property of Owner.
- B. Calibration Tolerances: Provide testing equipment of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified. If not otherwise noted, the following minimum requirements apply:
1. Temperature Sensors and Digital Thermometers: Certified calibration within past year to accuracy of 0.5 degree F (0.3 degree C) and resolution of plus/minus 0.1 degree F (0.05 degree C).
  2. Pressure Sensors: Accuracy of plus/minus 2.0 percent of the value range being measured (not full range of meter), calibrated within the last year.
  3. Calibration: According to the manufacturer's recommended intervals and when dropped or damaged; affix calibration tags or keep certificates readily available for inspection.
- C. Equipment-Specific Tools: Where special testing equipment, tools and instruments are specific to a piece of equipment, are only available from the vendor, and are required in order to accomplish startup or Functional Testing, provide such equipment, tools, and instruments as part of the work at no extra cost to Owner; such equipment, tools, and instruments are to become the property of Owner.
- D. Dataloggers: Independent equipment and software for monitoring flows, currents, status, pressures, etc. of equipment.
1. Dataloggers required for Functional Tests will be provided by the Commissioning Provider and will not become the property of Owner.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Cloud based software will be utilized for maintaining Prefunctional Checklists, Functional Performance Testing and Issue management. Contractors will be required to utilize the system. Logins will be provided to the contractors, and the software does not require a subscription fee from the contractors.

### **3.02 COMMISSIONING PLAN**

- A. Commissioning Provider will prepare the Commissioning Plan.
  - 1. Attend meetings called by the Commissioning Provider for purposes of completing the commissioning plan.
  - 2. Require attendance and participation of relevant subcontractors, installers, suppliers, and manufacturer representatives.
- B. Contractor is responsible for compliance with the Commissioning Plan.
- C. Commissioning Plan: The commissioning schedule, procedures, and coordination requirements for all parties in the commissioning process.
- D. Commissioning Schedule:
  - 1. Submit anticipated dates of startup of each item of equipment and system to Commissioning Provider within 60 days of anticipated start-up.
  - 2. Re-submit anticipated startup dates monthly, but not less than 4 weeks prior to startup.
  - 3. Prefunctional Checklists and Functional Tests are to be performed in sequence from components, to subsystems, to systems.
  - 4. Provide sufficient notice to Commissioning Provider for delivery of relevant Checklists and Functional Test procedures, to avoid delay.
- E. Meetings:
  - 1. Kick-off Meeting: The Contractor and prime subcontractors of commissioned equipment and the contractors of all major control systems (e.g., BAS, lighting), sheet metal and balancing subcontractors will attend a commissioning kick-off meeting planned and conducted by the CxP. Cx process, schedules, roles and communication and documentation protocols are discussed.
  - 2. Temporary or Early Startup of Equipment. When equipment will be used in a temporary mode prior to operating the equipment permanently, a meeting shall be held that discusses the issues surrounding indoor environmental quality, moisture intrusion, building pressurization, duct and equipment cleanliness, checkout of safeties and fire alarm and protection, maintaining hydronic water quality, etc.
  - 3. Miscellaneous Meetings: Meetings will be attended by the Contractor and appropriate subcontractors to deal with operation clarifications, deficiencies, schedules and testing. When practical, commissioning meetings will be an appendage to regular construction meetings. The number of specific meetings dedicated to commissioning, besides those specifically listed in this Section are expected to consist of, but may exceed, the following:
    - a. Equipment Start-Up Planning
    - b. From the beginning of functional testing of mechanical equipment until all mechanical equipment has had the first round of testing conducted: 1-hour meetings once a week.
    - c. From the end of the first round of testing until all deficiencies are corrected: 1-hour meetings once a week or as set by the owner.
    - d. If the number of deficiencies is abnormal or coordination or cooperation is insufficient, additional meetings or meeting durations shall be required.

### **3.03 STARTUP PLANS AND REPORTS**

- A. Startup Plans: For each item of equipment and system for which the manufacturer provides a startup plan, submit the plan not less than 8 weeks prior to startup.
- B. Startup Reports: For each item of equipment and system for which the manufacturer provides a startup checklist (or startup plan or field checkout sheet), document compliance by submitting the completed startup checklist prior to startup, signed and dated by responsible entity.
- C. Submit directly to the Construction Manager and Commissioning Provider.

### 3.04 PREFUNCTIONAL CHECKLISTS

- A. A Prefunctional Checklist is required to be filled out for each item of equipment or other assembly specified to be commissioned.
  - 1. Prefunctional Checklists will be prepared by the CxP and filled out by the CxP.
  - 2. These checklists do not replace manufacturers' recommended startup checklists, regardless of apparent redundancy.
  - 3. Contractor is responsible for reviewing Prefunctional Checklists, after completion of installation and before startup.
    - a. When asked to review the proposed Checklists, do so in a timely manner.
  - 4. Checklists with incomplete items may be submitted for approval provided the Contractor attests that incomplete items do not preclude the performance of safe and reliable Functional Testing; re-submission of the Checklist is required upon completion of remaining items.
  - 5. Individual Checklists may contain line items that are the responsibility of more than one installer; Contractor shall assign responsibility to appropriate installers or subcontractors.
  - 6. Regardless of these reporting requirements, Contractor is responsible for correct startup and operation.
  - 7. Commissioning Provider may add any relevant items deemed necessary regardless of whether they are explicitly mentioned in Contract Documents or not.
- B. Deficiencies:
  - 1. Correct deficiencies and re-inspect or re-test, as applicable, at no extra cost to Owner.

### 3.05 FUNCTIONAL TESTING

- A. A Functional Test is required for each item of equipment, system, or other assembly specified to be commissioned, unless sampling of multiple identical or near-identical units is allowed by the final test procedures.
- B. Contractor is responsible for the execution of required Functional Tests, after completion of Prefunctional Checklist and before closeout.
- C. Commissioning Provider is responsible for witnessing and reporting results of Functional Tests, including preparation and completion of forms for that purpose.
- D. The Trade Contractor(s) is responsible to ensure that equipment is ready for functional testing with the CxP which means the equipment will pass the measures in the test procedures previously submitted for their review and use. The responsible subcontractors use these written test procedures to checkout their equipment and shall dynamically run (not by simulation) the equipment through the test procedures prior to testing with the CxP, unless exempted elsewhere in the specifications. The installing and automated controls contractors shall sign the test procedure attesting to this successful pre-test execution and final test readiness prior to functional testing with the CxP.
- E. Formal functional tests with the CxP for a given system or assembly shall not be conducted until they are fully operational under normal and reliable control with control calibrations, programming, including all alarms, and automated control system graphics complete and trending and archiving set up and checked out and the Trade Subcontractors have submitted a signed completed construction checklist and where applicable a startup report, the air balancing and water balancing is deemed sufficiently complete by the CxP for the applicable systems, all satisfactory to the Commissioning Provider, and the installing contractors of automated controls have signed on the functional test script that they have run through the script dynamically with their equipment and that it will pass the test.
- F. If test readiness documentation indicates systems were ready, but the CxP finds upon arriving on site to conduct scheduled tests or during testing, that procedure failures or incomplete systems show that systems were actually not ready for testing, lost time by the CxP to work through the issues or come back for testing will be back charged to the Contractor.

- G. Prior to testing with the CxP, trending and archiving must have been set up by the BAS Controls contractor and is active for all points that are relevant for verifying proper operation or for troubleshooting
- H. Contractor is responsible for correction of deficiencies and re-testing at no extra cost to Owner; if a deficiency is not corrected and re-tested immediately, the Commissioning Provider will document the deficiency and the Contractor's stated intentions regarding correction.
  - 1. Deficiencies are any condition in the installation or function of a component, piece of equipment or system that is not in compliance with Contract Documents or does not perform properly.
  - 2. When the deficiency has been corrected, the Contractor completes the form certifying that the item is ready to be re-tested and returns the form to the Commissioning Provider; the Commissioning Provider will reschedule the test and the Contractor shall re-test.
  - 3. Identical or Near-Identical Items: If 10 percent, or three, whichever is greater, of identical or near-identical items fail to perform due to material or manufacturing defect, all items will be considered defective; provide a proposal for correction within 2 weeks after notification of defect, including provision for testing sample installations prior to replacement of all items.
  - 4. Contractor shall bear the cost of Owner and Commissioning Provider personnel time witnessing re-testing.
  - 5. Contractor shall bear the cost of Owner and Commissioning Provider personnel time witnessing re-testing if the test failed due to failure to execute the relevant Prefunctional Checklist correctly; if the test failed for reasons that would not have been identified in the Prefunctional Checklist process, Contractor shall bear the cost of the second and subsequent re-tests.
- I. Functional Test Procedures:
  - 1. Some test procedures are included in Contract Documents; where Functional Test procedures are not included in Contract Documents, test procedures will be determined by the Commissioning Provider with input by and coordination with Contractor.
  - 2. Examples of Functional Testing:
    - a. Test the dynamic function and operation of equipment and systems (rather than just components) using manual (direct observation) or monitoring methods under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint).
    - b. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc.
    - c. Systems are run through all the HVAC control system's sequences of operation and components are verified to be responding as the sequence's state.
    - d. Systems such as electrical generator testing may require coordination with other parties, such as the electric utility company.
    - e. Traditional air or water test and balancing (TAB) is not Functional Testing; spot checking of TAB by demonstration to the Commissioning Provider is Functional Testing.
- J. Deferred Functional Tests: Some tests may need to be performed later, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design or other site conditions; performance of these tests remains the Contractor's responsibility regardless of timing.

### **3.06 SENSOR AND ACTUATOR CALIBRATION**

- A. Calibrate all field-installed temperature, relative humidity, carbon monoxide, carbon dioxide, and pressure sensors and gauges, and all actuators (dampers and valves) on this piece of equipment shall be calibrated. Sensors installed in the unit at the factory with calibration certification provided need not be field calibrated.
- B. Calibrate using the methods described below; alternate methods may be used, if approved by Commissioning Provider and Owner beforehand. See PART 2 for test instrument

requirements. Record methods used on the relevant Prefunctional Checklist or other suitable forms, documenting initial, intermediate and final results.

- C. All Sensors:
  - 1. Verify that sensor location is appropriate and away from potential causes of erratic operation.
  - 2. Verify that sensors with shielded cable are grounded only at one end.
  - 3. For sensor pairs that are used to determine a temperature or pressure difference, for temperature make sure they are reading within 0.2 degree F (0.1 degree C) of each other, and for pressure, within tolerance equal to 2 percent of the reading of each other.
  - 4. Tolerances for critical applications may be tighter.
- D. Sensors Without Transmitters - Standard Application:
  - 1. Make a reading with a calibrated test instrument within 6 inches (150 mm) of the site sensor.
  - 2. Verify that the sensor reading, via the permanent thermostat, gauge or building automation system, is within the tolerances in the table below of the instrument-measured value.
  - 3. If not, install offset, calibrate or replace sensor.
- E. Sensors With Transmitters - Standard Application.
  - 1. Disconnect sensor.
  - 2. Connect a signal generator in place of sensor.
  - 3. Connect ammeter in series between transmitter and building automation system control panel.
  - 4. Using manufacturer's resistance-temperature data, simulate minimum desired temperature.
  - 5. Adjust transmitter potentiometer zero until 4 mA is read by the ammeter.
  - 6. Repeat for the maximum temperature matching 20 mA to the potentiometer span or maximum and verify at the building automation system.
  - 7. Record all values and recalibrate controller as necessary to comply with specified control ramps, reset schedules, proportional relationship, reset relationship and P/I reaction.
  - 8. Reconnect sensor.
  - 9. Make a reading with a calibrated test instrument within 6 inches (150 mm) of the site sensor.
  - 10. Verify that the sensor reading, via the permanent thermostat, gauge or building automation system, is within the tolerances in the table below of the instrument-measured value.
  - 11. If not, replace sensor and repeat.
  - 12. For pressure sensors, perform a similar process with a suitable signal generator.
- F. Sensor Tolerances for Standard Applications: Plus/minus the following maximums:
  - 1. Watthour, Voltage, Amperage: 1 percent of design.
  - 2. Pressure, Air, Water, Gas: 3 percent of design.
  - 3. Air Temperatures (Outside Air, Space Air, Duct Air): 0.4 degrees F (0.2 degree C).
  - 4. Relative Humidity: 4 percent of design.
  - 5. Barometric Pressure: 0.1 inch of Hg (340 Pa).
  - 6. Flow Rate, Air: 10 percent of design.
  - 7. Flow Rate, Water: 4 percent of design.
  - 8. AHU Wet Bulb and Dew Point: 2.0 degrees F (1.1 degrees C).
- G. Critical Applications: For some applications more rigorous calibration techniques may be required for selected sensors. Describe any such methods used on an attached sheet.
- H. Valve/Damper Stroke Setup and Check:
  - 1. For all valve/damper actuator positions checked, verify the actual position against the control system readout.
  - 2. Set pump/fan to normal operating mode.
  - 3. Command valve/damper closed; visually verify that valve/damper is closed and adjust output zero signal as required.

4. Command valve/damper to open; verify position is fully open and adjust output signal as required.
  5. Command valve/damper to a few intermediate positions.
  6. If the actual valve/damper position does not reasonably correspond, replace actuator or add pilot positioner (for pneumatics).
- I. Isolation Valve or System Valve Leak Check: For valves not associated with coils.
1. With full pressure in the system, command valve closed.
  2. Use an ultra-sonic flow meter to detect flow or leakage.

### **3.07 POINT-TO-POINT CHECKOUT REQUIREMENTS**

- A. Items described in this section apply to the BAS:
1. These procedures will verify the following for each physical control point:
    - a. Field device is installed per the manufacturer's recommendations and the project drawings and specifications.
    - b. Field verify calibration of all analog inputs and outputs.
    - c. Verify labeling of controllers, field devices, and wiring.
    - d. Physical points are correctly addressed and communicating properly between its controller and the field device.
- B. Detailed written procedures for execution of Point-to-Point Checkouts shall be submitted to the Owner and AE by the Contractor for review and approval prior to the start of testing. Include proposed test forms as part of this submittal.
- C. The Contractor shall provide all tools and instrumentation necessary for execution of this testing. All instrumentation must be in calibration and meet the requirements of Part 2 of this specification.

### **3.08 TEST PROCEDURES - GENERAL**

- A. Provide skilled technicians to execute starting of equipment and to execute the Functional Tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.
- B. Provide all necessary materials and system modifications required to produce the flows, pressures, temperatures, and conditions necessary to execute the test according to the specified conditions. At completion of the test, return all affected equipment and systems to their pre-test condition.
- C. Sampling: Where Functional Testing of fewer than the total number of multiple identical or near-identical items is explicitly permitted, perform sampling as follows:
1. Identical Units: Defined as units with same application and sequence of operation; only minor size or capacity difference.
  2. Sampling is not allowed for:
    - a. Major equipment.
    - b. Prefunctional Checklist execution.
  3. XX = the percent of the group of identical equipment to be included in each sample; defined for specific type of equipment.
  4. YY = the percent of the sample that if failed will require another sample to be tested; defined for specific type of equipment.
  5. Randomly test at least XX percent of each group of identical equipment, but not less than three units. This constitutes the "first sample."
  6. If YY percent of the units in the first sample fail, test another XX percent of the remaining identical units.
  7. If YY percent of the units in the second sample fail, test all remaining identical units.

8. If frequent failures occur, resulting in more troubleshooting than testing, the Commissioning Provider may stop the testing and require Contractor to perform and document a checkout of the remaining units prior to continuing testing.
- D. Manual Testing: Use hand-held instruments, immediate control system readouts, or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").
- E. Simulating Conditions: Artificially create the necessary condition for the purpose of testing the response of a system; for example apply hot air to a space sensor using a hair dryer to see the response in a VAV box.
- F. Simulating Signals: Disconnect the sensor and use a signal generator to send an amperage, resistance or pressure to the transducer and control system to simulate the sensor value.
- G. Indirect Indicators: Remote indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100 percent closed, are considered indirect indicators.
- H. Indirect Indicators: Remote indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100 percent closed, are considered indirect indicators.
- I. Monitoring: Record parameters (flow, current, status, pressure, etc.) of equipment operation using dataloggers or the trending capabilities of the relevant control systems, where monitoring of specific points is called for in Functional Test Procedures:
  1. All points that are monitored by the relevant control system shall be trended by Contractor; at the Commissioning Provider's request, Contractor shall trend up to 20 percent more points than specified at no extra charge.
  2. Other points will be monitored by the Commissioning Provider using dataloggers.
  3. At the option of the Commissioning Provider, some control system monitoring may be replaced with datalogger monitoring.
  4. Provide hard copies of monitored data in columnar format with time down left column and at least 5 columns of point values on same page.
  5. Graphical output is desirable and is required for all output if the system can produce it.
  6. Monitoring may be used to augment manual testing.

### **3.09 ISSUES AND NON-CONFORMANCE**

- A. Issue Management
  1. The CxP will record the results of document reviews, field observations, tests conducted or reviewed and trend logs or monitoring. All deficiencies or non-conformance issues will be recorded on a master Issues Log managed by the CxP.
  2. Within two days of identification of one or more Issues, the CxP will send a copy of the new issues to the CM and trade contractors. If the party feels they are not responsible or they have questions as to how to address the issue they will respond to the CxP and CM within two days. Otherwise they proceed with the correction.
  3. Upon making needed changes or corrections, the party will, within two days of correction, notify the CM who will immediately notify the CxP of the issue status.
  4. The trade contractors are responsible for troubleshooting identified deficiencies and making corrections in a timely manner.
  5. The trade contractors shall keep the CxP updated as to the status of each issue as requested by the CxP and always within two days before a commissioning progress meeting.
  6. The CxP documents status and resolutions in the Issues Log and schedules retesting and re-inspection as needed.
  7. Corrections of minor issues identified may be made during testing at the discretion of the CxP and with the issue and resolution documented in the Issues Log.
  8. Cost of Retesting:

- a. The Contractor may be back-charged for retesting or troubleshooting and for tests not able to be started that were not cancelled at least 24 hours in advance or for tests that were started but could not be substantially completed due to too many deficiencies, failure to have appropriate personnel, test equipment, permits or access available and in place for successful execution of the test. Charges will be determined at the CxP's standard hourly billing rate and include standard travel reimbursable expenses.
- B. Approval and Acceptance
  - 1. The CxP initially interprets satisfactory performance of systems and assembly tests.
  - 2. When performance of a test is disputed by the Contractor the Owner will have final interpretive authority in consultation with the Designer of Record and CxP.

**3.10 SEASONAL TESTING**

- A. During the Occupancy period, seasonal testing (tests delayed until weather conditions are closer to the system's design) specified in the testing requirements shall be completed as part of this contract. The CxP will coordinate this activity. The Contractor shall execute these tests and correct any deficiencies. The Contractor shall make needed final adjustments to the O&M manuals and Record Documents due to the testing results.

**3.11 OPERATION AND MAINTENANCE MANUALS**

- A. See Section 017800 - Closeout Submittals for additional requirements.
- B. Add design intent documentation furnished by Architect to manuals prior to submission to Owner.
- C. Submit manuals related to items that were commissioned to Commissioning Provider for review; make changes recommended by Commissioning Provider.
- D. Commissioning Provider will add commissioning records to manuals after submission to Owner.

**3.12 WRITTEN WORK PRODUCT**

- A. The commissioning process generates a number of written work products described in various parts of the specifications. The Commissioning Plan lists all the formal written work products, describes briefly their contents, who is responsible to create them, their due dates, who receives and approves them and the location of the specification to create them.
- B. Below is a brief summary of written work products:

<b>Product</b>	<b>Developed by</b>
Equipment documentation submittals	Trade Contractors / Subs
Sequence clarifications	Trade Contractors and A/E
Pre-functional checklists	CxP
Start-up and initial checkout plan	Trade Contractors and CxP
Pre-functional checklists filled out	Trade Contractors
Start-up and initial checkout forms filled out	Trade Contractors
Final TAB report	TAB
Issues log (deficiencies)	CxP
Functional test forms	CxP and Subs
Filled out functional tests	CxP and Subs
Training plans and records	Trade Contractors
O&M manuals	Trade Contractors
Final Commissioning Report	CxP

**END OF SECTION**

**SECTION 26 0513**  
**WIRE AND CABLE**

**PART 1 - GENERAL**

Specification Provided as Reference Only

**1.01 SECTION INCLUDES**

- A. Building wire
- B. Cabling for remote control, signal, and power limited circuits
- C. Metal-clad cable (MC)

**1.02 RELATED WORK**

- A. Section 26 0553 - Electrical Identification: Refer to electrical identification for color and identification labeling requirements.

**1.03 REFERENCES**

- A. ASTM B801-07 - Standard Specification for Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy for Subsequent Covering or Insulation
- B. NEMA WC 70 - Power Cables Rated 2,000V or Less for the Distribution of Electrical Energy
- C. NFPA 70 - National Electrical Code (NEC)
- D. UL 44 - Thermoset-Insulated Wires and Cables
- E. UL 83 - Thermoplastic-Insulated Wires and Cables
- F. UL 1581 - Standard for Electrical Wires, Cables, and Flexible Cords
- G. UL 2196 - Fire Resistive, Fire Resistant and Circuit Integrity Cables

**PART 2 - PRODUCTS**

**2.01 BUILDING WIRE**

- A. Feeders and Branch Circuits 8 AWG and larger: Copper, stranded conductor, 600-volt insulation, THHN/THWN or XHHW-2.
- B. Feeders and Branch Circuits 8 AWG and larger in Underground Conduit: Copper, stranded conductor, 600-volt insulation, THWN or XHHW-2.
- C. Feeders and Branch Circuits 10 AWG and Smaller: Copper, solid or stranded conductor, 600-volt insulation, THHN/THWN, unless otherwise noted on the drawings.
- D. Motor Feeder from Variable Frequency Drives: Copper conductor, 600-volt XHHW-2 insulation, stranded conductor, unless otherwise noted on the drawings.
- E. Control Circuits: Copper, stranded conductor 600-volt insulation, THHN/THWN.
- F. Aluminum conductors are not to be used.
- G. Each 120 and 277-volt branch circuit shall have a dedicated neutral conductor. Neutral conductors shall be considered current-carrying conductors for wire derating.

**2.02 CABLING FOR REMOTE CONTROL, SIGNAL, AND POWER LIMITED CIRCUITS**

- A. Wire for the following specialized systems shall be as designated on the drawings, or elsewhere in these specifications. If not designated on the drawings or specifications, the system manufacturer's recommendations shall be followed.
  - 1. Fire alarm
  - 2. Low voltage switching and lighting control
  - 3. Electronic control
  - 4. Other specialized cabling, signal, and power limited cabling. Refer to the appropriate Division 23, 27, or 28 requirements; including, but not limited, to the following:
    - a. Building Automation Systems and Controls, Division 23.
    - b. Information Technology Backbone and Horizontal Cabling, Division 27.

- c. Television Distribution Systems CATV, Division 27.
- d. Sound Masking Paging Systems, Professional Audio/Video, Division 27.
- e. Electronic Access Control, Intrusion Detection Systems, Video Surveillance, Division 28.

- B. Control Cable for Class 1 Remote Control and Signal Circuits: Copper conductor, 600-volt insulation, rated 60°C, individual conductors twisted together, shielded, and covered with a PVC jacket.
- C. Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300-volt insulation, rated 60°C, individual conductors twisted together, shielded, and covered with a PVC jacket; UL listed.
- D. Plenum Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300-volt insulation, rated 60°C, individual conductors twisted together, shielded, and covered with a nonmetallic jacket; UL listed for use in air handling ducts, hollow spaces used as ducts, and plenums.

### **2.03 METAL-CLAD CABLE (MC)**

- A. Conductors shall be copper, 600-volt insulation, THHN. Metal clad cable shall be constructed in strict accordance with Underwriters Laboratories, Inc. Standard for Metal-Clad Cables, UL 15694, exterior of metal interlocked armor.
- B. Minimum conductor size for branch circuit wiring shall be 12 AWG, with larger wires used where specified.
- C. Metal-clad cables may be used for branch circuit wiring as defined in the Electrical Code, subject to acceptance by State and local codes.

## **PART 3 - EXECUTION**

### **3.01 WIRE AND CABLE INSTALLATION SCHEDULE**

- A. Above Accessible Ceilings:
  - 1. Building wire shall be installed in raceway.
  - 2. Metal clad cable, Type MC, 1/2" size with minimum #12 conductors and ground, shall be allowed for flexible whips to individual luminaires on non-essential circuits. The flexible whips shall be between 18" to 72" in length per Electrical Code.
- B. All Other Locations: Building wire in raceway.
- C. Above Grade: All conductors installed above grade shall be type "THHN".
- D. Underground or In Slab: All conductors shall be type "THWN".
- E. Low Voltage Cable (less than 100 volts): Low voltage cable shall be installed in raceway.
- F. Fire-Rated 2-Hour Feeders and Circuit Requiring Continuous Operation (CI): Refer to Part 2 of this section for acceptable products and assemblies. Installation shall meet UL 2196.

### **3.02 CONTRACTOR CHANGES**

- A. The basis of design is copper conductors installed in raceway based on ambient temperature of 30°C, NEC Table 310.16 (2011 - 2017 edition 310.15(B)(16)). Conductors are based on copper conductor installed in underground electrical ducts.
- B. The Contractor shall be responsible for derating and sizing conductors and conduits to equal or exceed the ampacity of the basis of design circuits, if he/she chooses to use methods or materials other than the basis of design.
- C. Record drawing shall include the calculations and sketches.

### **3.03 GENERAL WIRING METHODS**

- A. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 14 AWG for control wiring.
- B. Use no wire smaller than 18 AWG for low voltage control wiring below 100 volts.
- C. Use 10 AWG conductor for 20 ampere, 120-volt branch circuit home runs longer than 75 feet, and for 20 ampere, 277-volt branch circuit home runs longer than 200 feet.

- D. Use no wire smaller than 8 AWG for outdoor lighting circuits.
- E. The ampacity of multiple conductors in one conduit shall be derated per the Electrical Code. In no case shall more than 4 conductors be installed in one conduit to such loads as motors larger than 1/4 HP, panelboards, motor control centers, etc.
- F. Where installing parallel feeders, place an equal number of conductors for each phase of a circuit in same raceway or cable.
- G. Splice only in junction or outlet boxes.
- H. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- I. Make conductor lengths for parallel circuits equal.
- J. All conductors shall be continuous in conduit from last outlet to their termination.
- K. Terminate all spare conductors on terminal blocks, and label the spare conductors.
- L. Cables or wires shall not be laid out on the ground before pulling.
- M. Cables or wires shall not be dragged over earth or paving.
- N. Care shall be taken so as not to subject the cable or wire to high mechanical stresses that would cause damage to the wire and cable.
- O. At least six (6)-inch loops or ends shall be left at each outlet for installation connection of luminaires or other devices.
- P. All wires in outlet boxes not connected to fixtures or other devices shall be rolled up, spliced if continuity of circuit is required, and insulated.

### **3.04 WIRING INSTALLATION IN RACEWAYS**

- A. Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.
- B. Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.
- C. Pulling shall be continuous without unnecessary stops and starts with wire or cable only partially through raceway.
- D. Where reels of cable or wire are used, they shall be set up on jacks close to the point where the wire or cable enters the conduit or duct so that the cable or wire may be unreel and run into the conduit or duct with a minimum of change in the direction of the bend.
- E. Conductors shall not be pulled through conduits until plastering or masonry work is completed and conduits are free from moisture. Care shall be taken so that long pulls of wire or pulls around several bends are not made where the wire may be permanently stretched and the insulation damaged.
- F. Only nylon rope shall be permitted to pull cables into conduit and ducts.
- G. Completely and thoroughly swab raceway system before installing conductors.
- H. Conductor Supports in Vertical Raceways:
  - 1. Support conductors in vertical raceways in accordance with the Electrical Code Spacing of Conductors Supports.
  - 2. Supports shall be of insulated wedge type (OZ Gedney Type S, or equal) and installed in a tapered insulated bushing fitting or a metal woven mesh with a support ring that fits inside conduit fitting installed in an accessible junction box (Hubbell Kellems support grip or equal).

### **3.05 CABLE INSTALLATION**

- A. Provide protection for exposed cables where subject to damage.
- B. Use suitable cable fittings and connectors.
- C. Run all open cable parallel or perpendicular to walls, ceilings, and exposed structural members. Follow the routing as illustrated on the drawings as closely as possible. Cable routing on drawings scaled 1/4"=1'-0" or less shall be considered diagrammatical, unless noted otherwise. The correct routing, when

shown diagrammatically, shall be chosen by the Contractor based on information in the contract documents; in accordance with the manufacturer's written instructions, applicable codes, the NECA's "Standard of Installation", recognized industry standards; and coordinated with other contractors.

- D. Open cable shall be supported by the appropriate size J-hooks or other means if called for on the drawings. Wire and cable from different systems shall not be installed in the same J-hook. J-hooks shall be sized with 20% spare capacity. J-hooks shall provide proper bend radius support for data cable and fiber cables.
- E. Open cable installed above suspended ceilings shall not rest on the suspended ceiling construction, nor utilize the ceiling support system for wire and cable support.
- F. J-hook support spans shall be based on the smaller of the manufacturer's load ratings and code requirements. In no case shall horizontal spans exceed 5 feet and vertical spans exceed 4 feet. All J-hooks shall be installed where completely accessible and not blocked by piping, ductwork, inaccessible ceilings, etc. J-hooks shall be independently rigidly attached to a structural element. J-hooks shall be installed to provide 2" horizontal separation and 6" vertical separation between systems.
- G. Open cable shall only be installed where specifically shown on the drawings, or permitted in these specifications.

### **3.06 WIRING CONNECTIONS AND TERMINATIONS**

- A. Splice and tap only in accessible junction boxes.
- B. Use solderless, tin-plated copper, compression terminals (lugs) applied with circumferential crimp for conductor terminations, 8 AWG and larger.
- C. Use solderless, tin-plated, compression terminals (lugs) applied with indenter crimp for copper conductor terminations, 10 AWG and smaller.
- D. Use solderless pressure connectors with insulating covers for copper wire splices and taps, 8 AWG and smaller. For 10 AWG and smaller, use insulated spring wire connectors with plastic caps.
- E. Use compression connectors applied with circumferential crimp for conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connectors with electrical tape to 150 percent of the insulation value of conductor. Cold shrink connector insulator with 1kV rating shall be used in damp and wet locations.
- F. Thoroughly clean wires before installing lugs and connectors.
- G. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.
- H. Phase Sequence: All apparatus shall be connected to operate in the phase sequence A-B-C representing the time sequence in which the phase conductors so identified reach positive maximum voltage.
- I. As a general rule, applicable to switches, circuit breakers, starters, panelboards, switchgear and the like, the connections to phase conductors are intended thus:
  - 1. Facing the front and operating side of the equipment, the phase identification shall be:
    - a. Left to Right - A-B-C
    - b. Top to Bottom - A-B-C
- J. Connection revisions as required to achieve correct rotation of motors shall be made at the load terminals of the starters or disconnect switches.

### **3.07 MC CABLE INSTALLATION**

- A. AC/MC shall NOT be used for circuits serving the Essential Electrical System.
- B. Cable shall be supported by an approved means every 4.5' and within 12" of outlet boxes, junction boxes, cabinets, or fittings.
- C. Cable may be unsupported in the following conditions:
  - 1. Cable is no longer than 2' in length at terminals where flexibility is necessary.
  - 2. Cable is not more than 4.5' from the last point of support for connections within an accessible ceiling to light fixtures or equipment.

- D. Conductor ampacity shall be derated as required by the Electrical Code where more than three current carrying conductors are used.
- E. Each 120 and 277-volt circuit shall have a dedicated neutral conductor. Neutral conductors shall be considered current-carrying conductors for cable derating.
- F. Cables shall be cut using a rotary cutter as recommended by the manufacturer to eliminate nicking and cutting of the conductors.
- G. Bending radius shall comply with the requirements listed in the Electrical Code for the type and size of cable being installed, but shall not be less than 5-times the diameter of the cable in any case.
- H. At cable terminations, a fitting shall be provided to protect wires from abrasion, unless the design of the outlet boxes or fittings is such as to afford equivalent protection, and, in addition, an insulating bushing or its equivalent protection shall be provided between the conductors and the armor.
- I. All wiring devices supplied by nonmetallic-sheathed cables shall be mounted in an outlet box.

**3.08 FIELD QUALITY CONTROL**

- A. Field inspection and testing will be performed under provisions of Division 1.
- B. Building Wire and Power Cable Testing: Perform an insulation-resistance test on each conductor with respect to ground and adjacent conductors. Test shall be made by means of a low-resistance ohmmeter, such as a "Megger". The applied potential shall be 500 volts dc for 300 volt rated cable and 1000 volts dc for 600 volt rated cable. The test duration shall be one minute. Insulation resistance must be greater than 100 mega-ohm for 600 volt and 25 mega-ohm for 300 volt rated cables per NETA Acceptance Testing Standard. Verify uniform resistance of parallel conductors.
- C. Inspect wire and cable for physical damage and proper connection.
- D. Torque test conductor connections and terminations to manufacturer's recommended values.
- E. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.
- F. Provide documentation of the manufacturer's recommended lug torque value for copper conductors, the date the lugs were torqued, and installed torque readings. Documentation indicating that the torque wrench has been calibrated not more than 30 days prior to tightening of lugs shall be provided.
- G. Protection of wire and cable from foreign materials:
  - 1. It is the Contractor's responsibility to provide adequate physical protection to prevent foreign material application or contact with any wire or cable type. Foreign material is defined as any material that would negatively impact the validity of the manufacturer's performance warranty. This includes, but is not limited to, overspray of paint (accidental or otherwise), drywall compound, or any other surface chemical, liquid, or compound that could come in contact with the cable, cable jacket, or cable termination components.
- H. Overspray of paint on any wire or cable will not be accepted. It shall be the Contractor's responsibility to replace any component containing overspray, in its entirety, at no additional cost to the project. Cleaning of the cables with harsh chemicals is not allowed.

**END OF SECTION**

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**SECTION 26 0533**  
**CONDUIT AND BOXES**

**PART 1 - GENERAL**

Specification Provided as Reference Only

**1.01 SECTION INCLUDES**

- A. Rigid metallic conduit and fittings (RMC)
- B. Electrical metallic tubing and fittings (EMT)
- C. Flexible metallic conduit and fittings (FMC)
- D. Liquidtight flexible metallic conduit and fittings (LFMC)
- E. Rigid polyvinyl chloride conduit and fittings (PVC)
- F. Wall and ceiling outlet boxes
- G. Electrical connection
- H. Pull and junction boxes
- I. Accessories

**1.02 RELATED WORK**

- A. Section 26 0553 - Electrical Identification: Refer to electrical identification for color and identification labeling requirements.

**1.03 REFERENCES**

- A. American National Standards Institute (ANSI):
  - 1. ANSI C80.1 - Rigid Steel Conduit, Zinc-Coated
  - 2. ANSI C80.3 - Electrical Metallic Tubing, Zinc-Coated and Fittings
  - 3. ANSI C80.4 - Fittings for Rigid Metal Conduit and Electrical Metallic Tubing
  - 4. ANSI/NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers and Box Supports
  - 5. ANSI/NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports
- B. Federal Specifications (FS):
  - 1. A-A-50553A - Fittings for Conduit, Metal, Rigid, (Thick-Wall and Thin-Wall (EMT) Type
  - 2. A-A-55810 - Specification for Flexible Metal Conduit
- C. NECA "Standards of Installation"
- D. National Electrical Manufacturers Association (NEMA):
  - 1. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing and Cable
  - 2. RN 1 - Polyvinyl chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit, Rigid Aluminum Conduit, and Intermediate Metal Conduit
  - 3. TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit
- E. NFPA 70 - National Electrical Code (NEC)
- F. Underwriters Laboratories (UL): Applicable Listings
  - 1. UL 1 - Flexible Metal Conduit
  - 2. UL 6 - Rigid Metal Conduit
  - 3. UL 360 - Liquid Tight Flexible Steel Conduit
  - 4. UL514-B - Conduit Tubing and Cable Fittings
  - 5. UL651-A - Type EB and a PVC Conduit and HDPE Conduit
  - 6. UL746A - Standard for Polymeric Materials - Short Term Property Evaluations
  - 7. UL797 - Electrical Metal Tubing

- G. American Standard of Testing and Materials (ASTM):
1. ASTM D 570 - Standard Test Method for Water Absorption of Plastics
  2. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics
  3. ASTM D 648 - Standard Test Method for Deflection Temperature of Plastics under Flexural Load in the Edge Wise Position
  4. ASTM D 2412 - Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading
  5. ASTM D 2447 - Standard Specification for Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter
  6. ASTM D 3350 - Standard Specification for Polyethylene Plastic Pipe and Fittings Material
- H. Definitions:
1. Fittings: Conduit connection or coupling.
  2. Body: Enlarged fittings with opening allowing access to the conductors for pulling purposes only.
  3. Mechanical Spaces: Enclosed areas, usually kept separated from the general public, where the primary use is to house service equipment and to route services. These spaces generally have exposed structures, bare concrete and non-architecturally emphasized finishes.
  4. Finished Spaces: Enclosed areas where the primary use is to house personnel and the general public. These spaces generally have architecturally emphasized finishes, ceilings and/or floors.
  5. Concealed: Not visible by the general public. Often indicates a location either above the ceiling, in the walls, in or beneath the floor slab, in column coverings, or in the ceiling construction.
  6. Above Grade: Not directly in contact with the earth. For example, an interior wall located at an elevation below the finished grade shall be considered above grade but a wall retaining earth shall be considered below grade.
  7. Slab: Horizontal pour of concrete used for a floor or sub-floor.

**PART 2 - PRODUCTS**

**2.01 RIGID METALLIC CONDUIT (RMC) AND FITTINGS**

- A. Manufacturers:
1. Allied
  2. LTV
  3. Steelduct
  4. Calbond Calpipe
  5. Wheatland Tube Co
  6. O-Z Gedney
  7. or approved equal.
- B. Manufacturers of RMC Conduit Fittings:
1. Appleton Electric
  2. O-Z/Gedney Co.
  3. Electroline
  4. Raco
  5. Bridgeport
  6. Midwest
  7. Regal
  8. Thomas & Betts
  9. Crouse-Hinds

10. Killark
  11. Orbit Industries
  12. or approved equal.
- C. Minimum Size Galvanized Steel: 3/4 inch, unless otherwise noted.
- D. Fittings and Conduit Bodies:
1. End Bell Fittings: Malleable iron, hot dip galvanized, threaded flare type with provisions for mounting to form.
  2. Expansion Joints: Malleable iron and hot dip galvanized providing a minimum of 4 inches of movement. Fitting shall be watertight with an insulating bushing and a bonding jumper.
  3. Expansion Joint for Concrete Encased Conduit: Neoprene sleeve with bronze end coupling, stainless steel bands and tinned copper braid bonding jumper. Fittings shall be watertight and concrete-tight.
  4. Conduit End Bushings: Malleable iron type with molded-on high impact phenolic thermosetting insulation. Where required elsewhere in the contract documents, bushing shall be complete with ground conductor saddle and clamp. High impact phenolic threaded type bushings are not acceptable.
  5. All other fittings and conduit bodies shall be of malleable iron construction and hot dip galvanized.
- E. PVC Externally Coated Conduit: Compliant with UL 6, ANSI C80.1 and NEMA RN 1; rigid galvanized steel conduit with external 40 mil PVC coating and internal 2 mil urethane coating surface. All fittings and conduit bodies shall be complete with coating. Threads shall be hot galvanized and coated with a clear coat of urethane. The PVC coated system shall include necessary PVC coated fittings, boxes and covers to form a complete encapsulated system.
1. Acceptable Manufacturers:
    - a. Calbond Calpipe
    - b. Robroy
    - c. T&B Ocal
    - d. or approved equal.

## **2.02 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS**

- A. Minimum Size Electrical Metallic Tubing: 3/4 inch, unless otherwise noted.
- B. Manufacturers of EMT Conduit:
1. Allied
  2. Calbond Calpipe
  3. LTV
  4. Steelduct
  5. Wheatland Tube Co
  6. or approved equal.
- C. Fittings and Conduit Bodies:
1. 2" Diameter or Smaller: Compression type of steel designed for their specific application.
  2. 1/2" and 3/4" Conduit: Push-on connectors and couplers with locking ring and washer of zinc plated steel, listed for use in dry locations.
  3. Larger than 2": Compression type of steel designed for their specific application.
  4. Manufacturers of EMT Conduit Fittings:
    - a. Appleton Electric
    - b. O-Z/Gedney Co.
    - c. Electroline

- d. Raco
- e. Bridgeport
- f. Midwest
- g. Regal
- h. Thomas & Betts
- i. Orbit Industries
- j. or approved equal.

**2.03 FLEXIBLE METALLIC CONDUIT (FMC) AND FITTINGS**

- A. Minimum Size Galvanized Steel: 3/4 inch, unless otherwise noted. Lighting branch circuit wiring to an individual luminaire may be a manufactured, UL listed 3/8" flexible metal conduit and fittings with #14 AWG THHN conductors and an insulated ground wire. Maximum length of 3/8" FMC shall be six (6) feet.
- B. Manufacturers:
  - 1. American Flex
  - 2. Alflex
  - 3. Electri-Flex Co
  - 4. or approved equal.
- C. Construction: Flexible steel, approved for conduit ground, zinc coated, threadless type formed from a continuous length of spirally wound, interlocked zinc coated strip steel. Provide a separate equipment grounding conductor when used for equipment where flexibility is required.
- D. Fittings and Conduit Bodies:
  - 1. Threadless hinged clamp type, galvanized zinc coated cadmium plated malleable cast iron or screw-in type, die-cast zinc.
  - 2. Fittings and conduit bodies shall include plastic or cast metal inserts supplied by the manufacturer to protect conductors from sharp edges.
  - 3. Manufacturers:
    - a. O-Z/Gedney Co.
    - b. Thomas & Betts
    - c. Appleton Electric
    - d. Electroline
    - e. Bridgeport
    - f. Midwest
    - g. Regal
    - h. Orbit Industries
    - i. or approved equal.

**2.04 LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC) AND FITTINGS**

- A. Manufacturers:
  - 1. Anaconda Type UA
  - 2. Electri-Flex Type LA
  - 3. Alflex
  - 4. Carlon (Lamson & Sessions)
  - 5. or approved equal.
- B. Construction: Flexible steel, approved for conduit ground, zinc coated, threadless type formed from a continuous length of spirally wound, interlocked zinc coated strip steel and an extruded PVC cover.

- C. Fittings and Conduit Bodies:
1. Watertight, compression type, galvanized zinc coated cadmium plated malleable cast iron, UL listed.
  2. Fittings and conduit bodies shall include plastic or cast metal inserts supplied by the manufacturer to protect conductors from sharp edges.
  3. Manufacturers:
    - a. Appleton Electric
    - b. O-Z/Gedney Co.
    - c. Electroline
    - d. Bridgeport
    - e. Thomas & Betts
    - f. Midwest
    - g. Regal
    - h. Carlon (Lamson & Sessions)
    - i. Orbit Industries
    - j. or approved equal.

**2.05 RIGID NON-METALLIC CONDUIT (PVC) AND FITTINGS**

- A. Minimum Size Rigid Smooth-Wall Nonmetallic Conduit: 3/4 inch, unless otherwise noted.
- B. Acceptable Manufacturers:
  1. Carlon (Lamson & Sessions) Type 40
  2. Cantex, J.M. Mfg.
  3. or approved equal.
- C. Construction: Schedule 40 and Schedule 80 rigid polyvinyl chloride (PVC), UL labeled for 90°C.
- D. Fittings and Conduit Bodies: NEMA TC 3; sleeve type suitable for and manufactured especially for use with the conduit by the conduit manufacturer.
- E. Plastic cement for joining conduit and fittings shall be provided as recommended by the manufacturer.

**2.06 OUTLET BOXES**

- A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1; galvanized steel, 16 gauge (approximately 0.0625 inches), with 1/2-inch male fixture studs where required.
- B. Nonmetallic Outlet Boxes: ANSI/NEMA OS 2.
- C. Cast Boxes: Nema FB1, Type FD, Aluminum, cast fer alloy, or stainless steel deep type, gasketed cover, threaded hubs.
- D. Outlet boxes for luminaires to be not less than 1-1/2" deep, deeper if required by the number of wires or construction. The box shall be coordinated with surface luminaires to conceal the box from view or provide a finished trim plate.
- E. Switch outlet boxes for local light control switches, dimmers and occupancy sensors shall be 4 inches square by 2-1/8 inches deep, with raised cover to fit flush with finish wall line. Multiple gang switch outlets shall consist of the required number of gang boxes appropriate to the quantity of switches comprising the gang. Where walls are plastered, provide a plaster raised cover. Where switch outlet boxes occur in exposed concrete block walls, boxes shall be installed in the block cavity with a raised square edge tile cover of sufficient depth to extend out to face of block or masonry boxes.
- F. Outlet boxes for telephone substations in walls and columns shall be 4 inches square and 2-1/8 inches deep with single gang raised cover to fit flush with finished wall line equipped with flush telephone plate.
- G. Wall or column receptacle outlet boxes shall be 4 inches square with raised cover to fit flush with finished wall line. Boxes in concrete block walls shall be installed the same as for switch boxes in block walls.

**2.07 ECONE; ELECTRICAL CONNECTION**

- A. Electrical connection to equipment and motors, sized per Electrical Code. Coordinate requirements with contractor furnishing equipment or motor. Refer to specifications and general installation notes for terminations to motors.

**2.08 JB; PULL AND JUNCTION BOXES**

- A. Sheet Metal Boxes: ANSI/NEMA OS 1; galvanized steel.
- B. Sheet metal boxes larger than 12 inches in any dimension that contain terminations or components: Continuous hinged enclosure with 1/4 turn latch and white back panel for mounting terminal blocks and electrical components.
- C. Cast Metal Boxes for Outdoor and Wet Location Installations: NEMA 250; Type 4 and Type 6, flat-flanged, surface-mounted junction box, UL listed as raintight. Galvanized cast iron box and cover with ground flange, neoprene gasket, and stainless steel cover screws.
- D. Cast Metal Boxes for Underground Installations: NEMA 250; Type 4, inside flanged, recessed cover box for flush mounting, UL listed as raintight. Galvanized cast iron box and plain cover with neoprene gasket and stainless steel cover screws.
- E. Flanged type boxes shall be used where installed flush in wall.

**PART 3 - EXECUTION**

**3.01 INSTALLATION TRAINING**

- A. PVC coated rigid metal conduit manufacturers shall provide Contractor installation training for field cutting, joint preparation, joint assembly, field bending, and field cut sealing.

**3.02 CONDUIT INSTALLATION SCHEDULE AND SIZING**

- A. In the event the location of conduit installation represents conflicting installation requirements as specified in the following schedule, a clarification shall be obtained from the Architect/Engineer. If this Contractor is unable to obtain a clarification as outlined above, concealed rigid galvanized steel conduit installed per these specifications and the Electrical Code shall be required.
- B. Installation Schedule: Refer to drawings.
- C. Size conduit as shown on the drawings and specifications. Where not indicated in the contract documents, conduit size shall be according to the Electrical Code. Conduit and conductor sizing shall be coordinated to limit conductor fill to less than 40%, maintain conductor ampere capacity as required by the Electrical Code (to include enlarged conductors due to temperature and quantity derating values) and to prevent excessive voltage drop and pulling tension due to long conduit/conductor lengths.
- D. Minimum Conduit Size (Unless Noted Otherwise):
  - 1. Above Grade: 3/4 inch. (The use of 1/2 inch would be allowed for installation conduit to individual light switches, individual receptacles and individual fixture whips from junction box.)
  - 2. Below Grade 5' or less from Building Foundation: 1 inch.
  - 3. Below Grade More than 5' from Building Foundation: 1 inch.
  - 4. Telecommunication Conduit: 1 inch.
  - 5. Controls Conduit: 1/2 inch.
- E. Conduit Embedded in Slabs above Grade:
  - 1. Embedded installation NOT allowed in elevated slabs with metal composite decks nor structural pour in place slabs less than 6 inches in depth unless specifically noted or shown on drawings otherwise.
  - 2. Maximum size 1-1/4 inch for conduits crossing each other.
- F. Conduit sizes shall change only at the entrance or exit to a junction box, unless specifically noted on the drawings.

### 3.03 CONDUIT ARRANGEMENT

- A. In general, conduit shall be installed concealed in walls, in finished spaces and where possible or practical, or as noted otherwise. Conduit shall be installed parallel or perpendicular to walls, ceilings, and exposed structural members. In unfinished spaces, mechanical and utility areas, conduit may run either concealed or exposed as conditions dictate and as practical unless noted otherwise on drawings. Installation shall maintain headroom in exposed vicinities of pedestrian or vehicular traffic.
- B. Exposed conduit on exterior walls or above roof will not be allowed without prior written approval of Architect/Engineer. A drawing of the proposed routing and a photo of the location shall be submitted 14 days prior to start of conduit rough-in. Routing shall be shown on coordination drawings.
- C. Conduit arrangement in elevated slabs (restricted to applications specifically noted or shown on drawings):
  - 1. Conduit size shall not exceed one-third of the structural slab thickness. Place conduit between the top and bottom reinforcing with a minimum of 3" concrete cover.
  - 2. Parallel conduits shall be spaced at least 8 inches apart. Exception: Within 18 inches of commonly served floor boxes, junction boxes, or similar floor devices. Arrange conduits parallel or perpendicular to building lines and walls.
- D. Conduit shall not share the same cell as structural reinforcement in masonry walls.
- E. Conduit runs shall be routed as shown on large scale drawings. Conduit routing on drawings scaled 1/4"=1'-0" or less shall be considered diagrammatic, unless noted otherwise. The correct routing, when shown diagrammatically shall be chosen by the Contractor based on information in the contract documents, in accordance with manufacturer's written instructions, applicable codes, the NECA's "Standard of Installation", in accordance with recognized industry standards, and coordinated with other contractors.
- F. Contractor shall adapt Contractor's work to the job conditions and make such changes as required and permitted by the Architect/Engineer, such as moving to clear beams and joists, adjusting at columns, avoiding interference with windows, etc., to permit the proper installation of other mechanical and/or electrical equipment.
- G. Contractor shall cooperate with all contractors on the project. Contractor shall obtain details of other contractor's work to ensure fit and avoid conflict. Any expense due to the failure of This Contractor to do so shall be paid for in full by Contractor. The other trades involved as directed by the Architect/Engineer shall perform the repair of work damaged as a result of neglect or error by This Contractor. The resultant costs shall be borne by This Contractor.

### 3.04 CONDUIT SUPPORT

- A. Conduit runs installed above a suspended ceiling shall be properly supported. In no case shall conduit rest on the suspended ceiling construction, nor utilize ceiling support system for conduit support.
  - 1. Support wire used to independently support raceway and wiring systems above suspending ceilings shall be supported on both ends, minimum 12 gauge suspended ceiling support wire, and distinguishable from ceiling support systems by color (field paint), tagging, or equivalent means.
- B. Conduit shall not be supported from ductwork, water, sprinkler piping, or other non-structural members, unless approved by the Architect/Engineer. All supports shall be from structural slabs, walls, structural members, and bar joists, and coordinated with all other applicable contractors, unless noted otherwise.
- C. Conduit shall be held in place by the correct size of galvanized one-hole conduit clamps, two-hole conduit straps, patented support devices, clamp back conduit hangers, or by other means if called for on the drawings.
- D. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.
- E. Spring-steel conduit clips specifically designed for supporting single conduits or tubing may be used in lieu of malleable-iron hangers for 1-1/2" and smaller raceways serving lighting and receptacle branch circuits above accessible ceilings and for securing raceways to slotted channel and angle supports.

- F. Group conduits in parallel runs where practical and use conduit racks or trapeze hangers constructed of steel channel, suspended with threaded solid rods or wall mounted from metal channels with conduit straps or clamps. Provide space in each rack or trapeze for 25% additional conduits.
- G. Do not exceed 25 lbs. per hanger and a minimum spacing of 2'-0" on center when attaching to metal roof decking (excludes concrete on metal deck). This 25 lbs. load and 2'-0" spacing include adjacent electrical and mechanical items hanging from deck. If the hanger restrictions cannot be achieved, supplemental framing off steel framing will need to be added.
- H. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.
- I. Supports for metallic conduit shall be no greater than 10 feet. A smaller interval may be used if necessitated by building construction, but in no event shall support spans exceed the Electrical Code requirements. Conduit shall be securely fastened within 3 feet of each outlet box, junction box, device box, cabinet, or fitting.
- J. Supports of flexible conduit shall be within 12 inches of each outlet box, junction box, device box, cabinet, or fitting and at intervals not to exceed 4.5 feet.
- K. Supports for non-metallic conduit shall be at sufficiently close intervals to eliminate any sag in the conduit. The manufacturer's recommendations shall be followed, but in no event shall support spans exceed the Electrical Code requirements.
- L. Where conduit is to be installed in poured concrete floors or walls, provide concrete-tight conduit inserts securely fastened to forms to prevent conduit misplacement.
- M. Finish:
  - 1. Prime coat exposed steel hangers and supports. Hangers and supports in crawl spaces, pipe shafts, and above suspended ceiling spaces are not considered exposed.
  - 2. Trim all ends of exposed field fabricated steel hangers, slotted channel and threaded rod to within 1" of support or fastener to eliminate potential injury to personnel unless shown otherwise on the drawings. Smooth ends and install elastomeric insulation with two coats of latex paint if exposed steel is within 6'-6" of finish floor and presents potential injury to personnel.

### **3.05 CONDUIT INSTALLATION**

- A. Conduit Connections:
  - 1. Shorter than standard conduit lengths shall be cut square using industry standards. The ends of all conduits cut shall be reamed or otherwise finished to remove all rough edges.
  - 2. Metallic conduit connections in slab on grade installation shall be sealed and one coat of rust inhibitor primer applied after the connection is made.
  - 3. Where conduits with tapered threads cannot be coupled with standard couplings, then approved split or Erickson couplings shall be used. Running threads will not be permitted.
  - 4. Install expansion/deflection joints where conduit crosses structure expansion/seismic joints.
- B. Conduit terminations for all low voltage wiring shall have nylon bushings installed on each end of every conduit run.
- C. Conduit Bends:
  - 1. Use a hydraulic one-shot conduit bender or factory elbows for bends in conduit 2" in size or larger. All steel conduit bending shall be done cold; no heating of steel conduit shall be permitted.
  - 2. All bends of rigid polyvinyl chloride conduit (PVC) shall be made with the manufacturer's approved bending equipment. The use of spot heating devices will not be permitted (i.e. blow torches).
  - 3. A run of conduit shall not contain more than the equivalent of four (4) quarter bends (360°), including those bends located immediately at the outlet or body.

4. Telecommunications conduits shall have no more than two (2) 90-degree bends between pull points and contain no continuous sections longer than 100 feet. Insert pull points or pull boxes for conduits exceeding 100 feet in length.
    - a. A third bend is acceptable if:
      - 1) The total run is not longer than (33) feet.
      - 2) The conduit size is increased to the next trade size.
  5. Telecommunications pull boxes shall not be used in lieu of a bend. Align conduits that enter the pull box from opposite ends with each other. Pull box size shall be twelve (12) times the diameter of the largest conduit. Slip sleeves or gutters can be used in place of a pull box.
  6. Telecommunications Conduit(s): Maintain appropriate conduit bend radius at all times. For conduits with an internal diameter of less than 2", maintain a bend radius of at least 6 times the internal diameter. For conduits with an internal diameter 2" or greater, maintain a bend radius of at least 10 times the internal diameter.
  7. Rigid polyvinyl chloride conduit (PVC) runs longer than 100 feet or runs which have more than two 90° equivalent bends (regardless of length) shall use rigid metal or RTRC factory elbows for bends.
  8. Use conduit bodies to make sharp changes in direction (i.e. around beams).
- D. Conduit Placement:
1. Conduit shall be mechanically continuous from source of current to all outlets. Conduit shall be electrically continuous from source of current to all outlets, unless a properly sized grounding conductor is routed within the conduit. All metallic conduits shall be bonded per the Electrical Code.
  2. Route exposed conduit and conduit above suspended ceilings (accessible or not) parallel/perpendicular to the building structural lines, and as close to building structure as possible. Wherever possible, route horizontal conduit runs above water and steam piping.
  3. Route conduit through roof openings provided for piping and ductwork where possible. If not provided or routing through provided openings is not possible, route through roof jack with pitch pocket. Coordinate roof penetrations with other trades.
  4. Conduits, raceway, and boxes shall not be installed in concealed locations in metal deck roofing or less than 1.5" below bottom of roof decking.
  5. Avoid moisture traps where possible. Where unavoidable, provide a junction box with drain fitting at conduit low point.
  6. All conduits through walls shall be grouted or sealed into openings. Where conduit penetrates firewalls and floors, seal with a UL listed sealant. .
  7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN MASONRY OR EXTERIOR WALLS UNDER THIS DIVISION. A QUALIFIED MASON AT THE EXPENSE OF THIS CONTRACTOR SHALL REPAIR ALL OPENINGS TO MATCH EXISTING CONDITIONS.
  8. Seal interior of conduit at exterior entries, air handling units, coolers/freezers, etc., and where the temperature differential can potentially be greater than 20°F, to prevent moisture penetration. Seal shall be placed where conduit enters warm space. Conduit seal fitting shall be a drain/seal, with sealing compound, identified for use with cable and raceway system, equal to O-Z/Gedney type EYD.
  9. Horizontal conduit routing through slabs above grade
    - a. Conduits, if run in concrete structure, shall be in middle one-third of slab thickness, and leave at least 3" min. concrete cover. Conduits shall run parallel to each other and spaced at least 8" apart centerline to centerline. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement. Maximum conduit outside diameter 1".
    - b. No conduits are allowed in concrete on metal deck unless expressly approved in writing by the Structural Engineer.
    - c. No conduits are allowed to be routed horizontally through slabs above grade.
  10. Do not route conduits across each other in slabs on grade.

11. Rigid polyvinyl chloride conduit (PVC) shall be installed when material surface temperatures and ambient temperature are greater than 40°F.
12. Where rigid polyvinyl chloride conduit (PVC) is used below grade, in a slab, below a slab, etc., a transition to rigid galvanized steel or PVC-coated steel conduit shall be installed before conduit exits earth. The metallic conduit shall extend a minimum of 6" into the surface concealing the non-metallic conduit.
13. Contractor shall provide suitable mechanical protection around all conduits stubbed out from floors, walls or ceilings during construction to prevent bending or damaging of stubs due to carelessness with construction equipment.
14. Contractor shall provide a polypropylene pull cord with 2000 lbs. tensile strength in each empty conduit (indoor and outdoor), except in sleeves and nipples.
15. Telecommunications conduits that protrude through the structural floor shall be installed 1 to 3" above finished floor (AFF).
16. Telecommunications conduits that enter into Telecommunications rooms below the finished ceiling shall terminate a minimum of 4" below ceiling and as close to the wall as possible.
17. Telecommunications conduits that are below grade and enter into a building shall terminate a minimum of 4" above finished floor (AFF) and as close to the wall as possible.

### **3.06 CONDUIT TERMINATIONS**

- A. Where conduit bonding is indicated or required in the contract documents, the bushings shall be a grounding type sized for the conduit and ground bonding conductor as manufactured by O-Z/Gedney, Appleton, Thomas & Betts, Burndy, Regal, Orbit Industries or approved equal.
- B. Conduits with termination fittings shall be threaded for one (1) lock nut on the outside and one (1) lock nut and bushing on the inside of each box.
- C. Where conduits terminate in boxes with knockouts, they shall be secured to the boxes with lock nuts and provided with approved screw type tinned iron bushings or fittings with plastic inserts.
- D. Where conduits terminate in boxes, fittings, or bodies with threaded openings, they shall be tightly screwed against the shoulder portion of the threaded openings.
- E. Conduit terminations to all motors shall be made with flexible metallic conduit (FMC), unless noted otherwise. Final connections to roof exhaust fans, or other exterior motors and motors in damp or wet locations shall be made with liquidtight flexible metallic conduit (LFMC). Motors in hazardous areas, as defined in the Electrical Code, shall be connected using flexible conduit rated for the environment. Flexible conduit shall not exceed 6' in length. Route equipment ground conductors from circuit ground to motor ground terminal through flexible conduit.
- F. Rigid polyvinyl chloride conduit (PVC) shall be terminated using fittings and bodies produced by the manufacturer of the conduit, unless noted otherwise. Prepare conduit as per manufacturer's recommendations before joining. All joints shall be solvent welded by applying full even coat of plastic cement to the entire areas that will be joined. Turn the conduit at least a quarter to one half turn in the fitting and let the joint cure for 1-hour minimum or as per the manufacturer's recommendations.
- G. All conduit ends shall be sealed with plastic immediately after installation to prevent the entrance of any foreign matter during construction. The seals shall be removed and the conduits blown clear of all foreign matter prior to any wires or pull cords being installed.

### **3.07 UNDERGROUND CONDUIT INSTALLATION**

- A. Conduit Connections:
  1. Conduit joints in a multiple conduit run shall be staggered at least one foot apart.
- B. Conduit Bends (Lateral):
  1. Conduits shall have long sweep radius elbows instead of standard elbows wherever special bends are indicated and noted on the drawings, or as required by the manufacturer of the equipment or system being served.

2. Telecommunications conduit bend radius shall be six times the diameter for conduits under 2" and ten times the diameter for conduits over 2". Where long cable runs are involved, sidewall pressures may require larger radius bends. Coordinate with Architect/Engineer prior to conduit installation to determine bend radius.
- C. Conduit Elbows (vertical):
1. Minimum metal or RTRC elbow radiuses shall be 30 inches for primary conduits (greater than 600V) and 18 inches for secondary conduits (less than 600V). Increase radius, as required, based on pulling tension calculation requirements.
- D. Conduit Placement:
1. Conduit runs shall be pitched a minimum of 4" per 100 feet to drain toward the terminations. Duct runs shall be installed deeper than the minimum wherever required to avoid any conflicts with existing or new piping, tunnels, etc.
  2. For parallel runs, use suitable separators and chairs installed not greater than 4' on centers. Band conduit together with suitable banding devices. Securely anchor conduit to prevent movement during concrete placement or backfilling.
  3. Where concrete is required, the materials for concreting shall be thoroughly mixed to a minimum  $f'c = 2500$  and immediately placed in the trench around the conduits. No concrete that has been allowed to partially set shall be used.
  4. Before the Contractor pulls any cables into the conduit, Contractor shall have a mandrel 1/4" smaller than the conduit inside diameter pulled through each conduit and if any concrete or obstructions are found, the Contractor shall remove them and clear the conduit. Spare conduit shall also be cleared of all obstructions.
  5. Conduit terminations in manholes, masonry pull boxes, or masonry walls shall be with malleable iron end bell fittings.
  6. All spare conduits not terminated in a covered enclosure shall have its terminations plugged as described above.
  7. Ductbanks and conduit shall be installed a minimum of 24" below finished grade, unless otherwise noted on the drawings or elsewhere in these specifications.
  8. All non-metallic conduit installed underground outside of a slab shall be rigid.
- E. Horizontal Directional Drilling:
1. Entire drill path shall be accurately surveyed, with entry and exit stakes placed and coordinated with other contractors. If using a magnetic guidance system, entire drill path shall be surveyed for any surface geo-magnetic variations or anomalies.
  2. Any utility locates within 20 feet of the bore path shall have the exact location physically verified by hand digging or vacuum excavation. Restore inspection holes to original condition after verification.
- F. Raceway Seal:
1. Where a raceway enters a building or structure, it shall be sealed with a sealing bushing or duct seal to prevent the entry of liquids or gases. Seal must be compatible with conductors and raceway system. Spare or unused raceway shall also be sealed.
  2. All telecommunications conduits and innerducts, including those containing cables, shall be plugged at the building and vault with "JackMoon" or equivalent duct seal, capable of withstanding a 10-foot head of water (5 PSI).
  3. Duct Seal Alternative Option: Inflatable duct seal system. Capable of withstanding a 10-foot head of water (5 PSEI).
    - a. Manufacturers:
      - 1) Raychem Rayflate Duct Sealing Systems RDSS
      - 2) Approved equal

**3.08 BOX INSTALLATION SCHEDULE**

- A. Galvanized steel boxes may be used in:
  - 1. Concealed interior locations above ceilings and in hollow studded partitions.
  - 2. Exposed interior locations in mechanical rooms and in rooms without ceilings; higher than 8' above the highest platform level.
  - 3. Direct contact with concrete except slab on grade.
  - 4. Recessed in stud wall of kitchens and laundries.
- B. Cast boxes shall be used in:
  - 1. Exterior locations.
  - 2. Hazardous locations.
  - 3. Exposed interior locations within 8' of the highest platform level.
  - 4. Direct contact with earth.
  - 5. Direct contact with concrete in slab on grade.
  - 6. Wet locations.
  - 7. Kitchens and laundries when exposed on wall surface.

**3.09 COORDINATION OF BOX LOCATIONS**

- A. Provide electrical boxes as shown on the drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.
- B. Electrical box locations shown on the Contract Drawings are approximate, unless dimensioned. Verify location of floor boxes and outlets in offices and work areas prior to rough-in.
- C. Locate and install boxes to allow access. Avoid interferences with ductwork, piping, structure, equipment, etc. Recessed luminaires shall not be used as access to outlet, pull, and junction boxes. Where installation is inaccessible, provide access doors. Coordinate locations and sizes of required access doors with the Architect/Engineer.
- D. Locate and install to maintain headroom and to present a neat appearance.
- E. Coordinate locations with Heating Contractor to avoid baseboard radiation cabinets.

**3.10 OUTLET BOX INSTALLATION**

- A. Do not install boxes back-to-back in walls.
  - 1. Provide a minimum horizontal separation of 6 inches between boxes installed on opposite sides of non-rated stud walls. When the minimum separation cannot be maintained, install sound insulation pads on all five sides of the back box in accordance with the manufacturer's instructions.
  - 2. Provide a minimum horizontal separation of 24 inches between boxes installed on opposite sides of fire-rated walls. When the minimum separation cannot be maintained, the box is greater than 16 square inches or the total box area (all trades) per 100 square feet is greater than or equal to 100 square inches, install fire-rated moldable pads to all five sides of the back box to maintain the fire rating of the wall. Install moldable pads in accordance with UL listing for the specific product. Sound insulation pads are not acceptable for use in fire-rated wall applications unless the product carries the necessary fire rating.
- B. Install sound insulation pads on all five sides of the back of all boxes in sound-rated wall assemblies. Sound-rated wall assemblies are defined as partition types carrying a Sound Transmission Class (STC) rating.
- C. The Contractor shall anchor switch and outlet box to wall construction so that it is flush with the finished masonry, paneling, drywall, plaster, etc. The Contractor shall check the boxes as the finish wall surface is being installed to assure that the box is flush. (Provide plaster rings as necessary.)
- D. Mount at heights shown or noted on the drawings or as generally accepted if not specifically noted.

- E. Locate boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat openings for boxes.
- F. Provide knockout closures for unused openings.
- G. Support boxes independently of conduit.
- H. Use multiple-gang boxes where more than one device is mounted together; do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.
- I. Install boxes in walls without damaging wall insulation.
- J. Coordinate mounting heights and locations of outlets mounted above counters, benches, backsplashes, and below baseboard radiation.
- K. Position outlets to locate luminaires as shown on reflected ceiling drawings.
- L. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioned to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.
- M. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.
- N. Provide cast outlet boxes in exterior locations and wet locations, and where exposed rigid or intermediate conduit is used.

### **3.11 PULL AND JUNCTION BOX INSTALLATION**

- A. Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.
- B. Support pull and junction boxes independent of conduit.
- C. Do not install boxes back-to-back in walls.
  - 1. Provide a minimum horizontal separation of 6 inches between boxes installed on opposite sides of non-rated stud walls. When the minimum separation cannot be maintained, install sound insulation pads on all five sides of the back box in accordance with the manufacturer's instructions.
  - 2. Provide a minimum horizontal separation of 24 inches between boxes installed on opposite sides of fire-rated walls. When the minimum separation cannot be maintained, the box is greater than 16 square inches or the total box area (all trades) per 100 square feet is greater than or equal to 100 square inches, install fire-rated moldable pads to all five sides of the back box to maintain the fire rating of the wall. Install moldable pads in accordance with UL listing for the specific product. Sound insulation pads are not acceptable for use in fire-rated wall applications unless the product carries the necessary fire rating.
- D. Install sound insulation pads on all five sides of the back of all boxes in sound-rated wall assemblies. Sound-rated wall assemblies are defined as partition types carrying a Sound Transmission Class (STC) rating.

### **3.12 EXPOSED BOX INSTALLATION**

- A. Boxes shall be secured to the building structure with proper size screws, bolts, hanger rods, or structural steel elements.
- B. On brick, block and concrete walls or ceilings, exposed boxes shall be supported with no less than two (2) Ackerman-Johnson, Paine, Phillips, or approved equal screw anchors or expansion shields and round head machine screws. Cast boxes shall not be drilled.
- C. On steel structures, exposed boxes shall be supported to the steel member by drilling and tapping the member and fastening the boxes by means of round head machine screws.
- D. Boxes may be supported on steel members by APPROVED beam clamps if conduit is supported by beam clamps.

- E. Boxes shall be fastened to wood structures by means of a minimum of two (2) wood screws adequately large and long to properly support. (Quantity depends on size of box.)
- F. Wood, plastic, or fiber plugs shall not be used for fastenings.
- G. Explosive devices shall not be used unless specifically allowed.

**END OF SECTION**

**SECTION 27 1500**  
**HORIZONTAL CABLING REQUIREMENTS**

**PART 1 - GENERAL**

Specification Provided as Reference Only

**1.01 SECTION INCLUDES**

- A. This section describes the products and execution requirements relating to furnishing and installing horizontal communications cabling and termination components and related subsystems as part of a cabling plant. The cabling plant consists of copper cabling.

**1.02 RELATED WORK**

- A. Section 27 0500 - Basic Communications Systems Requirements
- B. Section 27 1720 - Structured Cabling System Warranty

**1.03 QUALITY ASSURANCE**

- A. Refer to Section 27 0500 for relevant standards and plenum or non-plenum cable requirements.
- B. The channel shall be required to meet the performance requirements indicated herein. The manufacturer shall warranty the performance of their system to the required performance (and not just to the Standard, should the required performance exceed the Standard).
- C. Specific components of the channel shall be required, at a minimum, to meet the Standard component requirements for that particular component.
- D. The installing contractor must be certified by the manufacturer of the structured cabling system.

**1.04 SUBMITTALS**

- A. Under the provisions of Section 27 0500 and Division 1, prior to the start of work the Contractor shall submit:
  - 1. Manufacturer's data covering all products proposed, including construction, materials, ratings and all other parameters identified in Part 2 - Products, below.

**PART 2 - PRODUCTS**

**2.01 HORIZONTAL CABLE**

- A. CAT 6 Cable:
  - 1. The horizontal cable requirements must be met, as well as the following channel requirements.
  - 2. CAT 6 cable shall terminate on rack-mounted modular patch panels in their respective communication equipment room as indicated on the drawings.
  - 3. Performance tests shall be conducted using swept frequency testing through 250 MHz for the channel. All numbers given are for a 4-connection channel. Discrete frequency testing results at 250 MHz is not acceptable.
  - 4. Performance data shall be characterized as "Guaranteed Headroom" and shall be guaranteed by the manufacturer to perform at guaranteed margins over ANSI/TIA/EIA-568-C.2. Performance data that is not warranted by the manufacturer will not be considered.
  - 5. The structured cabling and connectivity must be provided by the same company. For the purpose of this specification that shall mean that the cabling and connectivity must be marketed, branded, supported, warranted, and distributed by the same company. Specifically, ally or partnerships between cabling manufacturers and connectivity manufacturers do not meet this requirement unless otherwise listed in Section 27 1720 as an acceptable manufacturer. Specifically, products made by others through an OEM relationship are acceptable if the products are marketed, branded, supported, warranted, and distributed by the same company.

6. The 4-connector channel performance margins in the table below shall be guaranteed margins above ANSI/TIA/EIA-568-C.2:

Electrical Value (1 - 250 MHz)	Minimum Margin
Insertion Loss:	5%
NEXT:	3.0 dB
PS NEXT:	5.0 dB
ACR-F (ELFEXT):	4.0 dB
PS ACR-F (PS ELFEXT):	5.0 dB
Return Loss:	2.0 dB

7. The jacket color for CAT 6 cable shall be white for voice applications and blue for data applications.
8. Basis of Design:
- a. Hubbell HC6R Series
  - b. Additional acceptable manufacturers:
    - 1) Belden
    - 2) Berk-Tek
    - 3) Commscope/Uniprise
    - 4) Panduit
    - 5) Siemon
    - 6) Superior Essex

## 2.02 FACEPLATES/JACKS

### A. CAT 6 Jacks:

1. CAT 6 horizontal cable shall each be terminated at their designated work area location on RJ-45 modular jacks. These modular jack assemblies shall snap into a modular mounting frame. The combined modular jack assembly is referred to as an information outlet.
2. The same orientation and positioning of modular jacks shall be utilized throughout the installation. Prior to installation, the Contractor shall submit the proposed configuration for each information outlet type for review by the Architect/Engineer.
3. Information outlet faceplates shall incorporate recessed designation strips at the top and bottom of the frame for identifying labels. Designation strips shall be fitted with clear plastic covers.
4. Where standalone CAT 6 only modular jacks are identified, the information outlet faceplate shall be configured as to allow for the addition of one (1) additional modular jack (CAT 3, CAT 5E, or CAT 6) to be installed to supplement each such modular jack as defined by this project. The installation of these supplemental modular jacks is NOT part of this project.
5. Any unused modular jack positions on an information outlet faceplate shall be fitted with a removable blank inserted into the opening.
6. The information outlet faceplate shall be constructed of high impact plastic (except where noted otherwise). The information outlet faceplate color shall:
  - a. Match the receptacle color used for other utilities in the building, or
  - b. When installed in surface raceway (if applicable), match the color of that raceway.
7. Different faceplate and frame designs for locations, which include optical fiber cabling relative to those, that terminate only copper cabling are acceptable. Information outlets that incorporate optical fiber shall be compliant with the above requirements plus:
  - a. Be a low-profile assembly.
  - b. Incorporate a mechanism for storage of cable and fiber slack needed for termination.

- c. Position the optical fiber couplings to face downward or at a downward angle to prevent contamination.
- d. Incorporate a shroud that protects the optical fiber couplings from impact damage.
- 8. All information outlets and the associated modular jacks shall be of the same manufacturer throughout the project.
- 9. The CAT 6 modular jacks shall be non-keyed 8-pin modular jacks.
- 10. The interface between the modular jack and the horizontal cable shall be a 110-type termination block or insulation displacement type contact. Termination components shall be designed to maintain the horizontal cable's pair twists as closely as possible to the point of mechanical termination.
- 11. CAT 6 modular jacks shall be pinned per TIA-568B.
- 12. CAT 6 termination hardware shall, as a minimum, meet all the mechanical and electrical performance requirements of the following standards:
  - a. ANSI/TIA/EIA-568-A-5
  - b. ANSI/TIA/EIA-568A
  - c. ISO/IEC 11801
  - d. IEC 603-7
  - e. FCC PART 68 SUBPART F
- 13. The color for CAT 6 jacks shall be white for voice applications and blue for data applications. Alternately, a color-coded bezel or icon may be used to identify the CAT 6 modular jack.

### **PART 3 - EXECUTION**

#### **3.01 CABLE INSTALLATION REQUIREMENTS**

- A. Horizontal Cabling:
  - 1. The maximum horizontal cable drop length for Data UTP shall not exceed 295 feet (90 meters) in order to meet data communications performance specifications. This length is measured from the termination panel in the wiring closet to the outlet and must include any slack required for the installation and termination. The Contractor is responsible for installing horizontal cabling in a fashion so as to avoid unnecessarily long runs. Any area that cannot be reached within the above constraints should be identified and reported to the Architect/Engineer prior to installation. Changes to the contract documents shall be approved by the Architect/Engineer.
  - 2. All cable shall be free of tension at both ends. In cases where the cable must bear some stress, Kellum grips may be used to spread the strain over a longer length of cable.
  - 3. Manufacturer's minimum bend radius specifications shall be observed in all instances.
  - 4. Horizontal cabling installed as open cabling shall be supported at a maximum of 5' between supports. Refer to the specifications for required cable supports.
  - 5. Horizontal cabling installed as open cable or in cable tray shall be bundled at not less than 10' intervals with hook-and-loop tie wraps. The use of plastic cable ties is strictly prohibited.
  - 6. The maximum conduit fill for horizontal cabling shall not exceed 40% regardless of conduit length.
  - 7. Cable sheaths shall be protected from damage from sharp edges. Where a cable passes over a sharp edge, a bushing or grommet shall be used to protect the cable.

- B. A coil of 3 feet in each cable shall be placed in the ceiling at the last support (e.g., J-hook, bridle ring, etc.) before the cables enter a fishable wall, conduit, surface raceway or box. At any location where cables are installed into movable partition walls or modular furniture via a service pole, approximately 15-feet of slack shall be left in each horizontal cable under 250 feet in length to allow for change in the office layout without re-cabing. These "service loops" shall be secured at the last cable support before the cable leaves the ceiling and shall be coiled from 100% to 200% of the cable recommended minimum bend radius.
1. To reduce or eliminate EMI, the following minimum separation distances from 480V power lines shall be adhered to:
    - a. Twelve (12) inches from power lines of less than 5-kVa.
    - b. Eighteen (18) inches from high-voltage lighting (including fluorescent).
    - c. Thirty-nine (39) inches from power lines of 5-kVa or greater.
    - d. Thirty-nine (39) inches from transformers and motors.
  2. Information outlets shown on floor plans with the subscript "W" are intended to be used for wall mounted telephones. Back boxes for wall mounted telephones shall not be located within 12" vertically, or horizontally, from any light switches, power receptacles, nurse call devices, thermostats, or any other architectural element that would otherwise prevent the installation of a wall mounted telephone on the mating lugs.

### **3.02 CABLE TERMINATION REQUIREMENTS**

A. Cable Terminations - Data UTP:

1. Modular patch panels shall be designed and installed in a fashion as to allow future horizontal cabling to be terminated on the panel without disruption to existing connections.
2. If the "last" patch (per rack) is greater than 50% utilized, one additional patch panel shall be provided for future use.
3. At information outlets and modular patch panels, the Contractor shall ensure that the twists in each cable pair are preserved to within 0.5-inch of the termination for data cables. The cable jacket shall be removed only to the extent required to make the termination.

**END OF SECTION**

**SECTION 28 0500**

**BASIC ELECTRONIC SAFETY AND SECURITY SYSTEM REQUIREMENTS**

**PART 1 - GENERAL**

Specification Provided as Reference Only

**1.01 SECTION INCLUDES**

- A. Basic Safety and Security System Requirements (herein referred to Security) specifically applicable to Division 28 sections, in addition to Division 1 - General Requirements.
- B. All materials and installation methods shall conform to the applicable standards, guidelines and codes referenced herein and within each specification section.

**1.02 SCOPE OF WORK**

- A. This Specification and the accompanying drawings govern the work involved in furnishing, installing, testing and placing into satisfactory operation the security systems as shown on the drawings and specified herein.
- B. Each Contractor shall provide all new materials as indicated in the schedules on the drawings, and/or in these specifications, and all items required to make the portion of the security systems a finished and working system.
- C. All work will be awarded under a single General Contract. The division of work listed below is for the Contractor's convenience and lists normal breakdown of the work.
- D. Description of systems include but are not limited to the following:
  - 1. Extension of existing electronic access control system
  - 2. Fire detection and alarm.
  - 3. Low voltage security wiring (less than +120VAC) as specified and required for proper system control and communications.
  - 4. All associated electrical backboxes, conduit, miscellaneous cabling, and power supplies required for proper system installation and operation as defined in the "Suggested Matrix of Scope Responsibility".
  - 5. Firestopping of penetrations of fire-rated construction as described in Division 7.

**1.03 OWNER FURNISHED PRODUCTS**

- A. Existing access control system managed by Owner security vendor Accurate Controls, Inc.
- B. Video surveillance cameras and recording equipment provided by Owner's security contractor. Scope of work is rough-in and data cabling only.

**1.04 WORK SEQUENCE**

- A. All construction work that will produce excessive noise levels and interference with normal building operations, as determined by the Owner, shall be scheduled with the Owner. It may be necessary to schedule such work during non-occupied hours. The Owner shall reserve the right to set policy as to when restricted construction hours will be required.
- B. Itemize all work and list associated hours and pay scale for each item.

**1.05 DIVISION OF WORK BETWEEN ELECTRICAL AND SECURITY CONTRACTORS**

- A. Division of work is the responsibility of the Prime Contractor. Any scope of work described in the contract document shall be sufficient for including said requirement in the project. The Prime Contractor shall be solely responsible for determining the appropriate subcontractor for the described scope. In no case shall the project be assessed an additional cost for scope that is described in the contract documents. The following division of responsibility is a guideline based on typical industry practice.
- B. Definitions:
  - 1. "Electrical Contractor" as referred to herein refers to the Contractors listed in Division 26 of this Specification.

2. "Electrical Contractor" shall also refer to the Contractor listed in Division 28 of this specification when the "Suggested Matrix of Scope Responsibility" indicates the work shall be provided by the EC. Refer to the Contract Documents for the "Suggested Matrix of Scope Responsibility".
3. "Security Contractor" as referred to herein refers to the Contractors listed in Division 28 of this Specification.
4. Low Voltage Security Wiring: The wiring (less than 120VAC) associated with the Security Systems, used for analog and/or digital signals between equipment.

C. General:

1. The purpose of these Specifications is to outline typical Electrical and Security Contractor's work responsibilities as related to security systems including back boxes, conduit, power wiring and low voltage security wiring. The prime contractor is responsible for all divisions of work.
2. The exact wiring requirements for much of the equipment cannot be determined until the systems have been purchased and submittals are approved. Therefore, only known wiring, conduits, raceways, and electrical power as related to such items, is shown on the Security Drawings. Other wiring, conduits, raceways, junction boxes, and electrical power not shown on the Security Drawings but required for the successful operation of the systems shall be the responsibility of the Security Contractor and included in the Contractor's bid.
3. Where the Electrical Contractor is required to install conduit, conduit sleeves and/or power connections in support of Security systems, the final installation shall not begin until a coordination meeting between the Electrical Contractor and the Security Contractor has convened to determine the exact location and requirements of the installation.
4. This Contractor shall establish Electrical and Security utility elevations prior to fabrication and installation. The Security Contractor shall cooperate with the Electrical Contractor and the determined elevations in accordance with the guidelines below. This Contractor shall coordinate utility elevations with other trades. When a conflict arises, priority shall be as follows:
  - a. Lighting Fixtures
  - b. Gravity Flow Piping, including Steam and Condensate
  - c. Sheet Metal
  - d. Electrical Busduct
  - e. Sprinkler Piping and other Piping
  - f. Conduit and Wireway
  - g. Open Cabling

D. Electrical Contractor's Responsibility:

1. Assumes all responsibility for all required conduit and power connections when shown on the "Suggested Matrix of Scope Responsibility" to be provided by the Electrical Contractor.
2. Responsible for Security Systems grounding and bonding.
3. This Contractor is responsible for coordination of utilities with all other Contractors. If any field coordination conflicts are found, the Contractor shall coordinate with other Contractors to determine a viable layout.

E. Security Contractor's Responsibility:

1. Assumes all responsibility for the low voltage security wiring of all systems, including cable support where open cable is specified.
2. Assumes all responsibility for all required backboxes, conduit and power connections not specifically shown as being provided by the Electrical Contractor on the "Suggested Matrix of Scope Responsibility."

3. Responsible for providing the Electrical Contractor with the required grounding lugs or other hardware for each piece of security equipment which is required to be bonded to the telecommunications bonding system.
4. This Contractor is responsible for coordination of utilities with all other Contractors. If any field coordination conflicts are found, the Contractor shall coordinate with other contractors to determine a viable layout.

## 1.06 COORDINATION DRAWINGS

### A. Definitions:

1. Coordination Drawings: A compilation of the pertinent layout and system drawings that show the sizes and locations, including elevations, of system components and required access areas to ensure that no two objects will occupy the same space.
  - a. Mechanical trades shall include, but are not limited to, mechanical equipment, ductwork, fire protection systems, plumbing piping, medical gas systems, hydronic piping, steam and steam condensate piping, and any item that may impact coordination with other disciplines.
  - b. Electrical trades shall include, but are not limited to, electrical equipment, conduit 1.5" and larger, conduit racks, pull boxes, transformers, raceway, busway, lighting, ceiling-mounted devices, and any item that may impact coordination with other disciplines.
  - c. Technology trades shall include, but are not limited to, technology equipment, racks, conduit 1.5" and larger, conduit racks ladder rack, pull boxes, raceway, ceiling-mounted devices, and any item that may impact coordination with other disciplines.
  - d. Maintenance clearances and code-required dedicated space shall be included.
  - e. The coordination drawings shall include all underground, underfloor, in-floor, in chase, and vertical trade items.
2. The contractors shall use the coordination process to identify the proper sequence of installation of all utilities above ceilings and in other congested areas, to ensure an orderly and coordinated end result, and to provide adequate access for service and maintenance.

### B. Participation:

1. The contractors and subcontractors responsible for work defined above shall participate in the coordination drawing process.
2. One contractor shall be designated as the Coordinating Contractor for purposes of preparing a complete set of composite electronic CAD coordination drawings that include all applicable trades, and for coordinating the activities related to this process. The Coordinating Contractor for this project shall be the Mechanical Contractor.
  - a. The Coordinating Contractor shall utilize personnel familiar with requirements of this project and skilled as draftspersons/CAD operators, competent to prepare the required coordination drawings.
3. Electronic CAD drawings shall be submitted to the Coordinating Contractor for addition of work by other trades. IMEG will provide electronic file copies of ventilation drawings for contractor's use if the contractor signs and returns an "Electronic File Transfer" waiver provided by IMEG. IMEG will not consider blatant reproductions of original file copies an acceptable alternative for coordination drawings.

### C. Drawing Requirements:

1. The file format and file naming convention shall be coordinated with and agreed to by all contractors participating in the coordination process and the Owner.
  - a. Scale of drawings:
    - 1) General plans: 1/4 Inch = 1'-0" (minimum).
    - 2) Mechanical, electrical, communication rooms, and including the surrounding areas within 10 feet: 1/2 Inch = 1'-0" (minimum).

- 3) Shafts and risers: 1/2 Inch = 1'-0" (minimum).
  - 4) Sections of shafts and mechanical and electrical equipment rooms: 1/4 Inch = 1'-0" (minimum).
  - 5) Sections of congested areas: 1/2 Inch = 1'-0" (minimum).
2. Ductwork layout drawings shall be the baseline system for other components. Ductwork layout drawings shall be modified to accommodate other components as the coordination process progresses.
  3. There may be more drawings required for risers, top and bottom levels of mechanical rooms, and shafts.
  4. The minimum quantity of drawings will be established at the first coordination meeting and sent to the A/E for review. Additional drawings may be required if other areas of congestion are discovered during the coordination process.

D. General:

1. Coordination drawing files shall be made available to the A/E and Owner's Representative. The A/E will only review identified conflicts and give an opinion, but will not perform as a coordinator.
2. A plotted set of coordination drawings shall be available at the project site.
3. Coordination drawings are not shop drawings and shall not be submitted as such.
4. The contract drawings are schematic in nature and do not show every fitting and appurtenance for each utility. Each contractor is expected to have included in the bid sufficient fittings, material, and labor to allow for adjustments in routing of utilities made necessary by the coordination process and to provide a complete and functional system.
5. The contractors will not be allowed additional costs or time extensions due to participation in the coordination process.
6. The contractors will not be allowed additional costs or time extensions for additional fittings, reroutings or changes of duct size, that are essentially equivalent sizes to those shown on the drawings and determined necessary through the coordination process.
7. The A/E reserves the right to determine space priority of equipment in the event of spatial conflicts or interference between equipment, piping, conduit, ducts, and equipment provided by the trades.
8. Changes to the contract documents that are necessary for systems installation and coordination shall be brought to the attention of the A/E.
9. Access panels shall preferably occur only in gypsum board walls or plaster ceilings where indicated on the drawings.
  - a. Access to mechanical, electrical, technology, and other items located above the ceiling shall be through accessible lay-in ceiling tile areas.
  - b. Potential layout changes shall be made to avoid additional access panels.
  - c. Additional access panels shall not be allowed without written approval from the A/E at the coordination drawing stage.
  - d. Providing additional access panels shall be considered after other alternatives are reviewed and discarded by the A/E and the Owner's Representative.
  - e. When additional access panels are required, they shall be provided without additional cost to the Owner.
10. Complete the coordination drawing process and obtain signoff of the drawings by all contractors prior to installing any of the components.
11. Conflicts that result after the coordination drawings are signed off shall be the responsibility of the contractor or subcontractor who did not properly identify their work requirements, or installed their work without proper coordination.
12. Updated coordination drawings that reflect as-built conditions may be used as record documents.

**1.07 QUALITY ASSURANCE**

A. Qualifications:

1. Only products of reputable manufacturers as determined by the Architect/Engineer will be acceptable.
2. Each Contractor and their subcontractors shall employ only workers who are skilled in their respective trades and fully trained. All workers involved in the installation, termination, testing, and placing into operation electronic security devices shall be individually trained by the manufacturer.
3. The Contractor shall be experienced in all aspects of this work and shall be required to demonstrate direct experience on recent systems of similar type and size.
4. The Contractor shall own and maintain tools and equipment necessary for successful installation and testing of electronic security devices and have personnel adequately trained in the use of such tools and equipment.
5. A resume of qualification shall be submitted with the Contractor's bid indicating the following:
  - a. A list of recently completed projects of similar type and size with contact names and telephone numbers for each.

B. Compliance with Codes, Laws, Ordinances:

1. Conform to all requirements of the State of Iowa's Codes, Laws, Ordinances and other regulations having jurisdiction.
2. In the event there are no local codes having jurisdiction over this job, the current issue of the National Electrical Code shall be followed.
3. If there is a discrepancy between the codes and regulations having jurisdiction over this installation, and these specifications, Architect/Engineer shall determine the method or equipment used.
4. If the Contractor notes, at the time of bidding, that any parts of the drawings or specifications do not comply with the codes or regulations, Contractor shall inform the Architect/Engineer in writing, requesting a clarification. If there is insufficient time to follow this procedure, Contractor shall submit with the proposal a separate price to make the system comply with the codes and regulations.
5. Verify the installation environment prior to purchasing or installing any cable. Cable installed in a plenum environment shall be appropriately rated. Bring all discrepancies between the contract documents and installation conditions to the attention of the Architect/Engineer prior to purchase or installation.
6. All changes to the system made after the letting of the contract, in order to comply with the applicable codes or the requirements of the Inspector, shall be made by the Contractor without cost to the Owner.

C. Permits, Fees, Taxes, Inspections:

1. Procure all applicable permits and licenses.
2. Abide by all applicable laws, regulations, ordinances, and other rules of the State or Political Subdivision wherein the work is done, or as required by any duly constituted public authority.
3. Pay all applicable charges for such permits or licenses that may be required.
4. Pay all applicable fees and taxes imposed by the State, Municipal and/or other regulatory bodies.
5. Pay all charges arising out of required inspections due to codes, permits, licenses or as otherwise may be required by an authorized body.
6. Pay all charges arising out of required contract document reviews associated with the project and as initiated by the Owner or authorized independent agency/consultant.

7. All equipment, and materials shall be as approved or listed by the following: (Unless approval or listing is not applicable to an item by all acceptable manufacturers.)
  - a. Factory Mutual
  - b. Underwriters' Laboratories, Inc.

D. Examination of Drawings:

1. The drawings for the Security Systems work are diagrammatic, intended to convey the scope of the work and to indicate the general arrangements and locations of equipment etc., and the approximate sizes of equipment.
2. Contractor shall determine the exact locations of equipment and the exact routing of cabling to best fit the layout of the job. Scaling of the drawings will not be sufficient or accurate for determining this layout. Where a specific route is required, such route will be indicated on the drawings.
3. Where job conditions require reasonable changes in indicated arrangements and locations, such changes shall be made by the Contractor at no additional cost to the Owner.
4. If an item is either shown on the drawings, called for in the specifications or required for proper operation of the system, it shall be considered sufficient for including same in this contract.
5. The determination of quantities of material and equipment required shall be made by the Contractor from the drawings. Schedules on the drawings and in the specifications are completed as an aid to the Contractor but where discrepancies arise, the greater number shall govern.
6. Where words "provide", "install", or "furnish" are used on the drawings or in the specifications, it shall be taken to mean, to furnish, install and terminate completely ready for operation, the items mentioned.

E. Electronic Media/Files:

1. Construction drawings for this project have been prepared utilizing Revit.
2. Contractors and Subcontractors may request electronic media files of the contract drawings and/or copies of the specifications. Specifications will be provided in PDF format.
3. Upon request for electronic media, the Contractor shall complete and return a signed "Electronic File Transmittal" form provided by IMEG. If the information requested includes floor plans prepared by others, the Contractor will be responsible for obtaining approval from the appropriate Design Professional for use of that part of the document.
4. The electronic contract documents can be used for preparation of shop drawings and as-built drawings only. The information may not be used in whole or in part for any other project.
5. The drawings prepared by IMEG for bidding purposes may not be used directly for ductwork layout drawings or coordination drawings.
6. The use of these CAD documents by the Contractor does not relieve them from their responsibility for coordination of work with other trades and verification of space available for the installation.
7. The information is provided to expedite the project and assist the Contractor with no guarantee by IMEG as to the accuracy or correctness of the information provided. IMEG accepts no responsibility or liability for the Contractor's use of these documents.

F. Field Measurements:

1. Before ordering any materials, this Contractor shall verify all pertinent dimensions at the job site and be responsible for their accuracy.

**1.08 SUBMITTALS**

- A. Submittals shall be required for the following items, and for additional items where required elsewhere in the specifications or on the drawings.
1. Submittals list:

Referenced	
Specification Section	Submittal Item
28 13 00	Electronic Access Control
- B. General Submittal Procedures: In addition to the provisions of Division 1, the following are required:
1. Transmittal: Each transmittal shall include the following:
    - a. Date
    - b. Project title and number
    - c. Contractor's name and address
    - d. Division of work (e.g., plumbing, heating, ventilating, etc.)
    - e. Description of items submitted and relevant specification number
    - f. Notations of deviations from the contract documents
    - g. Other pertinent data
  2. Submittal Cover Sheet: Each submittal shall include a cover sheet containing:
    - a. Date
    - b. Project title and number
    - c. Architect/Engineer
    - d. Contractor and subcontractors' names and addresses
    - e. Supplier and manufacturer's names and addresses
    - f. Division of work (e.g., plumbing, heating, ventilating, etc.)
    - g. Description of item submitted (using project nomenclature) and relevant specification number
    - h. Notations of deviations from the contract documents
    - i. Other pertinent data
    - j. Provide space for Contractor's review stamps
  3. Composition:
    - a. Submittals shall be submitted using specification sections and the project nomenclature for each item.
    - b. Individual submittal packages shall be prepared for items in each specification section. All items within a single specification section shall be packaged together where possible. An individual submittal may contain items from multiple specifications sections if the items are intimately linked (e.g., pumps and motors).
    - c. All sets shall contain an index of the items enclosed with a general topic description on the cover.
  4. Content: Submittals shall include all fabrication, erection, layout, and setting drawings; manufacturers' standard drawings; schedules; descriptive literature, catalogs and brochures; performance and test data; wiring and control diagrams; dimensions; shipping and operating weights; shipping splits; service clearances; and all other drawings and descriptive data of materials of construction as may be required to show that the materials, equipment or systems and the location thereof conform to the requirements of the contract documents.

5. Contractor's Approval Stamp:
  - a. The Contractor shall thoroughly review and approve all shop drawings before submitting them to the Architect/Engineer. The Contractor shall stamp, date and sign each submittal certifying it has been reviewed.
  - b. Unstamped submittals will be rejected.
  - c. The Contractor's review shall include, but not be limited to, verification of the following:
    - 1) Only approved manufacturers are used.
    - 2) Addenda items have been incorporated.
    - 3) Catalog numbers and options match those specified.
    - 4) Performance data matches that specified.
    - 5) Electrical characteristics and loads match those specified.
    - 6) Equipment connection locations, sizes, capacities, etc. have been coordinated with other affected trades.
    - 7) Dimensions and service clearances are suitable for the intended location.
    - 8) Equipment dimensions are coordinated with support steel, housekeeping pads, openings, etc.
    - 9) Constructability issues are resolved (e.g., weights and dimensions are suitable for getting the item into the building and into place, sinks fit into countertops, etc.).
  - d. The Contractor shall review, stamp and approve all subcontractors' submittals as described above.
  - e. The Contractor's approval stamp is required on all submittals. Approval will indicate the Contractor's review of all material and a complete understanding of exactly what is to be furnished. Contractor shall clearly mark all deviations from the contract documents on all submittals. If deviations are not marked by the Contractor, then the item shall be required to meet all drawing and specification requirements.
6. Submittal Identification and Markings:
  - a. The Contractor shall clearly mark each item with the same nomenclature applied on the drawings or in the specifications.
  - b. The Contractor shall clearly indicate the size, finish, material, etc.
  - c. Where more than one model is shown on a manufacturer's sheet, the Contractor shall clearly indicate exactly which item and which data is intended.
  - d. All marks and identifications on the submittals shall be unambiguous.
7. Schedule submittals to expedite the project. Coordinate submission of related items.
8. Identify variations from the contract documents and product or system limitations that may be detrimental to the successful performance of the completed work.
9. Reproduction of contract documents alone is not acceptable for submittals.
10. Incomplete submittals will be rejected without review. Partial submittals will only be reviewed with prior approval from the Architect/Engineer.
11. Submittals not required by the contract documents may be returned without review.
12. The Architect/Engineer's responsibility shall be to review one set of shop drawing submittals for each product. If the first submittal is incomplete or does not comply with the drawings and/or specifications, the Contractor shall be responsible to bear the cost for the Architect/Engineer to recheck and handle the additional shop drawing submittals.
13. Submittals shall be reviewed and approved by the Architect/Engineer **before** releasing any equipment for manufacture or shipment.

14. Contractor's responsibility for errors, omissions or deviation from the contract documents in submittals is not relieved by the Architect/Engineer's approval.
15. Schedule shall allow for adequate time to perform orderly and proper review of submittals, including time for consultants and Owner if required, and resubmittals by Contractor if necessary, and to cause no delay in Work or in activities of Owner or other contractors.
  - a. Allow at least two weeks for Architect's/Engineer's review and processing of each submittal.
16. Architect/Engineer reserves the right to withhold action on a submittal which, in the Architect/Engineer's opinion, requires coordination with other submittals until related submittals are received. The Architect/Engineer will notify the Contractor, in writing, when they exercise this right.

C. Electronic Submittal Procedures:

1. Distribution: Email submittals as attachments to all parties designated by the Architect/Engineer, unless a web-based submittal program is used.
2. Transmittals: Each submittal shall include an individual electronic letter of transmittal.
3. Format: Electronic submittals shall be in PDF format only. Scanned copies, in PDF format, of paper originals are acceptable. Submittals that are not legible will be rejected. Do not set any permission restrictions on files; protected, locked, or secured documents will be rejected.
4. File Names: Electronic submittal file names shall include the relevant specification section number followed by a description of the item submitted, as follows. Where possible, include the transmittal as the first page of the PDF instead of using multiple electronic files.
  - a. Submittal file name: 28 XX XX.description.YYYYMMDD
  - b. Transmittal file name: 28 XX XX.description.YYYYMMDD
5. File Size: Files shall be transmitted via a pre-approved method. Larger files may require an alternative transfer method, which shall also be pre-approved.

**1.09 SCHEDULE OF VALUES**

A. The requirements herein are in addition to the provisions of Division 1.

B. Format:

1. Use AIA Document Continuation Sheets G703 or another similar form approved by the Owner and Architect/Engineer.
2. Submit in Excel format.
3. Support values given with substantiating data.

C. Preparation:

1. Itemize work required by each specification section and list all providers. All work provided by subcontractors and major suppliers shall be listed on the Schedule of Values. List each subcontractor and supplier by company name.
2. Break down all costs into:
  - a. Material: Delivered cost of product with taxes paid.
  - b. Labor: Labor cost, excluding overhead and profit.
3. Itemize the cost for each of the following:
  - a. Overhead and profit.
  - b. Bonds.
  - c. Insurance.
  - d. General Requirements: Itemize all requirements.

4. For each line item having an installed cost of more than \$5,000, break down costs to list major products or operations under each item. At a minimum, provide material and labor cost line items for the following:

- a. Security systems:
  - 1) Surveillance
  - 2) Access control

- D. Update Schedule of Values when:
  1. Indicated by Architect/Engineer.
  2. Change of subcontractor or supplier occurs.
  3. Change of product or equipment occurs.

#### **1.10 CHANGE ORDERS**

- A. A detailed material and labor takeoff shall be prepared for each change order, along with labor rates and markup percentages. Change orders shall be broken down by sheet or associated individual line item indicated in the change associated narrative, whichever provides the most detailed breakdown. Change orders with inadequate breakdown will be rejected.
- B. Itemized pricing with unit cost shall be provided from all distributors and associated subcontractors.
- C. Change order work shall not proceed until authorized.

#### **1.11 EQUIPMENT SUPPLIERS' INSPECTION**

- A. The following equipment shall not be placed in operation until a representative of the manufacturer has inspected the installation and certified that the equipment is properly installed and that the equipment is ready for operation:
  1. Firestopping, including mechanical firestop systems.

#### **1.12 PRODUCT DELIVERY, STORAGE, HANDLING & MAINTENANCE**

- A. Exercise care in transporting and handling to prevent damage to fixtures, equipment and materials.
- B. Store materials on the site to prevent damage.
- C. Keep fixtures, equipment and materials clean, dry and free from harmful conditions.

#### **1.13 NETWORK / INTERNET CONNECTED EQUIPMENT**

- A. These specifications may require certain equipment or systems to have network, Internet and/or remote access capability ("Network Capability"). Any requirement for Network Capability shall be interpreted only as a functional capability and is not to be construed as authority to connect or enable any Network Capability. Network Capability may only be connected or enabled with the express written consent of the Owner.

#### **1.14 WARRANTY**

- A. At a minimum, provide a one (1) year warranty for all equipment, materials, and workmanship. Individual specifications sections within Division 28 may require additional warranty requirements for specific equipment or systems.
- B. The warranty period for the entire installation described in this Division of the specifications shall commence on the date of substantial completion unless a whole or partial system or any separate piece of equipment or component is put into use for the benefit of any party other than the installing contractor with prior written authorization. In this instance, the warranty period shall commence on the date when such whole system, partial system or separate piece of equipment or component is placed in operation and accepted in writing by the Owner or their representative.
- C. Warranty requirements shall extend to correction, without cost to the final user, of all work and/or equipment found to be defective or nonconforming to the contract documents. The Contractor shall bear the cost of correcting all damage resulting from such defects or nonconformance with contract documents exclusive of repairs required as a result of improper maintenance or operation, or of normal wear as determined by the Architect/Engineer.

**1.15 INSURANCE**

- A. Contractor shall maintain insurance coverage as set forth in Division 0 of these specifications.

**1.16 MATERIAL SUBSTITUTION**

- A. Where several manufacturers' names are given, the first named manufacturer constitutes the basis for job design and establishes the equipment quality required.
- B. Equivalent equipment manufactured by the other named manufacturers may be used. Contractor shall ensure that all items submitted by these other manufacturers meets all requirements of the drawings and specifications and fits in the allocated space. When using other listed manufacturers, the Contractor shall assume responsibility for any and all modifications necessary (including, but not limited to structural supports, electrical connections and rough-in, and regulatory agency approval, etc.) and coordinate such with other contractors. The Architect/Engineer shall make the final determination of whether a product is equivalent.
- C. Any material, article or equipment of other unnamed manufacturers which will adequately perform the services and duties imposed by the design and is of a quality equal to or better than the material, article or equipment identified by the drawings and specifications may be used if approval is secured in writing from the Architect/Engineer via addendum. The Contractor bears full responsibility for the unnamed manufacturers' equipment adequately meeting the intent of design. The Architect/Engineer may reject manufacturer at time of shop drawing submittal. The Contractor assumes all costs incurred by other trades on the project as a result of changes necessary to accommodate the offered material, equipment or installation method.
- D. Should this Contractor be unable to secure approval from the Architect/Engineer for other unnamed manufacturers as outlined above, this Contractor may list voluntary add or deduct prices for alternate materials on the bid form. These items will not be used in determining the low bidder. Should a voluntary alternate material be accepted, This Contractor shall assume all costs that may be incurred as a result of using the offered material, article or equipment necessitating extra expense on This Contractor or on the part of other Contractors whose work is affected.

**PART 2 - PRODUCTS**

**2.01 Refer to individual sections.**

**PART 3 - EXECUTION**

**3.01 JOBSITE SAFETY**

- A. Neither the professional activities of the Architect/Engineer, nor the presence of the Architect/Engineer or the employees and subconsultants at a construction site, shall relieve the Contractor and any other entity of their obligations, duties and responsibilities including, but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending or coordinating all portions of the work of construction in accordance with the contract documents and any health or safety precautions required by any regulatory agencies. The Architect/Engineer and personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions. The Contractor is solely responsible for jobsite safety. The Architect/Engineer and the Architect/Engineer's consultants shall be indemnified and shall be made additional insureds under the Contractor's general liability insurance policy.

**3.02 GENERAL INSTALLATION REQUIREMENTS**

- A. Installation of all conduit and cabling shall comply with Sections 26 05 33 and 26 05 13. Additional conduit requirements described within this Division shall be supplemental to the requirement described in Section 26 0533. Should conflicts exist between the two Divisions the more stringent (more expensive material and labor) condition shall prevail until bidding addendum or construction clarification or RFI can be submitted and responded to. In no case shall the Contractor carry the least stringent condition in the pricing.
- B. It is the Contractor's responsibility to survey the site and include all necessary costs to perform the installation as specified.

- C. The Contractor shall be responsible for identifying and reporting to the Architect/Engineer any existing conditions including but not limited to damage to walls, flooring, ceiling and furnishings prior to start of work. All damage to interior spaces caused by this Contractor shall be repaired at this Contractor's expense to pre-existing conditions, including final colors and finishes.
- D. All cables and devices installed in damp or wet locations, including any underground or underslab location, shall be listed as suitable for use in such environments. Follow manufacturer's recommended installation practices for installing cables and devices in damp or wet locations. Any cable or device that fails as a result of being installed in a damp or wet location shall be replaced at the Contractor's expense.

**3.03 FIELD QUALITY CONTROL**

- A. General:
  - 1. Refer to specific Division 28 sections for further requirements.
  - 2. The Contractor shall conduct all tests required and applicable to the work both during and after construction of the work.
  - 3. The necessary instruments and materials required to conduct or make the tests shall be supplied by the Contractor who shall also supply competent personnel for making the tests who has been schooled in the proper testing techniques.
  - 4. In the event the results obtained in the tests are not satisfactory, This Contractor shall make such adjustments, replacements and changes as are necessary and shall then repeat the test or tests which disclose faulty or defective work or equipment, and shall make such additional tests as the Architect/Engineer or code enforcing agency deems necessary.
- B. Protection of cable from foreign materials:
  - 1. It is the Contractor's responsibility to provide adequate physical protection to prevent foreign material application or contact with any cable type. Foreign material is defined as any material that would negatively impact the validity of the manufacturer's performance warranty. This includes, but is not limited, to overspray of paint (accidental or otherwise), drywall compound, or any other surface chemical, liquid or compound that could come in contact with the cable, cable jacket or cable termination components.
  - 2. Application of foreign materials of any kind on any cable, cable jacket or cable termination component will not be accepted. It shall be the Contractor's responsibility to replace any component containing overspray, in its entirety, at no additional cost to the project. Cleaning of the cables with harsh chemicals is not allowed. This requirement is regardless of the PASS/FAIL test results of the cable containing overspray. Should the manufacturer and warrantor of the structured cabling system desire to physically inspect the installed condition and certify the validity of the structured cabling system (via a signed and dated statement by an authorized representative of the structured cabling manufacturer), the Owner may, at their sole discretion, agree to accept said warranty in lieu of having the affected cables replaced. In the case of plenum cabling, in addition to the statement from the manufacturer, the Contractor shall also present to the Owner a letter from the local Authority Having Jurisdiction stating that they consider the plenum rating of the cable to be intact and acceptable.

**3.04 PROJECT CLOSEOUT**

- A. Refer to the Division 1 Section: PROJECT CLOSEOUT for requirements. The following paragraphs supplement the requirements of Division 1.
- B. Final Jobsite Observation:
  - 1. The Architect/Engineer will not perform a final jobsite observation until the project is ready. This is not dictated by schedule, but rather by completeness of the project.
  - 2. Refer to the end of Section 27 0500 for a "STATEMENT INDICATING READINESS FOR FINAL JOBSITE OBSERVATION."
  - 3. The Contractor shall sign this form and return it to the Architect/Engineer so that the final observation can commence.

- C. Before final payment will be authorized, this Contractor must have completed the following:
1. Submitted operation and maintenance manuals to the Architect/Engineer for review.
  2. Submitted bound copies of approved shop drawings.
  3. Record documents including edited drawings and specifications accurately reflecting field conditions, **inclusive** of all project revisions, change orders, and modifications.
  4. Submitted a report stating the instructions given to the Owner's representative complete with the number of hours spent in the instruction. The report shall bear the signature of an authorized agent of This Contractor and shall be signed by the Owner's representative as having received the instructions.
  5. Submitted testing reports for all systems requiring final testing as described herein.
  6. Submitted start-up reports on all equipment requiring a factory installation inspection and/or start.
  7. Provide spare parts, maintenance, and extra materials in quantities specified in individual specification sections. Deliver to the project site; submit receipt to Architect/Engineer prior to final payment being approved.

### 3.05 OPERATION AND MAINTENANCE MANUALS

- A. General:
1. Provide an electronic copy of the O&M manuals as described below for Architect/Engineer's review and approval. The electronic copy shall be corrected as required to address the Architect/Engineer's comments. Once corrected, electronic copies and paper copies shall be distributed as directed by the Architect/Engineer.
  2. Approved O&M manuals shall be completed and in the Owner's possession prior to Owner's acceptance and at least 10 days prior to instruction of operating personnel.
- B. Electronic Submittal Procedures:
1. Distribution: Email the O&M manual as attachments to all parties designated by the Architect/Engineer.
  2. Transmittals: Each submittal shall include an individual electronic letter of transmittal.
  3. Format: Electronic submittals shall be in PDF format only. Scanned copies, in PDF format, of paper originals are acceptable. Submittals that are not legible will be rejected. Do not set any permission restrictions on files; protected, locked, or secured documents will be rejected.
  4. File Names: Electronic submittal file names shall include the relevant specification section number followed by a description of the item submitted, as follows. Where possible, include the transmittal as the first page of the PDF instead of using multiple electronic files.
    - a. O&M file name: O&M.div28.contractor.YYYYMMDD
    - b. Transmittal file name: O&Mtransmittal.div28.contractor.YYYYMMDD
  5. File Size: Files shall be transmitted via a pre-approved method. Larger files may require an alternative transfer method, which shall also be pre-approved.
  6. Provide the Owner with an approved copy of the O&M manual on compact discs (CD), digital video discs (DVD), or flash drives with a permanently affixed label, printed with the title "Operation and Maintenance Instructions", title of the project and subject matter of disc/flash drive when multiple disc/flash drives are required.
  7. All text shall be searchable.
  8. Bookmarks shall be used, dividing information first by specification section, then systems, major equipment and finally individual items. All bookmark titles shall include the nomenclature used in the construction documents and shall be an active link to the first page of the section being referenced.

- C. Operation and Maintenance Instructions shall include:
1. Title Page: Include title page with project title, Architect, Engineer, Contractor, all subcontractors, and major equipment suppliers, with addresses, telephone numbers, website addresses, email addresses and point of contacts. Website URLs and email addresses shall be active links in the electronic submittal.
  2. Table of Contents: Include a table of contents describing specification section, systems, major equipment, and individual items.
  3. Copies of all final approved shop drawings and submittals. Include Architect's/Engineer's shop drawing review comments. Insert the individual shop drawing directly after the Operation and Maintenance information for the item(s) in the review form.
  4. Copy of final approved test and balance reports.
  5. Copies of all factory inspections and/or equipment startup reports.
  6. Copies of warranties.
  7. Schematic wiring diagrams of the equipment that have been updated for field conditions. Field wiring shall have label numbers to match drawings.
  8. Dimensional drawings of equipment.
  9. Capacities and utility consumption of equipment.
  10. Detailed parts lists with lists of suppliers.
  11. Operating procedures for each system.
  12. Maintenance schedule and procedures. Include a chart listing maintenance requirements and frequency.
  13. Repair procedures for major components.
  14. List of lubricants in all equipment and recommended frequency of lubrication.
  15. Instruction books, cards, and manuals furnished with the equipment.

**3.06 INSTRUCTING THE OWNER'S REPRESENTATIVE**

- A. Adequately instruct the Owner's designated representative or representatives in the maintenance, care, and operation of the complete systems installed under this contract.
- B. Provide verbal and written instructions to the Owner's representative or representatives by FACTORY PERSONNEL in the care, maintenance, and operation of the equipment and systems.
- C. The Owner has the option to make a video recording of all instructions. Coordinate schedule of instructions to facilitate this recording.
- D. Notify the Architect/Engineer of the time and place for the verbal instructions to be given to the Owner's representative so a representative can be present if desired.
- E. Refer to the individual specification sections for minimum hours of instruction time for each system.
- F. Operating Instructions:
  1. The Contractor is responsible for all instructions to the Owner and/or Owner's operating staff on the security systems.
  2. If the Contractor does not have Engineers and/or Technicians on staff that can adequately provide the required instructions on system operation, performance, troubleshooting, care and maintenance, the Contractor shall include in the bid an adequate amount to reimburse the Owner for the Architect/Engineer to perform these services.

**3.07 SYSTEM STARTING AND ADJUSTING**

- A. The security systems included in the construction documents are to be complete and operating systems. The Architect/Engineer will make periodic job site observations during the construction period. The system start-up, testing, configuration, and satisfactory system performance is the responsibility of the Contractor. This shall include all calibration and adjustments of electrical equipment controls, equipment settings, software configuration, troubleshooting and verification of software, and final adjustments that may be required.
- B. All operating conditions and control sequences shall be simulated and tested during the start-up period.
- C. The Contractor, subcontractors, and equipment suppliers are expected to have skilled technicians to ensure that the system performs as designed. If the Architect/Engineer is requested to visit the job site for the purpose of trouble shooting, assisting in the satisfactory start-up, obtaining satisfactory equipment operation, resolving installation and/or workmanship problems, equipment substitution issues or unsatisfactory system performance, including call backs during the warranty period through no fault of the design; the Contractor shall reimburse the Owner on a time and material basis for services rendered at the Architect/Engineer's standard hourly rates in effect at the time the services are requested. The Contractor shall be responsible for making payment to the Owner for services required that are product, installation or workmanship related. Payment is due within 30 days after services are rendered.

**3.08 RECORD DOCUMENTS**

- A. Refer to the Division 1 Section: PROJECT CLOSEOUT for requirements. The following paragraphs supplement the requirements of Division 1.
- B. Mark specifications to indicate approved substitutions, change orders, and actual equipment and materials used.
- C. This Contractor shall maintain at the job site, a separate and complete set of Security Drawings which shall be clearly and permanently marked and noted in complete detail any changes made to the location and arrangement of equipment or made to the Technology Systems and wiring as a result of building construction conditions or as a result of instructions from the Architect or Engineer. All Change Orders, RFI responses, Clarifications and other supplemental instructions shall be marked on the documents. Record documents that merely reference the existence of the above items are not acceptable. Should This Contractor fail to complete Record Documents as required by this contract, This Contractor shall reimburse Architect/Engineer for all costs to develop record documents that comply with this requirement. Reimbursement shall be made at the Architect/Engineer's hourly rates in effect at the time of work.
- D. Record actual routing of all conduits sized 2" or larger.
- E. The above record of changes shall be made available for the Architect and Engineer's examination during any regular work time.
- F. Upon completion of the job, and before final payment is made, This Contractor shall give the marked-up drawings to the Architect/Engineer.

**3.09 ADJUST AND CLEAN**

- A. Contractor shall thoroughly clean all equipment and systems prior to the Owner's final acceptance of the project.
- B. Contractor shall clean all foreign paint, grease, oil, dirt, labels, stickers, and other foreign material from equipment.
- C. Contractor shall remove all rubbish, debris, etc., accumulated during the Contractor's operations from the premises.

**END OF SECTION**

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**SECTION 28 2300**  
**VIDEO SURVEILLANCE**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Network Video Management System (NVMS).
- B. Video Storage Solution
- C. Cameras and Accessories.
- D. Cabling.

**1.02 RELATED WORK**

- A. Section 26 0533 - Conduit and Boxes
- B. Section 26 0513 - Wire and Cable
- C. Section 27 1500 - Horizontal Cabling Requirements
- D. Section 28 0500 - Basic Electronic Safety and Security System Requirements
- E. Section 28 3100 - Fire Detection and Alarm Systems

**1.03 QUALITY ASSURANCE**

- A. NVMS Software Developer (Manufacturer): The NVMS system shall be a single-source manufacturer such that the single manufacturer develops, supports, and warranties the NVMS software solution.
- B. Integrator/Installer (Contractor): The Contractor must be a NVMS-certified installation, service, and support company specializing in the selected manufacturer's product, with demonstrated prior experience with the selected manufacturer's system installation and programming.

**1.04 REFERENCES**

- A. NFPA 70 - National Electrical Code
- B. Electronic Industries Association (EIA) Video Surveillance Equipment Standards
- C. UL 2044 - Standard for Commercial Closed Circuit Television Equipment
- D. UL 3044 - Standard for Safety for Surveillance Closed Circuit Television Equipment

**1.05 SUBMITTALS**

- A. Submit shop drawings and product data under provisions of Section 28 0500.
- B. Product Data Submittal: Provide manufacturer's technical product specification sheet for each individual component type. Submitted data shall show the following:
  - 1. Compliance with each requirement of these documents.
  - 2. All component options and accessories specific to this project.
  - 3. Electrical power consumption rating and voltage.
  - 4. Heat generation for all power consuming devices.
  - 5. All required wiring shall be identified.
  - 6. Number of IP addresses that will be required from the Owner's Information Systems Department.
  - 7. Statement of Acceptability of Designed Server:
    - a. If the Contractor agrees that the server(s) designed and described herein is acceptable for the chosen manufacturer's solution and meets the demand of the application, this shall be stated in writing and submitted as part of the shop drawing submittal.

- b. If the Contractor does not agree that the server(s) designed and described herein is acceptable for the chosen manufacturer's solution, Contractor shall itemize the quantity, technical specifications, and capacities of the servers required to support the functionality and device quantities required by the project drawings. Indicate the capacity utilization factor for each server.
  - c. Contractor's bid shall include any required changes in server(s) capacity.
  - 8. Calculation for storage required using the criteria contained in the project drawings.
  - 9. Calculation for required network bandwidth, including any latency restrictions.
  - 10. Provide annual cost and all terms and conditions for the NVMS Software Maintenance Agreement. Include all additional costs and terms and conditions for any Annual Service Contracts provided by the Contractor for all services that are not included in the Software Maintenance Agreement.
- C. System Drawings: Project-specific system CAD drawings shall be provided as follows:
- 1. Provide a system block diagram noting system components and interconnection between components. The interconnection of components shall clearly indicate all wiring required in the system. When multiple pieces of equipment are required in the exact same configuration (e.g., multiple identical cameras), the diagram may show one device and refer to the others as "typical" of the device shown.
- D. Sample format of site specific programming guides to be used for system planning/programming conference with Owner.
- E. Meeting agenda for planning/programming conference required in Part 3 of this specification.
- F. Submit detailed description of Owner training to be conducted at project end, including specific training time.
- G. Quality Assurance:
- 1. Provide materials documenting experience requirements of the manufacturer and installing contractor.
  - 2. Provide system checkout test procedure to be performed at acceptance. Test procedures shall include all external alarm events.
- H. Coordination Drawings:
- 1. Include all ceiling-mounted devices in composite electronic coordination files. Refer to Section 28 0500 for coordination drawing requirements.

**1.06 SYSTEM DESCRIPTION**

- A. This specification section describes the furnishing, installation, commissioning and programming of a complete, turnkey, closed circuit television system.
- B. Performance Statement: This specification section and the accompanying project drawings are performance based, describing the minimum material quality, required features, and operational requirements of the system. These documents do not convey every wire that must be installed and every equipment connection that must be made. Based on the equipment constraints described and the performance required of the system as presented in these documents, the vendor and the Contractor are solely responsible for determining all wiring, programming and miscellaneous equipment required for a complete and operational system.
- C. Refer to the project drawings for model numbers for the Basis of Design for all equipment.

**1.07 LICENSING REQUIREMENTS**

- A. All licenses required for system operation shall be included in the Contractor's bid. Licenses shall include, but not be limited to, server and workstation software, cameras, encoders/decoders, and any other licensing that is required by the manufacturer for operation of any system component.
  - 1. Camera licenses shall be provided for all cameras listed on the drawings.
  - 2. The Contractor shall fill out the NVMS Bid Inventory Form located herein and provide at the time of bid.

**1.08 PROJECT RECORD DOCUMENTS**

- A. Submit documents under the provisions of Section 28 0500.
- B. Provide final system block diagram showing any deviations from shop drawing submittal.
- C. Provide statement that system checkout test, as outlined in shop drawing submittal, is complete and satisfactory.
- D. Provide final camera type and camera requirements schedules documenting all changes made during construction.
- E. Warranty: Submit written warranty and complete all Owner registration forms.
- F. Complete all operation and maintenance manuals as described below.

**1.09 OPERATION AND MAINTENANCE DATA**

- A. Submit documents under the provisions of Section 28 0500.
- B. Manuals: Final copies of the manuals shall be delivered within 14 days after completing the installation test. Each manual's contents shall be identified on the cover. The manual shall include names, addresses, and telephone numbers of the contractor responsible for the installation and maintenance of the system and the manufacturer for each piece of equipment for each system. The manuals shall have a table of contents and labeled sections. The final copies delivered after completion of the installation test shall include all modifications made during installation, checkout, and acceptance testing. The manuals shall consist of the following:
  - 1. Hardware Manual: The manual shall describe all equipment furnished including:
    - a. General description and specifications.
    - b. Installation and check out procedures.
    - c. System layout drawings and schematics.
    - d. Alignment and calibration procedures.
  - 2. Software Manual: The software manual shall describe the functions of all software and shall include all other information necessary to enable proper installation, testing, and operation. The manual shall include:
    - a. Definition of terms and functions.
    - b. System use and application software.
    - c. Graphical user interface use.
    - d. Reports generation.
  - 3. Operator's Manual: The operator's manual shall fully explain all procedures and instructions for the operation of the system including:
    - a. Computers and peripherals.
    - b. System startup and shutdown procedures.
    - c. Use of system.
    - d. Recovery and restart procedures.
    - e. Use of report generator and generation of reports.
    - f. Data entry.
    - g. Operator commands.
    - h. Alarm messages.
    - i. System permissions functions and requirements.
  - 4. Maintenance Manual: The maintenance manual shall include descriptions of maintenance for all equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

**1.10 WARRANTY**

- A. Unless otherwise noted, provide warranty for one (1) year after Date of Substantial Completion for all materials and labor.
- B. Onsite Work During Warranty Period: This work shall be included in the Contractor's bid and performed during regular working hours, Monday through Friday.
  - 1. Inspections: Perform one minor inspection six-months after Substantial Completion and one major inspection prior to the expiration of the warranty.
  - 2. Minor Inspections: Inspections shall include:
    - a. Visual checks and operational tests of all equipment, field hardware, and electrical and mechanical controls.
    - b. Mechanical adjustments if required on any mechanical or electromechanical devices.
    - c. Install all available software updates, patches, or bug fixes available from the NVMS manufacturer.
  - 3. Major Inspections: Inspections shall include all work described under paragraph Minor Inspections and the following work:
    - a. Clean all equipment, including interior and exterior surfaces.
    - b. Perform diagnostics on all equipment, including all system software diagnostics, and correct all diagnosed problems.
    - c. Adjust all camera alignments that have become out of alignment from their documented position at Substantial Completion.
    - d. Install all available software updates, patches, or bug fixes available from the NVMS manufacturer.
    - e. All warrantable system deficiencies during the Major Inspection shall be remedied under warranty at no cost to the Owner.
- C. Operation: Upon the performance of any scheduled adjustments or repairs, verify operation of the NVMS system.
- D. Emergency Service: The Owner will initiate service calls when the NVMS system is not functioning properly. Qualified personnel shall be available to provide service within the distance defined above. The Owner shall be furnished with telephone number(s) where service personnel can be reached 24/7/365.
- E. Records and Logs: Keep records and logs of each task completed under warranty. The log shall contain all initial settings upon Substantial Completion. Complete logs shall be kept and shall be available for review on site, demonstrating that planned and systematic adjustments and repairs have been accomplished for the NVMS system.
- F. Work Requests: Record each service call request on a service request form. The form shall include the model and serial number identifying the component involved, its location, date and time the call was received, specific nature of trouble, names of service personnel assigned to the task, instructions describing what must be done, the amount and nature of the materials used, the time and date work started, and the time and date of completion. Deliver a record of the work performed within five (5) days after work is accomplished.
- G. System Modifications: Make any recommendations for system modification in writing to the Owner. No system modifications shall be made without prior approval of the Owner. Any modifications made to the system shall be incorporated into the operations and maintenance manuals, and other documentation affected. To the fullest extent possible, the Owner shall be provided with electronic restorable versions of all configurations prior to the modifications being made.
- H. Software: Provide all software updates during the period of the warranty and verify operation in the system. These updates shall be accomplished in a timely manner, fully coordinated with NVMS system operators, shall include training for the new changes/features enabled, and shall be incorporated into the operations and maintenance manuals, and software documentation.

- I. Refer to the individual product sections for further warranty requirements of individual system components.

**1.11 SOFTWARE MAINTENANCE AGREEMENT/ANNUAL SERVICE CONTRACT**

- A. Provide annual cost and all terms and conditions for the Software Maintenance Agreement (SMA) provided by the NVMS manufacturer and/or the Contractor.
- B. The Owner will enter into a contract directly with the vendor. This specification is not a contract between the Owner and the vendor to perform these services. The cost and terms of the SMA **may** be used by the Owner for NVMS solution selection.

**PART 2 - PRODUCTS**

**2.01 NETWORK VIDEO MANAGEMENT SYSTEM - GENERAL REQUIREMENTS**

- A. The network video management system (NVMS) shall be an enterprise-class client/server-based video security solution that provides management of digital video, audio and data across a TCP/IP network.
- B. Provide a turnkey solution that includes furnishing, installation, and configuration of a separate IP network, complete with all required network electronics, switches, and other hardware.
- C. ONVIF Compliance:
  - 1. The NVMS system shall be ONVIF certified as an ONVIF Network Video Client.
  - 2. Cameras shall be ONVIF certified as an ONVIF Network Transmitter unless specifically noted as an exception to this requirement in the project drawings.
- D. The NVMS system shall be an "open system."
  - 1. To meet this requirement, the NVMS must directly support cameras from a minimum of three (3) readily available camera manufacturers.
  - 2. The three (3) camera manufacturers must have no corporate relationship to the NVMS manufacturer.
  - 3. "Directly support" shall be defined as plug-n-play using drivers that are commercially available at the time of bid that utilize the ONVIF specification as the means of integration.
  - 4. In addition to the requirement to support three (3) independent manufacturer's cameras, the NVMS may support an unlimited additional quantity of in-house or other proprietary cameras.
  - 5. The open system shall not require proprietary storage solutions. It shall support third party storage solutions, including:
    - a. Commercially available Direct Attached Storage (DAS) devices.
    - b. Network Attached Storage (NAS) devices.
    - c. Storage Area Networks (SAN) for **primary** or archival storage purposes. Primary support for SAN shall be defined as:
      - 1) The ability to directly record to SAN device without first recording to an NAS or DAS.
      - 2) The NVMS is provided with a user experience that makes the video recorded to the SAN transparent to the user. This shall be defined as:
        - a) Full search, bookmarking, and other software features for finding, marking, locating, and identifying video are supported by the NVMS for video recorded to a SAN in an identical way to video that is recorded to an NAS or DAS.
        - b) No loading of the video from the SAN into the NVMS shall be required.
        - c) Full playback, windowing of camera video, archiving, and exporting is supported by the NVMS for video recorded to the SAN in an identical way as video recorded to an NAS or DAS.
  - 6. The system must have a published API/SDK permitting third party integrations to the product without restrictions.
  - 7. The NVMS shall support active directory using LDAP protocol.

- E. The NVMS system shall consist of the following hardware/software components:
  - 1. Software:
    - a. Server and client
    - b. Recording services, archival services, and storage management
    - c. Configuration tools
  - 2. System storage as specified on the project drawings.
  - 3. Cameras and related hardware as specified on the project drawings.
  - 4. Hardware: Servers, workstations, and miscellaneous hardware (keyboard, mouse, KVM) as specified on the projects drawings.
  - 5. Network electronics and related hardware and software as specified on the project drawings.
- F. Video from any camera on the system (on the LAN, WAN or Internet) shall be capable of being viewed from single or multiple workstations simultaneously at any time, limited only by network bandwidth.
- G. The NVMS shall support simultaneous displaying of live (30 fps) video of a minimum of 16 cameras while the video monitoring screen is configured in a 16-camera split configuration. In no case shall the frame rate of the camera be required to be restricted to less than 30 fps to display a 16-camera split view.
- H. Simultaneous display and recording of every camera shall be supported with independent user-adjustable frame rates that can be set differently for the display stream and the recording stream. These independent settings shall be unique per camera.
- I. The NVMS monitoring software shall support any combination of recorded and live video in any multiple camera split view, including viewing recorded video and live video from the same camera.
- J. The NVMS shall support continuous recording and event-based recording simultaneously. This shall be capable of being set on a per camera basis.
- K. Viewing of video (live and recorded) shall be possible from client software from any client hardware that is connected to the security LAN/WAN or Internet (through appropriate firewalls). In addition, system administration shall be permitted from remote client hardware.

## **2.02 NVMS MANUFACTURERS**

- A. Basis of Design:
  - 1. Pelco
  - 2. Preapproved Equal

## **2.03 NVMS SERVER REQUIREMENTS**

- A. The server shall communicate on a TCP/IP based Ethernet LAN capable of utilizing 100/1000BaseT.
- B. The server shall be provided by the NVMS system vendor.
- C. The server(s) requirements have been calculated based on the NVMS Basis of Design manufacturer noted above. By submitting a bid, the Contractor acknowledges that the calculated server requirements listed here may not be sufficient for a listed alternate, acceptable manufacturer selected by the Contractor. The Contractor shall modify the calculated server requirements listed herein based on the calculated requirement of the chosen manufacturer. The server requirements for the basis of design are as follows:
  - 1. Server Quantity and Location: Refer to project drawings for quantity of servers required and their location.
- D. All licensing shall be included in the Contractor's bid.

## **2.04 NVMS SYSTEM DETAILED REQUIREMENTS**

- A. Network Requirements: The NVMS shall support Ethernet 10/100 BaseT and Gigabit Ethernet.
  - 1. Network protocols shall be supported including TCP/IP, IPX, and UDP.
  - 2. The network interface shall allow remote access of the NVMS from anywhere on the end-user's LAN/WAN or Internet (behind firewall).

3. The system shall permit limiting of frame rate transmission to individual clients.
  4. Both Multicast and Unicast shall be supported.
  5. All transmission of system data shall be secured using Secure Socket Layer (SSL) security on the TCP/IP network.
  6. Simple Network Management Protocol (SNMP) shall be supported.
- B. Video Formats:
1. The NVMS shall support MJPEG, JPEG2000, MPEG-4, H.264 and H.265 compression formats.
  2. The system shall support any single stream of bandwidth up to 90Mbit/sec at 30 fps at 4872 x 3248 resolution with no system performance degradation, assuming appropriate network bandwidth.
  3. Video shall be recorded using a 256-bit encryption algorithm with authentication (watermarking) software suitable for evidentiary proceedings. The watermarking feature shall provide evidence of altered video.
    - a. The video shall be watermarked with the authentication key/signature during recording of live video to the drive.
    - b. A video player shall be provided with the NVMS system.
      - 1) The player shall have the ability to validate the authentication upon playback.
      - 2) This authentication shall provide the storage media name, camera name, video time, and user information.
      - 3) The authentication shall have the ability to be password protected.
  4. Resolution:
    - a. The camera resolution shall be user selectable on a per-camera basis. Selecting or changing resolution shall not require a restart of the application, server, or workstation.
    - b. The system shall support the following resolutions:
      - 1) Megapixel Resolutions: SXGA (1280 x 1024: 1.3MP), SXGA + EXGA (1400 x 1050: 1.4 MP), UXGA (1600 x 1200: 1.9MP), WUXGA (1920 x 1200: 2.3MP), QXGA (2048 x 1536: 3.1MP), WQXGA (2560 x 1600: 4.1MP), QSXGA (2560 x 2048: 5.2MP), 3296 x 2472: 8MP, 4000 x 2672: 11MP, 4864 x 3248: 16MP, 6576 x 4384: 29MP.
        - a) 16:9 and 4:3 formats shall be supported.
      - 2) HDTV Resolutions: 720p, 1080(i/p) in 16:9 format.
- C. Workstation Client Software Requirements:
1. The client software for the NVMS shall run as an application on Windows 7, 10, or 11 64-bit. The client software shall not require a PC more robust than that defined above in the section entitled "NVMS CLIENT REQUIREMENTS." Should the workstation client software require a PC configuration more robust than that defined herein, the cost of upgrading the workstation hardware to the more robust requirement shall be paid by the Contractor.
  2. The client software shall provide video signal detection and provide alerts whenever video is lost on any input channel.
  3. Updates to the client software shall be capable of being pushed to all clients from the NVMS server.
  4. The client software shall provide a graphical mapping feature. The graphical map shall accommodate the importation of CAD files, or custom development of floor plans or site plans to create a to-scale or not-to-scale graphical representation of the system layout including all cameras.
    - a. Cameras located on the graphical map shall be "live," which is defined as the ability to click the camera in the graphical user interface (GUI) to see camera information and live video. The camera name shall be available to the user via a "mouse hovering" maneuver over the camera icon.

- b. For site cameras, the graphical map shall consist of an overall site plan showing all exterior cameras. Buildings and other physical entities on the site shall be graphically represented.
    - 1) The buildings shown on the site plan shall visually indicate to the user that cameras are located inside that building's interior, if applicable.
  - c. The user shall be able to click a building that contains cameras to obtain a new graphical layout of that building. Once the building interior layout graphical map is on screen, interior cameras shall be represented by icons.
  - d. The user shall have the ability to navigate back to the main (previous) graphical map via a single-click graphical icon.
5. Camera Configuration:
- a. Each camera shall be configurable for a 32-alphanumeric character name.
  - b. The system shall allow for the setup and adjustment of brightness, contrast, archiving, motion detection, and Pan/Tilt/Zoom on a per camera basis.
  - c. The NVMS shall support a separate frame rate for recording and a separate frame rate for viewing for every camera input (assuming the camera provides two streams). These frame rates shall be capable of being independently set for each camera input.
  - d. The NVMS shall support the PTZ control of analog NVMS cameras through the encoders.
  - e. The compression algorithm formats MJPEG and MPEG4 shall be supported in the same system and shall be individually selectable on a per-camera basis.
  - f. Each individual camera shall be capable of having individual camera settings that shall include (at a minimum):
    - 1) Continuous recording.
    - 2) Motion-based recording capability shall be provided including:
      - a) Motion as determined by the NVMS software using:
      - b) Motion as determined at the camera.
      - c) Motion trigger by digital inputs from external trigger systems such as contact closures, alarm inputs, POS integration, etc.
      - d) Motion triggers received by external trigger inputs shall be recorded by the event recording capabilities of the NVMS and identifiable on a timeline during playback and in reports.
    - 3) Alarm-initiated recording.
      - a) When a camera enters alarm recording mode, the NVMS shall have the capability of changing to different camera settings for the recorded video during the duration of the alarm mode. The settings capable of being changed shall include the frame rate and the resolution. These setting changes shall be configurable in advance per camera by the User through the software GUI.
    - 4) Time-based recording on a preset schedule.
    - 5) Manual (user) activation of the start and stop of the recording process through the GUI.
      - a) The NVMS software shall prevent any user from manually starting and stopping the recording of video based on that user's login credential.
    - 6) Defined pre-event and post-event recording buffers shall be provided for all non-continuous recording events.
    - 7) Each camera shall be capable of having unique storage retention settings.
  - g. The NVMS shall support unidirectional audio recording utilizing the built-in audio recording capability of audio-equipped IP cameras.

D. Pan/Tilt/Zoom (PTZ) Control:

1. The NVMS shall support PTZ control from any client, including remote and mobile clients.
2. The following PTZ features shall be supported:
  - a. Priority Levels
  - b. Device Group Control
  - c. PTZ Override (Lockout)
  - d. Proportional PTZ Control
  - e. Preset Lock via video screen
  - f. Preset Tour

E. Video Archiving:

1. The archiving feature shall be hardware independent, providing the ability to utilize commercial off-the-shelf mass storage devices as archived video destinations, including optical DVD, DAS, NAS, SAN, and other external storage drives.
2. The archiving software shall provide the ability to manage and store video information from multiple recorded video locations to a central location.
3. Each NVMS server shall have the ability to set its own unique archiving settings. Video shall automatically be archived based on user-defined "percentage full" settings. When the NVMS reaches the designated capacity threshold, video shall be automatically copied to the archive storage destination, and space on the source of the recorded video shall be released for overwrite by new video information using a first-in, first-out algorithm.
  - a. Exception: Video marked or tagged by the user or by automated alarm inputs shall be retained by the archiving process despite its location in the first-in, first-out timeline.
4. Regardless of the video's storage location (local or in the archive), the NVMS software shall automatically retrieve video associated with an event on demand by the user in response to a search, browse, or other retrieval action. The actual storage location of the video shall be transparent to the user.
  - a. Exception: Video archived to removable media (e.g., removable hard drives or optical DVD) shall require prompting to the user to insert the appropriate media.
5. Archiving shall be capable of being scheduled such that archiving will only run during certain hours defined by the Owner.
6. The NVMS solution shall be permitted to utilize advanced algorithms for managing onboard storage such as reducing the frame rate of recorded video for the oldest video as an alternative to completely removing the video using a first-in, first-out algorithm. If this option exists in the NVMS software, it must have the following features:
  - a. Ability of the Owner to completely disable the feature.
  - b. Ability to set a minimum frame rate that the system will not exceed.
  - c. Ability to set the feature on a per-camera basis.

F. The NVMS shall provide up to 10 different and independent programmable recording schedules.

1. The schedules may be programmed to provide different record frame rates for day, night, and weekend periods, as well as holidays and exception days.
2. Advanced task schedules may also be programmed that could specify allowed log-on times for user groups, when events may trigger alarms, and when data backups and archiving should occur.

G. The VMS shall support Dual Authorization logon. It shall function as follows:

1. Dual Authorization user groups may be created.
2. Logon pairs, consisting of any two normal user groups, may be assigned to each Dual Authorization user group.

3. A separate set of privileges and priorities can be assigned for each Dual Authorization user group.
4. For each user group assigned as part of a logon pair, it shall be configurable whether the group can:
  - a. Log on either individually or as part of the logon pair.
  - b. Log on only as part of the logon pair.
5. If a user that is part of logon pair logs on individually, then the user shall receive the privileges and priorities of the user's assigned user group. If the same user logs in as part of a logon pair, then the user shall receive the privileges and priorities assigned to the Dual Authorization group to which the pair is assigned.

- H. The NVMS shall auto-discover cameras and encoders. Device detection shall support devices in different subnets.
- I. The NVMS shall be designed in such a way that server downtime or loss of communication to the server does not affect the functionality of the recording services. Normal recording and motion recording shall continue during server downtime.,

## **2.05 NVMS RECORDING REQUIREMENTS**

- A. The NVMS shall provide management of the recording and playback of video, audio, and data (bookmarking, alarm data, etc.).
- B. Refer to the project drawings for specific variables to be used on a per-camera basis for the purpose of calculating storage capacity and retention.
  1. Total distributed storage requirements shall be determined based on a minimum of 30 days storage retention.
  2. Cameras shall be assumed to be recording 24 hours per day, 7 days per week, 365 days per year. Specific per-camera assumptions stated on the drawings for percent motion shall be used in the storage calculation.
  3. Compression shall be permitted to be used in the storage calculation. The compression algorithm (MPEG-4, H.264, etc.) shall be used on a per-camera basis. If the NVMS permits variable levels of compression intensity, the use of the "average" or "medium" level setting shall be used in the storage calculation unless otherwise noted.
  4. The Contractor shall provide the complete storage analysis and calculation as a shop drawing.
- C. Network Video Recorder (NVR) Hardware Platform:
  1. The NVR shall be defined as a storage device for recording IP video streams from IP cameras or from analog cameras that have been encoded to IP. In both cases, the NVR shall record IP streams from cameras or encoders located anywhere on the IP network without being direct-cable connected to the NVR.
  2. Refer to the project drawings for specific requirements, model numbers, and basis of design for the NVR.
  3. NVR Configuration:
    - a. The NVR shall contain one hard drive for the operating system and software, and all hard drive storage required to achieve the required storage retention.
    - b. Provide with RAID 5 hard disk controller configuration for the video storage hard drives.
  4. The NVMS shall provide a failover function where an NVR can be assigned as a backup to other NVRs. When an assigned NVR goes out of service, the failover NVR takes over the responsibilities of the failed NVR. When the primary NVR returns to service, the control shall be automatically transferred back to the primary NVR.
  5. It shall be possible to assign a redundant NVR to every NVR for use in normal operation of all NVR(s) in the system. The redundant NVR shall record the same streams as the primary NVR. The redundant NVR shall have its own disk drives where it shall store the recorded data.

**2.06 NVMS CABLING**

- A. Refer to Division 27 for all cabling requirements.

**PART 3 - EXECUTION**

**3.01 INSTALLATION**

- A. Comply with the manufacturer's instructions and recommendations for installation of all products.
- B. Provide all system wiring between all components as shown on the project drawings or as directed by the manufacturer, whichever is the more stringent requirement.
- C. Mount all cameras in the approximate locations shown on the drawings. Coordinate installation with other trades and utilities in the vicinity. Cameras containing fixed lenses, moved by more than 1'-0" from their location shown on the drawings, shall have a new lens calculation performed by the Contractor. Provide Architect/Engineer with results of lens calculation before proceeding with installation.
- D. Coordinate with Owner's IT Department to acquire network connections as well as any network configuration information, such as IP numbers, that will be required to connect NVMS to Owner network (if applicable).
- E. Provide all low voltage and +120 VAC power to all devices as required for proper system operation. Refer to Sections 26 05 33 and 26 05 13 for further requirements.
- F. Cabling shall be plenum rated when installed outside of conduit in plenum ceilings.

**3.02 FIELD QUALITY CONTROL**

- A. Where these specifications require a product or assembly without the use of a brand or trade name, provide a product that meets the requirements of the specifications as supplied and warranted by the system vendor. If the product or assembly is not available from the system vendor, provide product or assembly as recommended by the system vendor.
- B. Periodic observations will be performed during construction to verify compliance with the requirements of the specifications. These services do not relieve the Contractor of responsibility for compliance with the project drawings.
- C. It shall be the Contractor's responsibility to correct all inadequate picture quality issues prior to acceptance of the system.

**3.03 MANUFACTURER'S FIELD SERVICES**

- A. Installation shall be performed by a factory-trained and certified Contractor.
  - 1. Provide a comprehensive, site-specific customer planning guide for the system. Conduct a conference with the Owner prior to any installation to discuss the programming options of the system and the planning guide. The result of this planning guide shall be the determination of the system options for each device and for the software.
- B. Include labor for all planning and all programming activities required to implement the Owner's operational preferences for each device and software. Any software programmable option, within the bounds of the capabilities of the hardware specified, shall be included.
- C. Provide a complete, functional system as described by the project drawings. These responsibilities include:
  - 1. Complete hardware setup, installation, wiring, and software configuration of the system, including all remote operator locations and all peripheral hardware.
  - 2. Complete programming of all hardware and software options in accordance with the Owner's preferences as determined by the planning guide conference.
  - 3. Programming of all custom graphic GUI screens including devices.
  - 4. Complete system diagnostic verification.
- D. Provide an authorized manufacturer representative to commission the system and ensure that facility-wide standards and project setup procedures are adhered to.

**3.04 SYSTEM ACCEPTANCE**

- A. Submit for review a formal acceptance and system checkout program. The system checkout procedures shall include all system components and software. Perform the tests and document all results under the supervision of the manufacturer's system engineer.
- B. All operational scenarios, as defined by the customer planning guide, shall be tested to simulate the actual use of the system in the normal operating environment. The successful completion of these operational scenarios shall be documented.

**3.05 SYSTEM DOCUMENTATION**

- A. Complete documentation shall be provided for the system. The documentation shall describe:
  - 1. All operational parameters of the system.
  - 2. Complete documentation of all programming and options.
  - 3. Complete operating instructions for all hardware and software.
- B. The following sections shall be provided in the system documentation:
  - 1. System Administrator Manual: Provides an overview and a step-by-step guide and instructions detailing all system administrator responsibilities and functions.
  - 2. User Manual: A step-by-step guide and instructions detailing all system user functions.
  - 3. Technical Maintenance Manual: A comprehensive document providing all maintenance actions, system testing schedules, troubleshooting flowcharts, functional system layout, wiring diagrams, block diagrams, and schematic diagrams.

**3.06 SYSTEM TRAINING**

- A. All labor and materials required for on-site system training by a certified representative of the system manufacturer shall be provided. Training shall be conducted at the project site using the project equipment.
- B. Provide two weeks advanced notice of training to the Owner.
- C. Provide a training outline agenda describing the subject matter and the recommended audience for each topic.
- D. At a minimum, the following training shall be conducted:
  - 1. System Administrators: A course detailing the system functions and operations. Provide configuration training on all aspects of the system.
  - 2. Users: Provide a detailed course outlining the operational features of all aspects of the user interface. Topics shall include alarm monitoring functions, reports, error handling, alarm handling, output relay control, and general overview of the report hardware.
  - 3. GUI Editing: Conduct detailed training on using the GUI editing software. Topics shall include the editing of existing graphical maps and the creation of new graphical maps.
- E. Minimum on-site training times shall be:
  - 1. System Administrators: Three (3) days.
  - 2. Users: One (1) day.
  - 3. GUI Editing: One (1) day.

NVMS Bid Inventory Form

Item	Cost/Other
Total fixed (lump sum cost) for the entire project:	
Itemize the total fixed lump sum cost as follows:  Software cost for NVMS including all implementation services.  Cost for all camera hardware and associated accessories.	
Itemize software cost for the following (show the math):  Fixed, non-reoccurring flat base cost (if any)  Fixed, non-reoccurring per-camera licensing fee (if any)  Recurring flat base cost (if any - do NOT include optional software maintenance agreement costs)  Recurring flat per-camera licensing fee (if any)  Client workstation licensing fees (if any)  Remote Client licensing fees (if any)  Mobile Client licensing fees (if any)  Itemize all other license fees not included above.	
Add all required and optional software maintenance agreement costs (do NOT include in bid cost).	
Acknowledge receipt of addenda by writing addendum number to the right.	_____ through _____ inclusive

Include below Server Acknowledgement Statement per Section 28 2300, Article 2.3, Paragraph D.

List below all separate software options, licensing or other monetary features that the Integrator interprets as not being requested by this RFP, but that are available from the NVMS manufacturer for purchase. Attach separate document if needed.

**END OF SECTION**

**SECTION 28 3100**  
**FIRE ALARM AND DETECTION SYSTEMS**

**PART 1 - GENERAL**

Specification Provided as Reference Only

**1.01 SECTION INCLUDES**

- A. Fire alarm and detection systems.

**1.02 RELATED WORK**

- A. Section 26 0553 - Electrical Identification: Refer to electrical identification for color and identification labeling requirements.

**1.03 QUALITY ASSURANCE**

- A. Manufacturer: Company specializing in smoke detection and fire alarm systems.
- B. Installer: A factory-authorized Electrical or Security Contractor licensed with the State and local jurisdiction.
- C. Qualifications: The person managing/overseeing the preparation of shop drawings and the system installation/programming/testing shall be trained and certified by the system manufacturer and shall be Fire Alarm Certified by NICET, minimum Level 2. This person's name and certification number shall appear on the start-up and testing reports.

**1.04 REFERENCES**

- A. ASME A17.1 - Safety Code for Elevators and Escalators
- B. NFPA 20 - Standard for Centrifugal Fire Pumps
- C. NFPA 70 - National Electrical Code (NEC)
- D. NFPA 72 - National Fire Alarm and Signaling Code
- E. NFPA 101 - Life Safety Code
- F. UL 2017 - General Purpose Signaling Devices and Systems
- G. UL 217 / 268 - Standard for Smoke Alarms / Smoke Detectors for Fire Alarm Systems
- H. 2018 Fire Code

**1.05 SUBMITTALS**

- A. Submit shop drawings and product data under provisions of Section 26 0500 and as noted below.
  - 1. Failure to comply with all the following and all the provisions in 26 05 00 will result in the shop drawing submittal being rejected without review.
  - 2. Failure to submit the fire alarm without all requirements fulfilled in a single comprehensive submittal will be grounds to require a complete resubmittal.
- B. Provide product catalog data sheets as shop drawings.
  - 1. Provide a product catalog data sheet for each item shown on the Electrical Symbols List and for each piece of equipment that is not shown on the drawings, but required for the operation of the system.
  - 2. Where a particular Electrical Symbols List item has one or more variations (such as those denoted by subscripts, etc.) a separate additional product catalog data sheet shall be provided for each variation that requires a different part number to be ordered. The corresponding Electrical Symbols List symbol shall be shown on the top of each sheet.
  - 3. Where multiple items and options are shown on one data sheet, the part number and options of the item to be used shall be clearly denoted.
- C. Submit CAD Floor Plans as Shop Drawings:
  - 1. The complete layout of the entire system, device addresses, auxiliary equipment, and manufacturer's wiring requirements shall be shown.

2. Indicate the precise routing of notification appliance circuits under the provisions of circuit survivability. Refer to "Wiring" under Part 3 - Execution of this specification section for requirements.
  3. A legend or key shall be provided to show which symbols shown on the submittal floor plans correspond with symbols shown on the Contract Documents.
- D. About all fire alarm circuits, provide the following: manufacturer's wiring requirements (manufacturer, type, size, etc.) and voltage drop calculations.
  - E. Provide installation and maintenance manuals under provisions of Section 26 0500.
  - F. Submit manufacturer's certificate that system meets or exceeds specified requirements.
  - G. Provide information on the system batteries as follows: total battery capacity, total capacity used by all devices on this project, total available future capacity.
  - H. Submit photocopy proof of NICET certification of the person overseeing the preparation of drawings and installation/testing.
  - I. When required to comply with local or state regulatory reviews, the fire alarm submittal shall have a NICET Certification of the state in which the project is completed. NOTE: The Architect/Engineer cannot stamp and seal submittal drawings not prepared under their supervision.

**1.06 EXTRA MATERIALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Provide quantity equal to 2 percent (2%) of amount of each type installed, but no less than two (2) units of each type.
    - a. Smoke and heat detectors, manual pull stations, duct smoke detectors, monitor modules, control modules and relays.
    - b. Notification Appliances: Speakers, speaker strobes, and strobes.
  2. Keys: The installing contractor shall collect all equipment spare keys provided with each lockable or resettable device/cabinet minimum of one (1) set each and shall turn over to the Owner upon completion.
  3. All spare parts shall be housed in metal cabinet labeled "Fire Alarm Spare Parts."

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site under provisions of Section 26 0500.
- B. Store and protect products under provisions of Section 26 0500.

**1.08 REGULATORY REQUIREMENTS**

- A. System: UL or FM Global listed.
- B. Conform to requirements of NFPA 101.
- C. Conform to requirements of Americans with Disabilities Act (ADA).
- D. Conform to UL 864 Fire Alarm, UL 1076 Security, UL2017 General Signaling, and UL 2572 Mass Notification Communications.

**1.09 SYSTEM DESCRIPTION**

- A. Performance Statement: This specification section and the accompanying fire alarm specific design documents describe the minimum material quality, required features, and operational requirements of the system. These documents do not convey every wire that must be installed and every equipment connection that must be made. Based on the equipment described and the performance required of the system, as presented in these documents, the Vendor and the Contractor are solely responsible for determining all wiring, programming and miscellaneous equipment required for a complete and operational system.

- B. This section of the specifications includes the furnishing, installation and connection of the microprocessor controlled, intelligent reporting, fire alarm equipment required to form a complete coordinated system that is ready for operation. It shall include, but is not limited to, alarm initiating devices, control panels, auxiliary control devices, annunciators, power supplies, and wiring as indicated on the drawings and specified herein.
  - C. Extending the Existing Fire Alarm System: Provide all items, components, devices, hardware, software, programming, expansion components, conduit, wiring etc. needed to extend the existing fire alarm system. This includes, but is not limited to, additional power supplies, initiating devices and circuits, signaling devices and circuits, monitoring devices and circuits, auxiliary control and related devices such as, door holders and their control, smoke damper control, fan shutdown, etc. The existing fire alarm system shall be extended such that the existing fire alarm system's functionality, integrity and annunciation shall be equivalent to pre-construction conditions, unless noted otherwise. The functionality and integrity shall be maintained during construction. The entire system shall be able to be completely reset from any single reset location point. The entire system shall be annunciated at any annunciation location.
  - D. Extending the Existing Simplex Grinnell Fire Alarm System: The existing control panel shall remain and shall be operational throughout construction. The system shall only be disabled to make new connections and to modify the programming. A fire watch shall be provided for all areas affected during outages. All system outages must be scheduled with the Owner at least one week prior. Individual devices may be disabled as needed based on construction activities to reduce the potential for false alarms, but all devices must be operational when the Contractor is not physically on site. New initiating devices may be connected to the existing signaling line circuits where capacity is available. Provide additional signaling line circuits as needed based on existing and new device quantity, including replacement of existing panel components. Provide new notification circuits to serve the new devices, including all necessary power supplies, amplifiers, batteries, and 120-volt input circuits. All new devices shall be programmed to provide the same sequence of operation as the existing devices of the same type, unless noted otherwise.
  - E. Fire Alarm System: NFPA 72; Automatic and manual fire alarm system, non-coded, analog-addressable with automatic sensitivity control of certain detectors, multiplexed signal transmission.
  - F. In-Building Network: A complete fire alarm system network shall be provided. Provide quantity of control panels as indicated on the drawings. The network shall be a Style 7 token ring, peer-to-peer network. The network shall be characterized by simultaneous or sequential transmission, or both, and reception of multiple signals on a signaling line circuit or communication channel. The distributed intelligent characteristic of the network shall provide for all nodes independently making pertinent system decisions with no need for a central controller. Each node shall be capable of independent operation should loss of network communications occur. In no case shall read-only network annunciation be acceptable as the only networking function.
  - G. System Supervision: Provide electrically supervised system, with supervised Signal Line Circuit (SLC) and Notification Appliance Circuit (NAC). Occurrence of single ground or open condition in initiating or signaling circuit places circuit in TROUBLE mode. Component or power supply failure places system in TROUBLE mode.
  - H. Alarm Reset: Key-accessible RESET function resets alarm system out of ALARM if alarm initiating circuits have cleared.
  - I. Lamp Test: Manual LAMP TEST function causes alarm indication at each zone at fire alarm control panel and at annunciator panels.
  - J. Drawings: Only device layouts and some equipment have been shown on the contract drawings. Wiring and additional equipment to make a complete and functioning system has not been shown, but shall be submitted on the shop drawings.
- 1.10 PROJECT RECORD DOCUMENTS**
- A. Submit documents under the provisions of Section 26 0500.
  - B. Include location of end-of-line devices.

- C. Provide a CAD drawing of each area of the building (minimum scale of 1/16" = 1'-0") showing each device on the project and its address. The devices shall be shown in their installed location and shall be labeled with the same nomenclature as is used in the fire alarm panel programming.
- D. Submit test results of sound pressure level (dBA) and intelligibility (STI) with the rooms tested designated on the floor plan. Notification devices shall have the tap wattage designated.

**1.11 OPERATION AND MAINTENANCE DATA**

- A. Submit data under provisions of Section 26 0500.
- B. Include operating instructions, and maintenance and repair procedures.
- C. Include results of testing of all devices and functions.
- D. Include manufacturer's representative's letter stating that system is operational.
- E. Include the CAD floor plan drawings.
- F. Include shop drawings as reviewed by the Architect/Engineer and the local Authority Having Jurisdiction.

**1.12 DOCUMENT STORAGE CABINET**

- A. The cabinet shall have all fire alarm system documents, including record drawings, wiring diagrams, operation manuals, etc. A legend sheet permanently attached to the door shall contain system passwords and inspection logs. The enclosure shall also provide two (2) key ring holders for system keys and a location for a standard size business card with service contact information.
  - 1. The cabinet will have, permanently and securely mounted inside, a digital flash memory device with a minimum of 4 GB of storage capacity and a standard USB B connector for uploading and downloading electronic versions of record documents and system programming information.
- B. The final version of the system database program shall be stored within the cabinet.

**1.13 WARRANTY**

- A. Provide one (1) year warranty on all materials and labor from Date of Substantial Completion.
- B. Warranty requirements shall include furnishing and installing all software upgrades issued by the manufacturer during the one (1) year warranty period.

**1.14 ANNUAL INSPECTION/TESTING AND SERVICE CONTRACT**

- A. Provide cost to furnish service, inspect, and test all devices of the fire alarm system per the requirement of NFPA for one (1) year, starting one year after the Date of Substantial Completion. Submit written reports of inspection testing per NFPA 72, Chapter 14.
- B. Provide an alternate cost for a complete inspection/testing and service/maintenance contract for the fire alarm system for one (1) year two (2) years, starting one year after the Date of Substantial Completion. Submit sample contract terms and conditions for review with shop drawings.
- C. The Owner may enter into a contract directly with the vendor after shop drawing submittals. This specification is not a contract between the Owner and the vendor to perform these services.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURERS**

- A. Johnson Controls - Simplex

**2.02 Fire Alarm Pathway Class and Survivability Level**

- A. Pathway Class:
  - 1. Pathway Class A: Circuits capable of transmitting an alarm signal during an open or a non-simultaneous single ground fault on a circuit conductor wiring system. Wiring of outgoing and return conductors shall be physically separated by a minimum of 50 feet or by a 2-hour rated enclosure.
  - 2. Pathway Class B: Circuits NOT capable of transmitting an alarm beyond the location of the fault condition. Wiring of outgoing and return conductors is permitted to be run in the same conduit or cable.

3. Pathway Class: SLC for addressable devices with less than 50 devices can be Class A or B, and more than 50 devices shall be Class A.

B. Pathway Survivability Level:

1. Pathway Survivability Level 1: Circuits are protected by an automatic sprinkler system and installed in metal raceways.
2. Shared Pathway Designation Level 2: Provide physical segregation of all life safety and non-life safety data.

**2.03 SIGNALING LINE CIRCUIT DEVICES**

- A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.

B. Signal Line Device(s):

1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Device type as follows:
    - 1) W = Weather Proof
    - 2) WG = Wire guard is required
    - 3) Candela Ratings:
      - a) ## = 15 Candela, 30 Candela; 75 Candela; 110 Candela; 177 Candela
      - b) CD = NICET designer shall select Candela rating as required to provide full coverage of the space.
  - b. Sequence of operation as follows:
    - 1) D = HVAC Control
    - 2) DIPS = Dual Interlock Pre-Action System

C. FA-120; Smoke Detectors:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Device types as follows:
    - 1) Blank = Photoelectric
    - 2) CO = Combination Smoke / Carbon Monoxide
    - 3) COH = Combination Smoke / Carbon Monoxide / Heat
    - 4) COS = Combination Smoke / Carbon Monoxide / Strobe
    - 5) H = Combination Smoke / Heat Detectors
2. (BLANK) Analog Photoelectric Type Sensor: Shall use the photoelectric principle to measure smoke density and send data to the control panel representing the analog level of smoke density measured.
3. (CO) Combination Smoke / Carbon Monoxide:
  - a. Multi-criteria sensor for photoelectrical smoke sensing and carbon monoxide (CO) detection. Carbon monoxide electrolytic sensing module shall provide toxic gas sensing to UL2034 and UL2075 standards.
  - b. The combined photoelectric smoke detection CO module shall have separate sensors that adjust the detection profile in response to the input from the sensors.
  - c. The combined photoelectric smoke detection / CO module shall have selectable modes of operation for OSHA compliant toxic gas sensing, enhanced fire sensing, and nuisance alarm reduction mode.

- d. The detector shall use only one address on the SLC.
  - e. CO sensor cartridge element shall be field replaceable.
4. (COH) Combination Smoke / Carbon Monoxide/Heat Detector:
- a. Multi-criteria sensor for photoelectrical smoke sensing, heat and carbon monoxide (CO) detection. Carbon monoxide electrolytic sensing module shall provide toxic gas sensing to UL2034 and UL2075 standards.
  - b. The combined photoelectric smoke detection / heat / CO module shall have separate sensors that adjust the detection profile in response to the input from the sensors.
  - c. The combined photoelectric smoke detection / CO module shall have selectable modes of operation for OSHA compliant toxic gas sensing, enhanced fire sensing, and nuisance alarm reduction mode.
  - d. The detector shall use only one address on the SLC.
  - e. CO sensor cartridge element shall be field replaceable.
5. (COS) Combination Smoke / Carbon Monoxide/ Strobe Detector:
- a. Multi-criteria sensor for photoelectrical smoke sensing, carbon monoxide (CO) detection, and 177 Candela strobe. Carbon monoxide electrolytic sensing module shall provide toxic gas sensing to UL2034 and UL2075 standards.
  - b. The combined photoelectric smoke detection / heat / CO module shall have separate sensors that adjust the detection profile in response to the input from the sensors.
  - c. The combined photoelectric smoke detection / CO module shall have selectable modes of operation for OSHA compliant toxic gas sensing, enhanced fire sensing, and nuisance alarm reduction mode.
  - d. The detector shall use only one address on the SLC.
  - e. CO sensor cartridge element shall be field replaceable.
6. (H) Combination Smoke / Heat Detector:
- a. Multi-criteria sensor for photoelectrical smoke sensing and rate of rise heat detection. Carbon monoxide electrolytic sensing module shall provide toxic gas sensing to UL2034 and UL2075 standards.
  - b. The detector shall use only one address on the SLC
7. Each smoke detector shall connect directly to an SLC loop, unless listed as stand alone.
8. Each detector shall be mounted, where shown on the drawings, on a twist-lock base with all mounting hardware provided. Provide a two-piece head/base design.
9. Each detector shall have a manual switching means to set the internal identifying code (address) of that detector, which the control panel shall use to identify its address with the type of sensor connected.
10. Dual alarm and power indicators shall be provided that flash under normal conditions and remain continuous under alarm or trouble conditions. Remote indicator terminals shall be provided. Provide a remote LED indicator device if detector is not visible from a floor standing position.
11. A test means shall be provided to simulate an alarm condition.
12. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location with maintained temperatures between 32°F and 120°F.
- D. FA-121; Gas Detectors:
- 1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
    - a. Device types as follows:
      - 1) CO = Carbon Monoxide

2. (CO) Analog Carbon Monoxide Type Sensor.
- E. FA-122; Duct Smoke Detectors, Sampling Tube Type:
1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
    - a. Device types as follows:
      - 1) # = Equipment or system
    - b. Duct-type smoke detectors shall use the same analog photoelectric sensor technology, with the same features specified for standard smoke detectors, except with additional features as specified below.
    - c. Provide sampling tubes and mounting hardware to match the duct to which it is attached. Where the detector housing is larger than the duct height, Contractor shall fabricate a mounting bracket for the detector and attach according to the fire alarm manufacturer's recommendations.
    - d. Provide a remote alarm LED indicator device (FA-241) or (FA-242) if detector is not visible from a floor-standing position. If detector is located above a suspended ceiling, mount remote indicator in ceiling directly below detector with a white single-gang faceplate labeled: Duct Smoke Detector.
- F. FA-140; Heat Detectors:
1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
    - a. Device types as follows:
      - 1) Blank = Combination Rate of Rise / Fixed Temp
      - 2) F = Fixed Temp
      - 3) RC = Rate Compensated
      - 4) X = Explosion Proof
  2. (BLANK) Combination rate of rise and 135°F fixed temperature analog thermal type sensor. Factory programmed to alarm at 135°F and at 15°F per minute rate-of-rise. Sensor shall measure heat level and send data to the control panel representing the analog level of thermal measurement and rate-of-rise.
  3. (F) 200°F fixed temperature. Provide a remote addressable monitor module to interface with addressable system as shown on the plans.
  4. Provide a two-piece head/base design, with a manual switching means to set the internal identifying code (address) of that detector, which the control panel shall use to identify its address with the type of sensor connected.
  5. Heat detectors shall connect directly to SLC loops. Where fixed temperature or explosion proof detectors are used, one monitor module may be used to monitor all detectors in one room/area as shown on the drawings.
  6. Detectors shall be mounted, where shown on the drawings, on a twist-lock base with all mounting hardware provided.
  7. Provide a remote LED indicator device if detector is not visible from a floor-standing position.
  8. Dual alarm and power indicators shall be provided that flash under normal conditions and remain continuous under alarm or trouble conditions. A connection for attachment of a remote indicator shall be provided.
  9. A test means shall be provided to simulate an alarm condition.
  10. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location with maintained temperatures between 32°F and 120°F.

G. FA-160; Monitor Modules:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Device types as follows:
    - 1) Blank = Refer to Plans
2. Monitor Module shall connect directly to an SLC loop and receive power from a separate 24 VDC circuit. It shall interface initiating devices with the control panel using Style D or Style B circuits. Contractor Option: Use an interface module (2-wire operation) for Style B circuits connected to normally-open dry contacts, such as a flow switch.
3. The module shall be mounted in an enclosure located in an accessible service location as near as possible to the device(s) being monitored, or where shown on the drawings. All mounting hardware shall be provided.
4. The module shall supply the required power to operate the monitored device(s).
5. The module shall provide address setting means using rotary decimal or DIP switches.

H. FA-161; Addressable Control Module:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation
  - a. Device types as follows:
    - 1) Blank = Refer to Plans
    - 2) DH = Door Hold Open
    - 3) PD = Hold Open Override
2. Relay that represents an addressable control point used primarily for the control of auxiliary devices as indicated on the drawings. Contractor to provide additional child relay(s), as required, rated for the electrical load being controlled (Contractor to match voltage, amps, etc.).
3. Relay shall connect directly to an SLC loop and receive power from a separate 24 VDC circuit.
4. The relay shall be mounted in an enclosure located in an accessible service location as near as possible to the device(s) being controlled, unless otherwise shown on the drawings. All mounting hardware shall be provided.
5. The relay shall supply 24 VDC power to the device(s) being controlled, unless otherwise indicated on the drawings.

I. FA-280; Isolation Module:

1. Provide fault isolation modules or isolator detector base capable of isolating and removing the fault from Class A or Class X addressable loop data circuits while allowing the remaining data loop to continue operation. Provide a minimum of two isolation modules or bases and between every 15 devices.

**2.04 NOTIFICATION APPLIANCE DEVICES**

A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.

B. Notification Appliance Device(s):

1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Device types as follows:
    - 1) W = Weather Proof
    - 2) WG = Wire guard is required

- 3) Candela Ratings:
  - a) ## = 15 Candela; 30 Candela; 75 Candela; 110 Candela; 177 Candela
  - b) CD = NICET designer shall select Candela rating as required to provide full coverage of the space.

C. Notification Device(s):

1. Wall Mounted: Red housing with white lettering or pictogram.
2. Ceiling Mounted: Red housing with white lettering or pictogram.

D. FA-200; Visual Alarm Devices:

1. Wall or ceiling mounted, refer to plans.
2. High intensity (Candela rating as scheduled on the drawings) xenon strobe or equivalent under a lens. Candela rating shall be visible from exterior of the device.
3. The maximum pulse duration shall be 0.2 seconds with a maximum duty cycle of 40%. The flash rate shall be 1 Hz. Where more than two strobes are visible from any one location, the fire alarm visual devices shall be synchronized.
4. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.
5. (W) Weatherproof Visual Notification Device: High intensity strobe, square housing, 75 Candela rating, suitable for wet locations. Provide with weatherproof back box.
  - a. Mounting: Semi-flush wall.
  - b. Conduit shall not be exposed.

E. FA-210; Audio Horn Alarm Devices:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
2. Wall or ceiling mounted, refer to plans.
3. Sound Rating: 85 dB at 10 feet. Sound levels for alarm signals shall not exceed 120 dBA in the occupied area.
4. Device shall be capable of a high and low dB level setting. Unless noted otherwise, the device shall be set to the high setting at building completion.
5. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.

F. FA-211; Combination Audio Horn and Visual Alarm Device:

1. Wall or ceiling mounted, refer to plans.
2. Combine audio and visual components into a single device. Refer to the corresponding paragraphs above for requirements of each component.
3. (W) Weatherproof Audio/Visual Notification Device: Electronic horn with high intensity strobe, square housing, 75 Candela, suitable for wet locations. Provide with weatherproof back box.
  - a. Mounting: Semi-flush wall.
  - b. Conduit shall not be exposed.

**2.05 NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC)**

- A. As shown on the plans or as a Contractor's option if not shown, furnish and install NAC extender panels as necessary to provide remote power supply for notification appliance circuits (NAC). Contractor shall indicate quantity and locations of each NAC on the shop drawing submittals.
- B. Each NAC shall be self-contained remote power supply with batteries, and battery charger mounted in a surface lockable cabinet. Battery capacity shall be sufficient for operation for 24 hours in a non-alarm state followed by alarm for 15 minutes, plus 25% spare capacity for future devices. Each NAC provides a minimum of up to 4 outputs, 2A continuous, or 6A full load total capacity.

- C. Power for each NAC shall be from a local 120 VAC life safety circuit. Provide two #12 conductors and one #12 ground in 1/2" conduit to each NAC from a dedicated 20A/1P circuit breaker with a red handle and a manufacturer's standard handle lock-on device. Coordinate panel and circuit number with the Architect/Engineer prior to installation.
- D. NAC extender panels may be installed only in locations coordinated with the Architect/Engineer.
- E. Mounting: Surface.

## **2.06 CONNECTIONS TO AUXILIARY DEVICES PROVIDED BY OTHERS**

- A. FA-260; Flow Switch:
  - 1. (FA-260) Connection to flow switch to monitor fire protection flow switch or discharge output contacts. Normally open dry contacts for fire alarm interface. Furnished and installed by MC; wired by EC.
  - 2. Provide a dedicated monitor switch for each sprinkler flow switch.
- B. FA-261; Tamper / Monitor Switch:
  - 1. (FA-261) Connection to monitor switch to monitor fire protection system supervisory switches or output contacts. Normally open dry contacts for fire alarm interface. Furnished and installed by MC; wired by EC.
  - 2. Tamper switches in the same room or system may be monitored by a single monitor switch when shown grouped on the plans.
  - 3. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - 4. Device types as follows:
    - a. Blank = Refer to Plans
    - b. PIV = Post Indicator Valve
  - 5. (PIV) Post Indicator Valve. Connection to post indicator valve for sprinkler system supervisory notification. Normally open dry contacts for fire alarm interface. Furnished and installed by MC; wired by EC. Provide surge protection device as recommended by the fire alarm system manufacturer on line entering/leaving the facility.

## **2.07 WIRING**

- A. Fire alarm wiring/cabling shall be furnished and installed by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes. Cabling shall be UL listed and labeled as complying with the Electrical Code for power-limited fire alarm signal service.
- B. Fire Alarm Cable:
  - 1. Manufacturers:
    - a. Comtran Corp.
    - b. Helix/HiTemp Cables, Inc.
    - c. Rockbestos-Suprenant Cable Corp.
    - d. West Penn Wire/CDT.
    - e. Radix.

## **PART 3 - EXECUTION**

### **3.01 SEQUENCES OF FIRE ALARM OPERATION**

- A. General:
  - 1. Refer to the Fire Alarm Operation Matrix on the drawings for basic requirements and system operation.
  - 2. All system output programs assigned via control-by-event equations to be activated by the particular point in alarm shall be executed, and the associated system outputs (alarm notification appliances and/or relays) shall be activated.

- B. Panel/Annunciator Alarm, Trouble, Supervisory Indication:
  - 1. Appropriate system Alarm, Trouble, or Supervisory LED shall flash at the control panel, transponder, and annunciator locations.
  - 2. A local signal in the control panel shall sound.
  - 3. The LCD display shall indicate all information associated with the condition, including the name of the item, type of device and its location within the protected premises.
  - 4. History storage equipment shall log the information associated with the fire alarm control panel (FAP) condition, along with the time and date.
  - 5. Transmit the appropriate signal (supervisory, trouble, alarm) to the central station via the digital communicator.
  - 6. Transmit the appropriate signal (supervisory, trouble, alarm) to the building automation system via addressable relays tied to contact monitors on the system.
  - 7. Audible alarms sequence shall match existing sequence
- C. Visual Alarms Sequence:
  - 1. Visual alarm sequence shall match existing sequence.
- D. Fire Protection Electric Sprinkler Bell Sequence:
  - 1. The fire alarm shall utilize an addressable relay to energize the electric sprinkler bell upon activation of the flow switch.
- E. HVAC System Sequence:
- F. Kitchen Hood Fire Suppression System Sequence:
  - 1. The fire alarm system shall utilize an addressable relay to de-energize the hood supply fan controller.
  - 2. The fire alarm system shall utilize an addressable monitor module to monitor the fire suppression system.
- G. AHU and Mechanical Fan Shutdown Sequence:
  - 1. The fire alarm system shall utilize addressable relays to de-energize all AHU motor controllers and mechanical fans. Coordinate other requirements with HVAC installer.
  - 2. The fire alarm system shall directly shut down the AHU or mechanical fan through the local HVAC control device (i.e., variable frequency drive or motor starter).
  - 3. Where a facility has more than one AHU or mechanical fan, each shall be shutdown individually based on input from initiation devices in the area served by the unit or designated for each air distribution system.
  - 4. All AHUs and mechanical fans shall be shutdown simultaneously throughout the building.

### **3.02 INSTALLATION**

- A. Install system in accordance with manufacturer's instructions and referenced codes.
- B. Devices:
  - 1. General:
    - a. All ceiling-mounted devices shall be located where shown on the reflected ceiling and floor plans. If not shown on the reflected ceiling or reflected floor drawings, the devices shall be installed in the relative locations shown on the floor drawings in a neat and uniform pattern.
    - b. All devices shall be coordinated with luminaires, diffusers, sprinkler heads, piping and other obstructions to maintain a neat and operable installation. Mounting locations and spacing shall not exceed the requirements of NFPA 72.
    - c. Where the devices are to be installed in a grid type ceiling system, the detectors shall be centered in the ceiling tile.

- d. The location of all fire alarm devices shall be coordinated with other devices mounted in the proximity. Where a conflict arises with other items or with architectural elements that will not allow the device to be mounted at the location or height shown, the Contractor shall adjust location of device so that new location meets all requirements in NFPA 72 and all applicable building codes.
2. Per the requirements of NFPA, detector heads shall not be installed until after the final construction cleaning unless required by the local Authority Having Jurisdiction (AHJ). If detector heads must be installed prior to final cleaning (for partial occupancy, to monitor finished areas or as otherwise required by the AHJ), they shall not be installed until after the fire alarm panel is installed, with wires terminated, ready for operation. Any detector head installed prior to the final construction cleaning shall be removed and cleaned prior to closeout.
3. Protection of Fire Alarm System:
  - a. A smoke detector shall be installed within the vicinity of the main fire alarm panel and every NAC extender panel per NFPA 72. A heat detector may be substituted when a smoke detector is not appropriate for the environment of installation.
4. Duct-type Analog Smoke Detectors:
  - a. Duct-type analog smoke detectors shall be installed on the duct where shown on the drawings and details. The sampling tubes shall be installed in the respective duct at the approximate location where shown on the electrical drawings to meet the operation requirements of the system.
  - b. All detectors shall be accessible.
  - c. Duct-type detectors shall be installed according to the manufacturer's instructions.
5. In-Duct Analog Smoke Detectors:
  - a. In-duct analog smoke detectors shall be installed in the duct where shown on the drawings and details. The devices shall be installed in the respective duct at the approximate location where shown on the electrical drawings to meet the operation requirements of the system.
  - b. All detectors shall be accessible.
6. Addressable Relays and Monitor Modules:
  - a. Modules shall be located as near to the respective monitor or control devices as possible, unless otherwise indicated on the drawings.
  - b. All modules shall be mounted in or on a junction box in an accessible location.
  - c. Where not visible from a floor standing position, a remote indicator shall be installed to allow inspection of the device status from a local floor standing location.
7. SLC Loop Isolation Modules:
  - a. Isolation modules shall be installed to limit the number of addressable devices that are incapacitated by a circuit fault.
  - b. Install all Isolation Modules within the fire alarm control panel, unless otherwise indicated on the drawings. Refer to the fire alarm riser diagram for requirements. Refer to the floor plans for areas served by separate isolation modules.
8. Notification Appliance Devices:
  - a. Devices shall be located where shown on the drawings.
  - b. Wall-mounted audio, visual and audio/visual alarm devices shall be mounted as denoted on the drawings.
  - c. Where ceiling mounted visual alarm devices or combination audio/visual alarm devices are shown where the ceiling is greater than 30'-0" high, they shall be stem mounted so that the entire unit is below 30'-0". This does not apply to audio-only alarm devices.

C. Wiring:

1. Fire alarm wiring/cabling shall be provided by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes.
2. Wiring shall be installed in conduit.
3. Wiring shall be installed in conduit from device to above accessible ceilings. Exposed plenum-rated cable (FPLP) shall be used above accessible ceilings supported every 4 feet or run in cable trays (if applicable) maintaining a minimum of 5-inches clearance from all lighting ballasts. Fire alarm cabling shall not be installed in the same bridge rings or cable trays designated for the cabling of other systems.
4. All junction boxes with SLC and NAC circuits shall be identified on cover. Refer to Identification Section 26 0513 for color and identification requirements.
5. Partial evacuation or relocation of occupants is the standard operating procedure for this facility in the event of an alarm. Therefore, all notification appliance circuits (NAC), including circuits serving NAC extender panels and other network communication circuits, must be installed and protected in accordance with the "circuit survivability" requirements described in NFPA 72. Contractor shall maintain the following:
  - a. NACs serving separate evacuation signaling zones shall be routed separately such that they are no less than 4 feet apart when run horizontally and 1 foot apart when run vertically. They may come simultaneously only within 10 feet of the control panel.
  - b. NACs passing through other evacuation signaling zone(s) shall be installed in conduit and routed through the 2-hour fire-rated chase(s) or enclosure(s) identified on the drawings.
  - c. NACs passing through other evacuation signaling zone(s) shall be Electrical Code classified CIC cable (Fire Alarm Circuit Integrity) installed in conduit. Provide CIC cable meeting UL requirements for 2-hour listing.
    - 1) The CIC cable system shall be installed in a conduit system meeting all requirements of its UL-listed installation system (conduit, boxes, connectors, etc.).
6. Fire Alarm Power Branch Circuits: Building wiring as specified in Section 26 0513.
7. Notification Appliance Circuits shall provide the features listed below. These requirements may require separate circuits for visual and audible devices.
  - a. Fire alarm temporal audible notification for all audio appliances.
  - b. Synchronization of all visual devices where two or more devices are visible from the same location.
  - c. Ability to silence audible alarm while maintaining visual device operation.
8. Notification Appliance Circuits shall not span floors.
9. Signal line circuits connecting devices shall not span floors or.
10. Signal line circuits connecting devices shall be provided with an isolation module at each floor separation or as otherwise shown on the drawings.
11. No wiring other than that directly associated with fire alarm detection, alarm or auxiliary fire protection functions shall be in fire alarm conduits. Wiring splices shall be avoided to the extent possible, and if needed, they shall be made only in junction boxes, and enclosed by plastic wire nut type connectors. Transposing or changing color coding of wires shall not be permitted. All conductors in conduit containing more than one wire shall be labeled on each end, in all junction boxes, and at each device with "E-Z Markers" or equivalent. Conductors in cabinets shall be carefully formed and harnessed so that each drops off directly opposite to its terminal. Cabinet terminals shall be numbered and coded, and no unterminated conductors are permitted in cabinets or control panels. All controls, function switches, etc. shall be clearly labeled on all equipment panels.

- D. Fire Alarm Cabling Color Code: Provide circuit conductors with insulation color coding as follows, or using colored tape at each conductor termination and in each junction box.
  - 1. Power Branch Circuit Conductors: In accordance with Section 26 0553.
  - 2. Signaling Line Circuit: Overall red jacket with black and red conductors.
  - 3. DC Power Supply Circuit: Overall red jacket with violet and brown conductors.
  - 4. Notification Appliance Circuit: Overall red jacket with blue and white conductors.
  - 5. Door Release Circuit: Gray conductors.
  - 6. Central Station Trip Circuit: Orange conductors.
  - 7. Central Station Fire Alarm Loop: Black and white conductors.
- E. Devices surface mounted in finished areas shall be mounted on surface backboxes furnished by fire alarm equipment supplier. Backboxes shall be painted to match device, shall be the same shape and size as the device shall not have visible knockouts.
- F. Make conduit and wiring connections to door release devices, sprinkler flow and pressure switches, sprinkler valve monitor switches, fire suppression system control panels, duct analog smoke detectors and all other system devices shown or noted on the Contract Documents or required in the manufacturer's product data and shop drawings.

### **3.03 FIELD QUALITY CONTROL**

- A. Field inspection and testing will be performed under provisions of Section 26 0500.
- B. Test in accordance with NFPA 72, Chapter 14 and local fire department requirements. Submit documentation with O & M manuals in accordance with Section 14.6 of the Code.
- C. Contractor shall test and adjust the fire alarm system as follows:
  - 1. Speaker taps shall be adjusted to the lowest tap setting which achieves a sound level higher than or equal to the greatest of the following:
    - a. 70dBA.
    - b. 15 dBA above ambient levels as indicated in NFPA 72 Table A.18.4.3.
    - c. 15 dBA above measured ambient. 5 dBA above the maximum measured sound level with duration of more than 60 seconds.
    - d. As specified on the drawings.
  - 2. Sound level measurement procedure shall meet the following requirements:
    - a. All measurements shall use the 'A' weighted, dBA, sound measurement scale.
    - b. All measurements shall be taken after furnishings, wall coverings and floor coverings are in place.
    - c. All measurements shall be taken after fixed equipment (HVAC units, etc.) producing ambient noise is installed and is in operation.
    - d. Final ambient sound measurements shall be taken during occupancy and the units shall be re-adjusted at that time, if necessary.
    - e. All sound level measurements shall be taken at a height of 5' above the finished floor level.
    - f. Measurements shall be taken in every unique room. If there are multiple rooms, which have the identical dimensions and function, 10%, or a minimum of two (2) rooms shall be tested. The results from the rooms tested shall be averaged and the remaining rooms may be adjusted per the average.
    - g. Measurements shall be taken on a 20' x 20' grid and the results for all points taken shall be averaged. If the room is smaller than 20' x 20' a minimum of two measurements are required.
    - h. Measurements shall be taken halfway between speakers or halfway between a speaker and the wall. No measurements shall be taken at the extreme edges of the room, nor directly under speakers.

**3.04 MANUFACTURER'S FIELD SERVICES**

- A. Provide manufacturer's field services under provisions of Section 26 0500.
- B. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.
- C. Note that room numbers depicted on the architectural/engineering drawings will not necessarily reflect the actual room (signage) numbers that the Owner selects. Contractor and fire alarm manufacturer shall coordinate the actual room numbers as the Owner directs to identify each device. This list shall be a part of the floor plan record drawing to be turned in at the project closeout.
- D. Include the services to train up to three of the Owner's staff in operation, maintenance, and programming of the fire alarm system at the manufacturer's factory. Airfare and lodging expenses for the Owner's staff will be by the Owner.
- E. System Occupancy Adjustments: When requested by Owner within 12 months of date of Substantial Completion, provide on-site system adjustments to suit actual occupied conditions. For this purpose, provide up to two (2) site visits, four (4) hours each visit, outside normal occupancy hours.

**3.05 SYSTEM TRAINING**

- A. System training shall be performed under provisions of Section 26 0500.
- B. Minimum on-site training times shall be:
  - 1. System Operators: One (1) day.

**END OF SECTION**

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