

PROJECT MANUAL

**NICC
PLANT SERVICES
MAINTENANCE BUILDING**

Phase I: Earthwork/ Site Utilities

**Phase 2: Building Construction/Paving/Site
Work**

**1625 IA-150
Calmar, Iowa 52132**

Architect's Project No. 20017

**SPECIFICATION
Divisions 00-33**

Volume 1

Document Date: December 15, 2021

Bid Date: February 14, 2022 - 2:00 pm Local Time

Straka Johnson Architects, P.C.

3555 Digital Drive

Dubuque, Iowa 52003

(563) 556-8877

SECTION 00 00 01

TITLE PAGE

PROJECT TITLE & LOCATION:

NICC CALMAR CAMPUS
Plant Services Maintenance Building
1625 IA-150
Calmar, Iowa 52132

OWNER'S REPRESENTATIVE:

NICC Construction Manager
P.O. Box 400, 1625 Hwy 150
Calmar, IA. 52132
Tel. (563) 202-0426
Contact: Norm Racicot racicotn@nicc.edu

ARCHITECT OF RECORD:

Straka Johnson Architects, PC (SJA)
3555 Digital Drive
Dubuque, Iowa 52003
Tel. (563) 556-8877
Contact: Benjamin Beard benjaminb@sjarch.com
Jerry Burnes jerryb@sjarch.com

CIVIL ENGINEER:

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL
128 South Vine Street
West Union, Iowa 52175
Tel. (563) 422-5131
Contact: Jon S. Biederman, PE, LSI
jbiederman@fehr-graham.com

SECTION 00 01 05

PROFESSIONAL CERTIFICATIONS

**NICC PLANT SERVICES MAINTENANCE BUILDING
PHASE I: EARTHWORK/ SITE UTILITIES**

Benjamin Harper Beard
Straka Johnson Architects
License No. **06558**
License Renewal Date **6/30/2022**

I hereby certify that these documents were prepared by me, or under my direct personal supervision, and I am a duly Licensed Professional Iowa Architect under the laws of the State of Iowa.
Pages, Sheets or Divisions Covered by this Seal:
Divisions: **00-33**

_____	December 15, 2021
Signature	Date

Jon S. Biederman
Fehr Graham
License No. **13868**
License Renewal Date **12/31/2022**

Civil Engineer

I hereby certify that these documents were prepared by me, or under my direct personal supervision, and I am a duly Licensed Professional Iowa Engineer under the laws of the State of Iowa.
Pages, Sheets or Divisions Covered by this Seal:
Sheets: C.01 – C.10

_____	December 15, 2021
Signature	Date

SECTION 00 01 10

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END OF SECTION 00 01 10

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ADVERTISEMENT FOR BIDS FOR PUBLIC IMPROVEMENT PROJECT

NICC PLANT SERVICES MAINTENANCE BUILDING

PHASE 1: EARTHWORK/ SITE UTILITIES

PHASE 2: BUILDING CONSTRUCTION/ CONCRETE/ HMA PAVING/ PLUMBING/ HVAC/ ELECTRICAL/ SITE WORK

NOTICE IS HEREBY GIVEN: SUB – CONTRACT BIDS FOR THE NICC PLANT SERVICES MAINTENANCE BUILDING, PHASE 1: EARTHWORK/ SITE UTILITIES AND PHASE 2: BUILDING CONSTRUCTION; CONCRETE; HMA PAVING; PLUMBING; HVAC; ELECTRICAL; AND SITE WORK WILL BE ACCEPTED FOR REVIEW AND CONSIDERATION.

Sealed Sub – Contract bids for the NICC Plant Services Maintenance Building, Phase 1: Earthwork/ Site Utilities and Phase 2: Building Construction; Concrete; HMA paving; Plumbing; HVAC; Electrical; Site Work will be received on February 14, 2022, at the Calmar Campus Administration Board Room, NICC 1625 Hwy. 150 S. P.O. Box 400, Calmar, IA. 52132 before 2:00 p.m. local time, according to the designated clock in the Administration board room. Bids will be stamped with the time they were received. **The Bids will be publicly opened and read aloud shortly after 2:00 p.m. local time, February 14, 2022, at the same location.** Neither NICC nor its agents will assume liability for the inability of a bidder to submit a bid in a timely manner. Bidders bear full and complete responsibility for the timely submission of such bid. Bids received after the deadline will not be considered and will be returned to the bidder unopened.

The scope of work for the project located at NICC Calmar Campus, 1625 IA-150, Calmar, IA. 52132, includes, but is not limited to the following:

The Plans and Specifications contain the details and requirements of Planning/ Pre-Construction Phase Start February 22, 2022, Completion approximately March 30, 2022 if weather permits. Phase 1: Excavation/ Site Utilities Start March 30, 2022 for the over excavation of unsuitable soils; replacement with engineered fill, and installation of Site Utilities and preparation of site for 4 weeks “Rest and Settlement” per the Geotechnical Report. Phase 2 – Building Construction; Design-Build Plumbing; HVAC, Electrical and Site Work Start May 31, 2022, completion August 31, 2022. Exterior Concrete Work; HMA Paving; Site Work Start August 31, 2022, Completion September 30, 2022.

CONTRACTS:

Bids will be received and project constructed under separate sub-contracts. Bids for each sub-contract must be on a lump sum basis. The Sub-contracts are as follows:

Phase 1, Contract #1: Earthwork/ Site Utilities/ Site Work

Phase 2, Site Work of Contract #1 and Contracts #2 thru #7 which includes:

Contract #2: General Contract for the Construction of the Maintenance Building (Pole Building)

Contract #3: Concrete – includes all concrete work on project. Footings, foundation walls, floor slab, concrete approaches, sidewalks; curbs and gutters.

Contract #4: HMA Paving - paving of parking lot and drive.

Contract #5: Plumbing – Design Build of all plumbing inside the building and connecting to Black Hills Energy natural gas service and water and sewer site utilities run within 5 feet of building.

Contract #6: HVAC – Design Build of all heating, cooling, and ventilation equipment and ductwork within the building.

Contract #7: Electrical – Design Build of all electrical within the building and connecting to Alliant Energy electric services.

Work to commence for Project on or after **February 22, 2022**, with completion of work as follows:

Planning/ Pre-construction Phase – Commence February 22, 2022, Completion March 30, 2022

Phase 1 – Earthwork/ Site Utilities – Commence March 30, 2021 (or when frost is substantially out of ground), Substantial Completion of the Earthwork/ Site Utilities portion of Phase 1 on April 30, 2022 (weather permitting). Site “Rest and Settlement” for 4 weeks as per Geotechnical Report – Commence April 30, 2022, completion May 30, 2022.

Phase 2: Building Construction & Concrete/ Plumbing/ HVAC/ Electrical – Commence May 31, 2022, Substantial Completion **August 31, 2022**. **Exterior Concrete/HMA Paving/ and Site Work** – Commence August 31, 2022, Completion September 30, 2022.

PRE-BID CONFERENCE:

A Pre-Bid Site Walkthrough will be conducted on site at the Calmar Campus on **Tuesday, January 24, 2022, between 1:00 pm and 3:00 pm local time**. If attendance is not possible on the designated day, appointments can be arranged with Norm Racicot, NICC Construction Manager (563-202-0426). While attendance is not mandatory, prospective Bidders are urged to attend this conference to familiarize themselves with the Project in general, and the Project Site in particular.

DOCUMENT AVAILABILITY:

Bid documents will be available for viewing on or after **January 4, 2022** at the Student Center Building, NICC Calmar Campus, 1625 Hwy. 150 S. Calmar, IA. 52162 (please call Norm Racicot at 563.202.0426 to schedule an appointment); Straka Johnson Architect's office, 3555 Digital Drive, Dubuque, Iowa 52003, and at other locations as listed below and in the Instructions to Bidders.

CMD Group | Phone 630-288-7975 | www.cmdgroup.com
Dodge Data & Analytics | Phone 810-639-0660 | www.construction.com
Master Builders of Iowa | Phone 515-657-4388 | www.mbionline.com

Bidders may obtain copies of the Bidding Documents from Tri-State Blue Print & Framing Company, 696 Central Avenue, Dubuque, IA 52001 (phone (563) 556-3030; email triblue@techioowa.com) upon depositing the sum of two hundred and fifty dollars (\$250.00) per set, or receipt of AGC, AMC, AMEC, MBI or NECA card. Bidders are required to register their name, company name and complete contact information, which will be used to transmit addenda and other bidding information to all document holders.

Deposits for hard copies of the documents shall be refunded upon return of the contract documents in reusable condition within fourteen (14) days after Award of Contract. If the contract documents are not returned in a timely manner and in a reusable condition, the deposit shall be forfeited. The Owner requests that non-bidders return documents as soon as possible before bid opening. Successful bidders will be allowed to retain the document sets in their possession and have their deposit(s) refunded to them.

Electronic Bidding Documents are available for review and download from Rapids Reproductions for no charge by logging onto - or registering with - the following service:

Rapids Reproductions Document Fulfillment Service (DFS): <http://dfs.rapidsrepro.com>

BIDDING REQUIREMENTS:

Each Bid shall be submitted on the Bid Form provided with the Bidding Documents. No oral, facsimile or telephonic bids or modifications will be considered. Bids shall be addressed and delivered to the Calmar Campus Administration Board Room, NICC 1625 Hwy 150 S. P.O. Box 400 Calmar, IA 52132—Attention Dave Dahms, Vice President of Finance and Administration, in sealed envelopes marked with the Project Name and name and address of Bidder. All bids shall be sealed and plainly marked. Any alteration of the bid form may be cause for rejection of the bid.

Each Bid shall be accompanied by Bid Security in the amount of 10% of the total bid submitted. Bid Security must be in the form set forth in the Instructions to Bidders. Bid Security must in 1 of the following forms: Certified Check, Cashier's Check, Credit Union Certified Share Draft or an approved Bond Form.

The successful Bidders will be required to furnish a Certificate of Insurance and Performance and Labor and Material Payment Bonds both in an amount equal to 100% of the Contract Price and in accordance with other requirements outlined in the Bid Documents.

Should the successful bidder fail or neglect to furnish satisfactory performance/payment bonds, refuse to enter into a Contract on the basis of the bid, or fail to meet the requirements of this Notice and the specifications regulating the award, the bidder's security may be retained as liquidated damages. No bidder may withdraw his or her bid for a period of forty-five (45) calendar days after the date and hour set for opening of bids.

IOWA STATE SALES TAX: This project is tax exempt. **Do Not** include Iowa State Sales Tax in any calculation of Bid totals, except as provided by the State of Iowa Department of Revenue. Contractors and Suppliers will be provided an Iowa sales tax exemption certificate for this project.

BASIS OF BIDS:

The Bidder shall include all requested Forms and attachments with their submission of the Bid Form; failure to comply may be cause for rejection.

Consideration of bids and the award of sub- contracts may be made by the NICC Board of Trustees to the lowest responsive, responsible bidder determined on the basis of base bid for each sub-contract or a combination of the base bid for each contract and selected alternates at its meeting on **February 21, 2022** in the Northeast Iowa Community College Board Room, Peosta, Iowa. The right is reserved to reject any and all bids, or any part thereof, and to waive informalities or irregularities and to enter into such Contract or Contracts as shall be deemed in the best interest of Northeast Iowa Community College.

By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor.

All bids will be governed by applicable provisions in the Iowa Code and NICC Board Policies, including its Non-Discrimination Equal Employment Opportunity and Affirmative Action Policy.

Board Secretary
Northeast Iowa Community College

END OF SECTION 00 11 13

SECTION 00 11 14

SCHEDULE OF EVENTS

PLANT SERVICES MAINTENANCE BUILDING PHASE 1: EARTHWORK/ SITE UTILITIES/ SITE WORK PHASE 2: BUILDING CONSTRUCTION/ CONCRETE/ PAVING/ MEP WORK

NICC CALMAR CAMPUS

- **November 15, 2021** Request for Public Hearing
- December 13, 2021 Final Construction Documents Review
- **December 20, 2021** Public Hearing/Board Approval
- January 3, 2022 Publish Notice to Bidders
- January 4, 2022 Plans available; Begin Bid Period
- January 24, 2022 Pre-Bid Meeting (1:00pm-3:00pm)
- February 14, 2022 Bids Due
- February 15 – February 18, 2022 Bid Review
- February 15 – February 18, 2022 Contract Documents and Required Paperwork Prepared
- **February 21, 2022** Board Approval of Contract for Construction
- February 22, 2022 Award Contract; Begin Construction
- **Project Duration** = Approximately 7 Months
- **General | Phasing Plan Notes**
 - Phasing plans are representative in nature and convey Owner's needs to stage personnel and ongoing operations during Construction Activities.
 - Refer to Contract Drawings and Specifications for additional phasing and sequencing information.
 - Site work, including landscaping and seeding, may occur during multiple mobilizations. Refer to Civil Drawings and Construction Documents for additional information.
 - Construction schedule dates represent Owner's general understanding of anticipated project benchmarks. Contractor shall be responsible for coordinating actual dates with Owner.
 - Phases ending September 30, 2022 shall be substantially complete including punchlist items affecting Owner occupancy of spaces.
- **Planning / Pre-Construction Phase | Commence on February 22, 2022; completion March 30, 2022**
 - Includes both Phase 1 and Phase 2 contracts and consists of Product and Shop drawings submittals and approval; Substitution requests submittals; Design Build MEP drawings submittals and approvals; Construction schedule planning and coordination prior to starting construction. Approving and ordering materials with long lead times.
- **Phase 1 | Earthwork/ Site Utilities; Commence on Approximately March 30, 2022 or when frost is substantially out of ground; completion April 30, 2022 weather permitting**
 - Phase 1 - Project scope associated with Phase I – Over excavation and removal of unsuitable soils; installation and compaction of engineered fill soil; installation of site utilities to within 5'-0" to building. Install temporary erosion control and prepare site to "Rest" 4 weeks as required in the Soils Report.
- **Phase 2 | Building Construction & Concrete/ Plumbing/ HVAC/ Electrical/ Paving/ Commence on Approximately May 31, 2022 or 4 weeks after completion of Phase 1; Completion on August 31, 2022. Exterior Concrete/ HMA Paving/ Site Work, Completion, September 30, 2022**
 - Phase 2 - In general, Project scope associated with Phase 2 encompasses work to be coordinated with the construction of the Maintenance Building that includes: Construction of the pole building; mechanical, electrical, and plumbing installation and hook-up of utilities; Pouring concrete footings, foundations, floor slab, approaches, sidewalks, and curbs and gutters; interior finishes, caulking, sealing, and weatherproofing building; HMA paving of parking and drives; Site Work, finish grading, landscaping, and permanent erosion control upon completion of project on September 30, 2022.
- February 22, 2022 Planning/ Pre-Construction Phase
- March 30, 2022 Phase 1 – Earthwork/ Site Utilities
- April 30, 2022 Site "Rest & Settlement" per Geotechnical Report
- May 31, 2022 Phase 2 – Building Construction
- August 31, 2022 Substantial Completion of Building Construction

- September 30, 2022.....Substantial Completion of Exterior Concrete/HMA Paving/ Site Work

(*) Indicates date of regular Board Meeting

*** The Owner reserves the right to amend these dates as required for Owner operations ***

END OF SECTION 00 11 14

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

To be considered, prepare Bids in accordance with these Instructions to Bidders.

DOCUMENTS:

Paper copies of the Bidding Documents may be obtained by contacting Tri-State Blueprint/Technographics, upon depositing the sum of \$250.00 (checks made out to Northeast Iowa Community College) per set of documents or receipt of AGC, AMC, AMEC, MBI, or NECA card, or by contacting Straka Johnson Architects, PC.

Tri-State Blueprint/Technographics
Phone: (563) 556.3030
Address: 696 Central Avenue, Dubuque, IA 52001
Email: tristate@rapidsrepro.com
Website: www.tristate.techiowa.com/companyinfo/tristate.html

Deposits for hard copies of the documents shall be refunded upon return of the contract documents within fourteen (14) days after Award of Contract. If the contract documents are not returned in a timely manner and in a reusable condition, the deposit shall be forfeited. The Owner requests that non-bidders return documents as soon as possible before bid opening. Successful bidders will be allowed to retain the document sets in their possession and have their deposit(s) refunded to them.

Electronic Bidding Documents are available for review and download from Rapids Reproductions for no charge by logging onto - or registering with - the following service:

Rapids Reproductions Document Fulfillment Service (DFS): <http://dfs.rapidsrepro.com>

EXAMINATION:

Bidders shall use complete sets of bidding documents in preparing Bids. Examine the documents and the construction site to obtain first-hand knowledge of existing conditions. Extra compensation will not be given for conditions that can be determined by examining the documents and site.

Each bidder, by submitting a bid, represents that he/she has read and understands the Bid Documents. Any and all work necessary for a total and complete project shall and will be included.

Bidders are cautioned to be alert for the possibility of missing Project Manual pages. In all cases, pages are numbered consecutively within each section, and "END OF SECTION" identifies the final page of each section.

Bidding documents may be examined by contacting Normand Racicot at 563-202-0426, located in Operations Office Room 142 of the Student Center Building at the NICC Calmar Campus. Bidding Documents may also be examined at the Architect's office and at the following locations:

CMD Group | Phone 630-288-7975 | www.cmdgroup.com
Dodge Data & Analytics | Phone 810-639-0660 | www.construction.com
Master Builders of Iowa | Phone 515-657-4388 | www.mbionline.com

Electronic Bidding Documents are available for review and download from iSqFt© for no charge by logging onto - or registering with - the following service: iSqFt©: <https://www.isqft.com/start/>

INSTRUCTIONS TO BIDDERS

The Instructions to Bidders, AIA Document A701, 2018 Edition, as published by the American Institute of Architects, Article 1 through 8, inclusive, is hereby made a part of the Contract Documents to the same extent and effect as if bound herein and as supplemented hereinafter; refer to Section 00 21 23 - Supplementary Instructions to Bidders, for modifications and clarifications to AIA A701 - Instructions to Bidders.

A copy of AIA Document A701 – 2018 is on file at the Architect's office. Copies of AIA Document A701 - Instructions to Bidders may be purchased through AIA Iowa's online store at <http://aiaia.affiniscape.com/storeindex.cfm> or viewed at the office of the Architect.

PRE-BID CONFERENCE:

A Pre-Bid Conference will be conducted on site at the project site on the NICC Calmar Campus on **Tuesday, January 24, 2022 starting at 1:00 pm local time**. While attendance is not mandatory, prospective Bidders are urged to attend this conference to familiarize themselves with the Project in general, and the Project Site in particular. The Conference will consist of a site tour starting at **1:00 pm** and ending at **2:00 pm**, followed by a Project overview and Question and Answer session starting at **2:00 pm** and ending at **3:00 pm**.

QUESTIONS AND INTERPRETATIONS:

Submit questions about the Bidding Documents to the Architect in writing. Replies will be issued to the Document holders of record as Addenda to the Drawings and Specifications and will become part of the Bidding Documents. The Architect and Owner will not be responsible for oral clarification.

Failure to request clarification will not waive the responsibility of comprehension of the documents and performance of the work in accordance with the intent of the documents. Signing of the Agreement will be considered as implicitly denoting thorough comprehension of the Bidding Documents.

Deadline for submission of questions, clarifications, product substitution requests and similar inquiries is forty-eight (48) hours before bid time; inquiries will not be accepted nor addressed via addenda after the deadline.

PRODUCT OPTIONS:

To obtain approval to use an unspecified product, deliver written requests to the Architect at least forty-eight (48) hours before the bids are due. Late requests will not be considered. Clearly describe and indicate the product for which approval is requested, including data, clearly marked necessary to demonstrate acceptability. Written request must indicate the section number and page number of the Specification for the request of the product being made. If the product is acceptable, the Architect will approve it in an Addendum issued to plan holders on record. The Architect, acting as the Agent of the District, will solely make the determination of equivalency for products other than those specified.

PROJECT CONDITIONS:

Due to the nature of the Project, the Work required by the Contract Documents shall be performed throughout an operational facility. Contractor shall perform the Work so as to cause a minimum of inconvenience to, and interruption of, the Owner's operations. Any and all potential interruptions of the operations of the Owner necessary for the performance of the Work shall be noted in the progress schedule and the Contractor shall additionally give the Owner sufficient advance notice of such interruption as to allow the Owner to adjust their operations accordingly. Contractor's failure to give the Owner timely notice of such intentions shall place the responsibility of any resulting delays or additional costs solely with the Contractor.

Further, since some work occurs within existing campus thus affected must be sufficiently complete and cleaned, including tools and materials removed from site, at the end of each day's work to allow for the continued operation of the facility by the Owner, with the only exceptions (School Days Off, for example) as noted in the Schedule of Events - Section 00 11 14 of this Specification - and in the official NICC Calendar.

BASIS OF BIDS:

Any and all information requested on Bid Form shall be supplied. Cost break downs, unit costs, etc. shall all be completely filled in. Failure to comply may be cause for rejection.

Also, refer to Section 00 41 14 for Acknowledgement and Certification and Section 00 41 15 for Iowa Bidder Status Form; these Forms shall be included with the Bid Form.

PREPARATION OF BIDS:

Submit bids on unaltered Bid Form found in the Project Manual. Bid amounts shall be both written and printed in the space provided. In case of conflicts between written and printed figures, the written amount will prevail. Acknowledge, in the space provided, the receipt of all addenda issued during the bidding period. Submit signed bids with name typed below signature. Bids which are not signed by the individuals submitting them should have attached thereto a power of attorney evidencing authority to sign the bid in the name of the person for whom it is signed.

Bids which are signed for a partnership should be signed for the partners or by an attorney-in-fact. If signed by an attorney-in-fact, there should be, attached to the bid, a power of attorney evidencing authority to sign the bid executed by partners.

Bids which are signed for a corporation shall include the correct corporate name thereof and the state of incorporation. The signature of the president or other authorized officer of the corporation shall be manually written below the corporate name following the word "By ____." If such a bid is manually signed by an official rather than the president of the corporation, a certified copy of a resolution of the Board of Directors evidencing authority of such official to sign the bid should be attached to it. Such a bid should also bear the attesting signature of the secretary of the corporation in impression of the corporate seal.

BID SECURITY:

Each bid shall be accompanied by bid security in the form of either a cashier's check, certified check, credit union certified share draft, or AIA A310 Bid Bond, issued by surety licensed to conduct business in the State in which the project is to be built in an amount equal to 10% of the Bid sum. The successful bidder's security will be retained until the signed Agreement from the successful bidder has been returned and the required performance and payment bonds have been furnished to the Architect.

No bid will be considered unless it is accompanied by an acceptable Bid Security, as stated above. The Bid Security which must accompany each bid is required as a guarantee that the bidder will enter into a contract with the Owner for the work described in the proposal and furnish a performance and payment bond and certificates of insurance as specified after notice by the Owner or Architect that contracts have been awarded to him and are ready for execution.

The Owner reserves the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Agreement has been executed and bonds have been furnished, (b) the specified time for holding bids has elapsed, or (c) all Bids have been rejected. The Bid Security of the unsuccessful bidders shall be returned as soon as the successful bidder is determined or within thirty (30) days, whichever is sooner, unless otherwise mutually agreed to by the Owner and the affected bidder(s).

If any bidder refuses to enter into Agreement, bid security will be retained as liquidated damages, but not as a penalty.

PERFORMANCE BOND AND PAYMENT BOND:

Furnish and pay for bonds covering faithful performance of the Agreement and payment of obligations arising there under. Furnish bonds on AIA A312 or in such form as the Owner may prescribe and with Surety Company acceptable to the Owner. Upon execution of the contract or within seven (7) days thereafter the successful bidder shall deliver said performance and payment bonds to the Owner. Failure or neglecting to deliver said bonds, as specified, shall be considered as having abandoned the Agreement and the Bid Security will be retained as liquidated damages.

SUBCONTRACTORS:

A list of Principal Suppliers shall be submitted to the District within twenty-four (24) hours of bidding, for review.

SUBMITTAL:

Submit completed bid and other required attachments in sealed opaque envelopes clearly marked with (1) Project name and (2) name and address of bidder. No responsibility shall be attached to the Architect, Owner or their authorized representative for the premature opening of any bid not properly addressed and identified.

Faxed, telephonic or oral bids will not be acceptable.

MODIFICATION AND WITHDRAWAL OF BIDS:

Bidders may withdraw their bids at any time before bids are due. Bids may be modified and resubmitted or new bids submitted, so long as the requirements for submittal of bids are met and bids have not yet been opened. No bid may be withdrawn during the bid holding period stated in the Bid Form.

DISQUALIFICATION:

The Owner reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices upon the part of the bidder.

GOVERNING LAWS AND REGULATIONS – NON-DISCRIMINATION POLICY:

Contracts for work under the bid will obligate the contractor and subcontractors not to discriminate in employment practices. See section 00 73 00 for supplementary conditions regarding Non-Discrimination.

OPENING:

Bids will be opened as announced in the Advertisement for Bid. Low bid will be established on the basis of the Base Bid, or, at the sole discretion of the Owner, the Base Bid in combination with any selected alternates.

AWARD:

It is the intent of the Owner to award a Contract to the lowest responsive, responsible bidder in accordance with Iowa law.

Before the award of Contract, the Owner will be satisfied that the bidder involved:

- Maintains a permanent place of business.
- Has adequate equipment to execute the work properly and expeditiously.
- Has suitable financial status to meet obligations incidental to the work.
- Has appropriate technical experience.
- Has satisfactorily completed contracts of similar nature and magnitude.

PREQUALIFICATION:

Each bidder shall be prepared, if so requested by the Owner, to present evidence of his/her experience, qualifications, and financial ability to carry out the terms of the Contract.

EXECUTION OF CONTRACT:

The Owner reserves the right to accept any bid, and to reject any or all bids, or to negotiate, where possible, Contract Terms with the various bidders, when such is deemed by the Owner to be in its best interest. The Agreement for the work will be written on AIA Document A101 - 2017. The bidder will cooperate with the Owner in preparing the formal Contract Agreement and within three (3) days following its preparation shall execute same and return it to the Owner. Upon execution of the contract or within seven (7) days thereafter the successful bidder shall file insurance certificates with, and deliver performance and payment bonds to, the Owner.

Notwithstanding any delay in the preparation and execution of the formal Contract Agreement, each bidder shall be prepared, upon written notice of bid acceptance, to commence work within ten (10) days following receipt of official written order of the Owner to proceed, or on date stipulated in such order. No work shall commence until the Owner receives the insurance certificates and performance and payment bonds

END OF SECTION 00 21 13

SECTION 00 21 23

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

The following supplements modify the "Instructions to Bidders", AIA Document A701 – 2018. Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions to Bidders, the unaltered portions of the Instructions to Bidders shall remain in full force and effect.

1. ARTICLE 1: DEFINITIONS - No modifications.

2. ARTICLE 2: BIDDERS REPRESENTATIONS

- a. Add the following Clause 2.1.3.1 to 2.1.3:
“2.1.3.1 The Bidder acknowledges and understands all required fees, permits, and regulatory requirements of authorities having jurisdiction and has properly included in the submitted Bid the cost of all such fees, permits, and requirements, whether or not specifically indicated as provided by Owner.”
- b. Add the following sub-paragraph 2.1.7 and associated Clauses to 2.1:
“2.1.7 Bidders are to be aware of and comply with the governing rules, laws and regulations, tax laws, registration and bonding requirements that apply to the Project and the State of Iowa, and meets qualifications indicated in the Procurement and Contracting Documents.”

3. ARTICLE 3: BIDDING DOCUMENTS

- a. Add the following sub-paragraph 3.2.4 and associated Clauses to 3.2:
“3.2.4 In the case of errors, inconsistencies, or ambiguities in the Bidding Documents that are not interpreted or clarified by addendum, or discovered without sufficient time to be included in an addendum, the following applies:
 - .1 The better quality or greater quantity of Work shall be provided.
 - .2 To the best of their ability, the Bidders shall determine the proper methods or materials required to fulfill the design intent of the Bidding Documents and include the cost of providing such methods or materials in the Bid. If required, submit supplemental information, attached to the Bid, explaining the methods or materials included in the Bid.
 - .3 Failure to request clarification will not waive the responsibility of comprehension of the documents and performance of the work in accordance with the intent of the documents. Signing of the Agreement will be construed as thorough comprehension of the intent of the Bidding Documents.”
- b. Paragraph 3.3 - Substitutions: Add the following Subparagraph:
"3.3.5.1 Where the Contractor chooses to use an item approved by request but other than 1 shown on the details or specified, he shall be responsible for the coordination of any necessary changes in other work, and shall bear the cost of such changes."
- c. Paragraph 3.4 - Addenda: Add the following sub-subparagraph 3.4.5 to 3.4:
3.4.5 An extra Bid Form will be sent along with addendum for the Bidder's use, and the Bidder may also, if so desired, remove the Bid Form bound in these specifications.
- d. Add the following sub-subparagraph 3.4.6 to 3.4:
3.4.6 Addenda Schedule:
 - .1 Addenda 1: On or about August 4, 2021
 - .2 Addenda 2: On or about August 18, 2021

4. ARTICLE 4: BIDDING PROCEDURES

- a. Paragraph 4.2 - Bid Security: Make the following modifications:
Delete Paragraph 4.2.1 in its entirety and substitute the following:
"4.2.1 No bid will be considered unless it is accompanied by a cashier's check, certified check, credit union certified share draft or acceptable Bid Bond payable without condition to the Owner, in an amount equal to 10% of the total bid. The cashier's check, certified check, credit union certified share draft or Bid Bond which must accompany each bid is required as a guarantee that the bidder will enter into a contract with the Owner for the work described in the proposal and furnish a performance and payment bond and certificates of insurance as specified after notice by the Owner or Architect that contracts have been awarded to him and are ready for execution."

- b. Add the following sentence to Subparagraph 4.2.3:
"The Bid Security of the unsuccessful bidders shall be returned as soon as the successful bidder is determined, or within thirty (30) days, whichever is sooner, unless otherwise mutually agreed to by the Owner and the affected bidder(s)."
- c. Paragraph 4.4 - Modification or Withdrawal of Bid: Make the following modifications:
Add the following sentence to the beginning of subparagraph 4.4.3:
"A Bid may not be modified, withdrawn or canceled by the Bidder for a period of forty-five (45) days following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid."

5. ARTICLE 5: CONSIDERATION OF BIDS - No modifications.

6. ARTICLE 6: POST-BID INFORMATION

- a. Add the following sub-subparagraph 6.3.1.4 to 6.3.1:
"4 The Bidder shall submit a list of Principal Subcontractors for the Owner's review within twenty-four (24) hours of bidding."

7. ARTICLE 7: PERFORMANCE BOND AND PAYMENT BOND

- a. Article 7: Delete this Article in its entirety. Refer to Section 00 73 00 - Supplementary Conditions, Paragraph 11.5 for bond requirements.

8. ARTICLE 8: ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

- a. Paragraph 8.1: Make the following modifications:
Delete Paragraph 8.1.4 in its entirety.
Modify Paragraph 8.1.5 - Drawings, as follows:
Under Drawings and the words "All Drawing Sheets"
Modify Paragraph 8.1.6 - Specifications, as follows:
Under Specifications add the words "All Specification Sections"
Modify Paragraph 8.1.7 - Addenda, as follows:
Under Addenda add the words "All Addenda"
Modify Paragraph 8.1.8 - Other Exhibits, as follows:
Under Supplementary and other Conditions of the Contract, refer to "Section 00 73 00 - Supplementary Conditions"

END OF SECTION 00 21 23

SECTION 00 31 32

GEOTECHNICAL REPORT

- A.** Geotechnical Report provided by **Chosen Valley Testing, Inc.**
 - a. See attached

END OF SECTION 00 31 32



Design Phase Geotechnical Report:

Proposed NICC Maintenance Facility
1625 Iowa Highway 150
Calmar, Iowa
CVT# 18098.21.IAM

Prepared for:

Mr. Normand Racicot
Northeast Iowa Community College

Certification:

	<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.</p>
	<p> _____ (signature) April 7, 2021 _____ (date)</p> <p>Printed or typed name: <u>Matthew J. Reisdorfer, PE.</u></p> <p>License number: <u>22234</u>.</p> <p>My license renewal date is <u>December 31, 2021</u>.</p> <p>Pages or sheets covered by this seal:</p>

Chosen Valley Testing, Inc.

Geotechnical Engineering and Testing • 421 North Georgia Avenue, Mason City, Iowa 50401 • Telephone (641) 201-1050 • masoncity@cvtesting.com

Mr. Normand Racicot
Construction Manager
Northeast Iowa Community College
PO Box 400
Calmar, Iowa 52132

April 7, 2021

Cc: Mr. Jon Biederman, PE, LSI
Fehr Graham
jbiederman@fehr-graham.com

**Re: Design Phase Geotechnical Evaluation
Proposed NICC Maintenance Facility
1625 Iowa Highway 150
Calmar, Iowa
CVT Project Number: 18098.21.IAM**

Dear Mr. Racicot:

We have completed the geotechnical evaluation authorized for the proposed maintenance facility at Northeast Iowa Community College in Calmar, Iowa. This letter briefly summarizes the findings and analysis detailed in the attached geotechnical report.

Summary of Boring Results

Borings: At the surface, the borings encountered about ½ to 2 feet of slightly organic lean clay topsoil. A layer of aggregate base, about 8 inches thick was met below the topsoil in the southwest boring. Clay fill followed the topsoil layer in the eastern borings and was met below the aggregate base layer, to a depth of about 2 feet.

Loess consisting of lean clay and silty clay followed the topsoil layer in the northwest boring and was also met below the fill layers. The loess was encountered to depths of about 18 to 20 feet.

Glacial till consisting mostly of sandy lean clay was met below the loess layers. The borings terminated in glacial till clays at depths of about 21 feet below the surface.

Groundwater: Water was encountered in the southeast boring during drilling, at a depth of about 13 feet below the surface. The observed water level corresponds to an elevation of about 1236 feet on the datum used to measure the borings. Elevated moisture contents were recorded in the loessial clays. This is likely due to water becoming trapped within the less permeable clay soils. Water levels are expected to fluctuate with seasonal weather patterns along with water levels in nearby creeks and rivers.

Summary of Analysis and Recommendations

The topsoil and fill not suitable for support of the structure, and should be completely removed from below the building an oversize areas. The topsoil was about ½ to 2 feet thick while the fill was met to depths of about 2 feet.

After surface removals have been performed, the exposed subgrade is expected to consist of loess. The loess was soft during our exploration and are expected to be compressible under the assumed building loads and volume of fill require to obtain finished grades. We recommend grading the building to bottom of slab grade, and then allowing the building pad to “rest”, undisturbed for a period of four weeks, to allow time for the underlying native soils to settle under the weight of the newly placed fill. The installation of foundations and utilities should not take place until the “rest” period is complete.

We recommend geotechnical personnel from Chosen Valley Testing be made available to observe bearing conditions, and to recommend suitability of the exposed soils, or if further corrections are required.

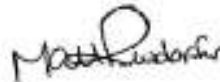
Frost depth footings are expected to bear upon engineered fill overlying native clays. With the assumed foundation loads and implementation of the earthwork recommendations, we are of the opinion that foundations should be designed using a bearing pressure of 1,500 psf.

Based on these design bearing pressures, total post-construction settlements are expected to be 1 inch or less, and differential settlement is expected to be ½ inch or less between footings that are similarly loaded.

Remarks

For more details of our analysis and recommendations, please see the attached report. We appreciate the opportunity to help you on this project. If you have any questions or need additional information, please contact us at (641) 201-1050.

Sincerely,
Chosen Valley Testing, Inc.



Matt Reisdorfer, PE
General Manager/Geotechnical Engineer

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Boring Location Sketch
Log of Boring # 1-4
Legend to Soil Description

**Design Phase Geotechnical Evaluation
Proposed NICC Maintenance Facility
1625 Iowa Highway 150
Calmar, Iowa**

CVT Project Number: 18098.21.IAM
April 7, 2021

A. Introduction

The intent of this report is to present our findings and describe the means used to collect the data. The data was collected for a specific purpose and may not be suitable for other purposes. We should be consulted before attempting to use the data for other uses. A complete and thorough review of the entire document, including its assumptions and its appendices, should be undertaken immediately upon receipt.

A.1. Purpose

This geotechnical report was prepared to aid design and construction of the proposed maintenance facility at Northeast Iowa Community College in Calmar, Iowa. Our services were authorized by Mr. Normand Racicot, Construction Manager for Northeast Iowa Community College.

A.2. Scope

To provide data for analysis, a total of four penetration test borings were authorized. The borings were drilled to depths of about 21 feet below the surface. Our scope included recommendations for design of foundations, slabs and pavements as well as recommendations for earthwork corrections.

A.3. Boring Locations

The desired boring locations were selected by Chosen Valley Testing (CVT) based on schematic drawing provided to us by Fehr Graham. The boring location sketch in the Appendix shows the approximate locations of the soil borings as drilled.

The ground surface elevation at the borings were provided to CVT based on on-site staking, provided by Fehr Graham.

A.4. Geologic Background

A geotechnical report is based on subsurface data collected for the specific structure or problem. Available geologic data from the region can help interpretation of the data and is briefly summarized in this section.

Geologic maps of the area indicate that the dominant soils in the area consists of loessial (wind-deposited) clays and silts underlain by glacial till deposits of clay, silt and sand mixtures. Bedrock is typically within 50 feet of the surface. The uppermost bedrock is commonly dolomite from the Wapsipinicon Group and Maquoketa Formation.

B. Exploration Results

The borings were performed using penetration test procedures (Method of Test D1586 of the American Society for Testing and Materials). This procedure allows for the extraction of intact soil specimen from deep in the ground. With this method, a hollow-stem auger is drilled to the desired sampling depth. A 2-inch OD sampling tube is then screwed onto the end of a sampling rod, inserted through the hole in the auger's tip, and then driven into the soil with a 140-pound hammer dropped repeatedly from a height of 30 inches above the sampling rod. The sampler is driven 18 inches into the soil, unless the material is too hard. The samples are generally taken at 2½ to 5-foot intervals. The core of soil obtained is classified and logged by the driller and a representative portion is then sealed and delivered to the soils engineer for review.

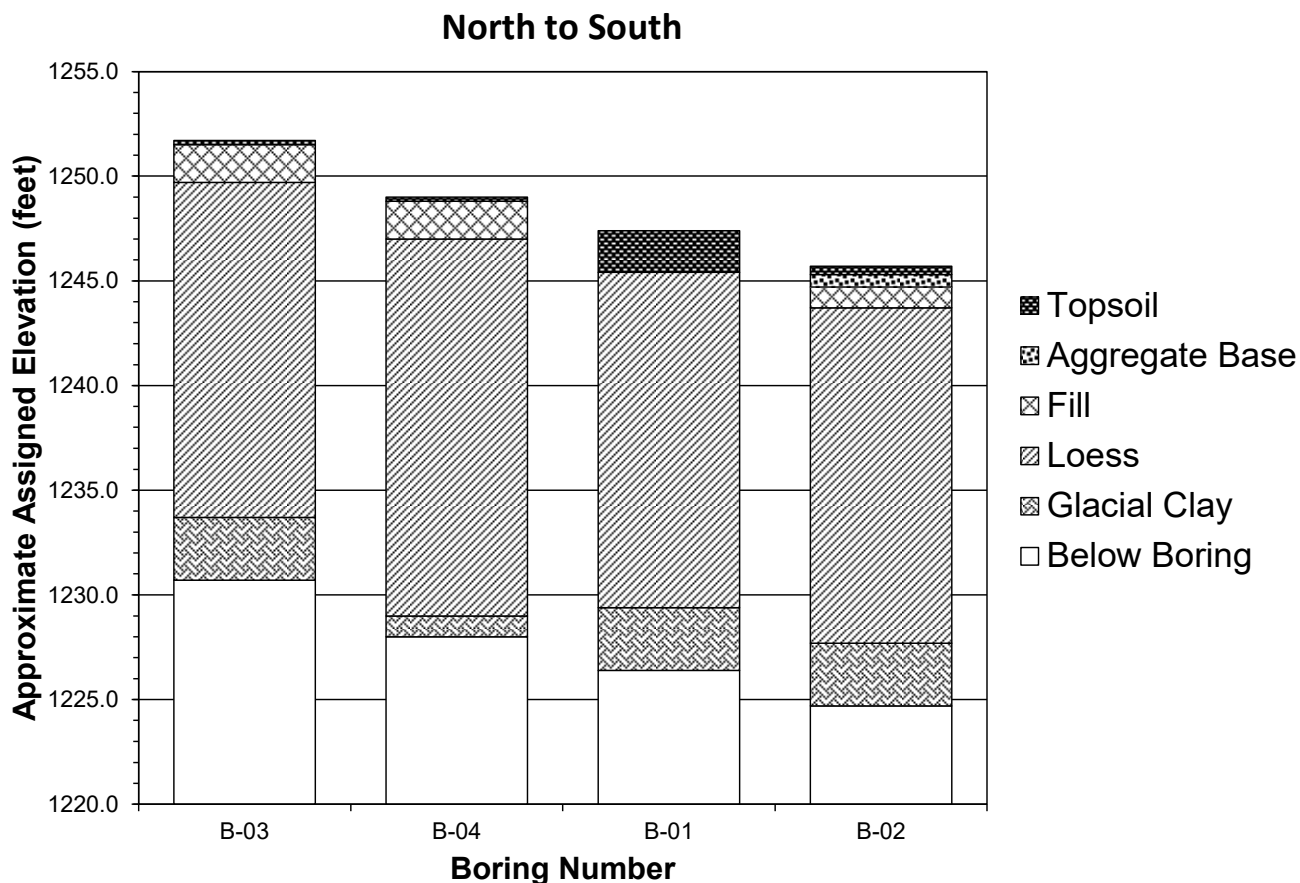
B.1. Stratification

At the surface, the borings encountered about ½ to 2 feet of slightly organic lean clay topsoil. A layer of aggregate base, about 8 inches thick was met below the topsoil in the southwest boring (Boring B-2). Clay fill followed the topsoil layer in the eastern borings (Borings B-3 and B-4) and was met below the aggregate base layer, to a depth of about 2 feet.

Loess consisting of lean clay and silty clay followed the topsoil layer in the northwest boring (Boring B-1) and was also met below the fill layers. The loess was encountered to depths of about 18 to 20 feet.

Glacial till consisting mostly of sandy lean clay was met below the loess layers. The borings terminated in glacial till clays at depths of about 21 feet below the surface.

The soil boring data has been summarized in the following cross-section. Please refer to the individual log of boring sheets for more detailed information.



B.2. Penetration and Laboratory Test Data

The number of blows needed for the hammer to advance the penetration test sampler is an indicator of soil characteristics. The number of blows to advance the sampler 1 foot is called the penetration resistance or "N"-value. The results tend to be more meaningful for natural mineral soils, than for fill soils. In fill soils, compaction tests are more meaningful.

Penetration resistance values ("N" Values) of 0 to 6 blows per foot (BPF) were recorded in the loess, indicating they were very soft to medium. N-Values of 5 to 12 BPF were recorded in the glacial till clay, indicating they were rather soft to rather stiff.

A key to the descriptors used to qualify the relative density of soil (such as *soft*, *stiff*, *loose*, and *dense*.) can be found on the Legend to Soil Description in the Appendix.

A pocket penetrometer was used to provide additional data on the compressive strength of cohesive soils. The loess returned values of less than ¼ to 1 ¼ tons per square foot (tsf). The glacial till clays returned values of ¾ to 1 ¼ tsf.

B.3. Ground Water Data

Methods: During drilling, the drillers may note the presence of moisture on the sampler, in the cuttings, or in the borehole itself. These findings are reported on the boring logs. Because water levels vary with weather, time of year, and other factors, the presence or lack of water during exploration is subject to interpretation and is not always conclusive.

Water was encountered in the southeast boring during drilling, at a depth of about 13 feet below the surface. The observed water level corresponds to an elevation of about 1236 feet on the datum used to measure the borings. Elevated moisture contents were recorded in the loessial clays. This is likely due to water becoming trapped within the less permeable clay soils. Water levels are expected to fluctuate with seasonal weather patterns along with water levels in nearby creeks and rivers.

C. Design Information

Each structure has a different loading configuration and intensity, different grades, and different structural and performance tolerances. Therefore, the geotechnical exploration will be construed differently from one structure to another. If the initial structure should change design, we should be engaged to review these conditions with respect to the prevailing soil conditions. Without the opportunity to review any such changes, the recommendations may no longer be valid or appropriate.

The project consists of the construction of a new, 6,000 square-foot maintenance facility. The building is assumed to be single-story, slab-on-grade supported on frost-depth concrete foundations. The superstructure is assumed to consist of steel framing.

Loading information was not available to us at the time of this report. Maximum column loads are assumed to be on the order of 75 kips. We have assumed wall loads would be negligible.

We have assumed the finished floor of the building would be near elevation 1250.0 feet. Based on the assumed finished floor elevation, up to 4 feet of new fill would be required to obtain finished grades.

D. Analysis

The topsoil and fill not suitable for support of the structure, and should be completely removed from below the building and oversize areas. The topsoil was about ½ to 2 feet thick while the fill was met to depths of about 2 feet.

After surface removals have been performed, the exposed subgrade is expected to consist of loess. The loess was soft during our exploration and are expected to be compressible under the assumed building loads and volume of fill required to obtain finished grades. We recommend grading the building to bottom of slab grade, and then allowing the building pad to “rest”, undisturbed for a period of four weeks, to allow time for the underlying native soils to settle under the weight of the newly placed fill. The installation of foundations and utilities should not take place until the “rest” period is complete.

We recommend geotechnical personnel from Chosen Valley Testing be made available to observe bearing conditions, and to recommend suitability of the exposed soils, or if further corrections are required.

Frost depth footings are expected to bear upon engineered fill overlying native clays. With the assumed foundation loads and implementation of the earthwork recommendations, we are of the opinion that foundations should be designed using a bearing pressure of 1,500 psf.

Based on these design bearing pressures, total post-construction settlements are expected to be 1 inch or less, and differential settlement is expected to be ½ inch or less between footings that are similarly loaded.

E. Building Recommendations

E.1. General Grading Recommendations

E.1.a. Surface Removals: The topsoil and fill not suitable for support of the structure and should be completely removed from below the building on oversize areas. The topsoil was about ½ to 2 feet thick while the fill was met to depths of about 2 feet.

E.1.b. “Rest” Period after Grading: After surface removals have been performed, the exposed subgrade is expected to consist of loess. The loess was soft during our exploration and are expected to be compressible under the assumed building loads and volume of fill require to obtain finished grades. We recommend grading the building to bottom of slab grade, and then allowing the building pad to “rest”, undisturbed for a period of four weeks, to allow time for the underlying native soils to settle under the weight of the newly placed fill. The installation of foundations and utilities should not take place until the “rest” period is complete.

E.1.c. Geotechnical Review of Excavations: We recommend geotechnical personnel from Chosen Valley Testing be made available to observe bearing conditions, and to recommend suitability of the exposed soils, or if further corrections are required.

E.1.d. Oversizing: Any corrective excavations should be oversized at least 1 foot beyond the foundations for each foot of fill needed below footing grade. This over-sizing can be reduced by up to 50% if rather precise staking is present during grading, and the excavation limits can be rather precisely confirmed relative to the foundations.

E.1.e. Filling and Compaction: For ease in compaction, we recommend using imported sand or gravel having less than 15% particles passing a number 200 sieve, as engineered fill for the project. Aggregate base, limestone screenings and recycled concrete could also be considered for use as engineered fill, provided the material can be adequately moisture conditioned to achieve specified compaction.

The on-site lean clay fill and imported lean clay are judged to be suitable for use as engineered fill, provided they can be adequately compacted and moisture conditioned.

All fill below building and oversizing areas should be compacted to a minimum of 95% of its maximum standard Proctor density (ASTM D 698). We recommend clayey soils be placed with a moisture tolerance of 2% below to 4% above the materials optimum moisture content as determined from the standard Proctor test.

We recommend the upper 6 inches of fill placed directly below the slabs consist of clean fill (having less than 5% particles passing the number 200 sieve).

E.2. Building Design

E.2.a. Foundation Design: Based on the soils encountered during drilling, the structure can likely be supported on spread footings. If imported sand or gravel is used as engineered fill of the building pad, then formed footings and formed walls will likely be required for construction of foundations. If lean clays are used as engineered fill of the building pad, then trench footings could be considered for construction of foundations.

For frost protection, we recommend that exterior foundations for heated structures bear on soils at least 42 inches below the exposed ground surface. Interior footings for heated structures can be placed directly below slabs. Footings for unheated structures should be placed 60 inches below the surface.

E.2.b. Bearing Capacity: Frost depth footings are expected to bear upon engineered fill overlying native clays. With the assumed foundation loads and implementation of the earthwork recommendations, we are of the opinion that foundations should be designed using a bearing pressure of 1,500 psf.

E.2.c. Settlement: Based on these design bearing pressures, total post-construction settlements are expected to be 1 inch or less, and differential settlement is expected to be ½ inch or less between footings that are similarly loaded.

E.2.d. Vapor Barrier and Drainage: If the slab will receive coverings that are less permeable than concrete, a vapor barrier should be placed below the slab. Some contractors prefer to place this barrier below sand, to limit the potential for curling.

Due to the anticipated depth of foundations, a below grade drainage system is likely unnecessary. Furthermore, a below slab drainage system is likely unnecessary due to the recommended placement of six inches of clean granular fill, which will aid in below slab water removal. We recommend fill placed against the exterior of the building be shaped in manner to allow for positive drainage of stormwater away from the building. The surface adjacent to foundations should be capped with either low permeable clay or pavements.

E.2.e. Slab Design: As previously mentioned, the exposed subgrade is expected to consist of at least 6 inches of clean granular fill overlying native clays or imported engineered clayey fill. We recommend using a modulus of subgrade reaction of up to 75 pounds per cubic inch (pci) for slab design for subgrades.

E.3. Seismic Design

In accordance to the 2018 International Building Code (IBC), the site profile is considered to rate as Site Classification D.

F. Paved Areas

F.1. Stripping and Grading

We recommend stripping the topsoil from below areas to receive changes in grades and new pavements. The topsoil was about ½ to 2 feet thick at the locations explored.

After removals, the exposed subgrade is expected to consist of lean clays. We recommend scarifying, moisture conditioning and re-compacting the subgrade with a vibratory sheepsfoot compactor prior to placement of new fills.

Much like the building pad, we have assumed fill on the order of 4 feet will be needed in portions of the site. We recommend the fill material in the pavement areas be allowed to rest, undisturbed for four weeks to allow for the underlying native soils time to consolidate under the weight of the newly placed fill. The fill placed in the pavement area can be driven upon during this time period, however we recommend utilities not be installed during the at rest time period.

If granular fill is needed, the surface receiving the granular materials should be sloped to provide positive drainage out from under the paved areas. This is intended to prevent water from ponding below the pavements and causing localized weak areas, frost boils or “bird baths.”

All subgrade and subbase materials encountered within 3 feet of the bottom of pavements should be compacted to at least 98% of the soil’s standard Proctor density and should be able to pass a test roll using a fully-loaded, tandem-axle dump truck. Any fill placed below this zone should be compacted to at least 95% of the soil’s standard Proctor density.

It should be noted that the lean clays encountered at the site were very soft and are likely to become unstable if driven upon. The same can be said for imported clay fill soils, if subjected to weather events. If soft areas are encountered, or if weather or schedule dictates, any poor soils encountered should be stabilized as needed with drier soils, additional granular subbase materials, Geogrid, or other materials as dictated by the conditions observed.

F.2. Pavement Design

Fill consisting of lean clay, sand or gravel is expected to required to obtained finished subgrade elevations. The lean clay soils would be expected to have a modulus of subgrade reaction of 75 pounds per cubic inch (pci). Sands would be expected to have a modulus of subgrade reaction of 150 pci.

The proposed parking areas are assumed to receive medium-duty traffic. We recommend a pavement section consisting of 7 inches of Portland Cement Concrete (PCC) underlain by 7 inches of aggregate base, or 6 inches of asphalt underlain by 10 inches of aggregate base.

G. Construction Recommendations

G.1. Excavation

Stripping can likely be performed with a variety of equipment, provided the soils are not overly wet. A backhoe is recommended to complete the deep excavations. The backhoe should have a shovel with a smooth lip, to limit disturbance to those materials left in place.

Subgrade soils are expected to consist of lean clays. The clay soils were soft and very wet at the time of exploration, and are expected to be easily disturbed if driven upon. We recommend limiting construction traffic from traversing the exposed clayey subgrade. If traffic and equipment is to drive over the native subgrade, we recommend using low-pressure tracked equipment, or providing additional granular subbase material to limit disturbance of the underlying subgrade soils.

G.2. Groundwater/De-watering

Water was encountered in one of the borings during drilling, at about 13 feet below the surface. The near surface soils were very wet. We would expect water to leach into and perch above the floor of the excavation where clays were encountered. We would expect a series of sump pumps and sump pits would be capable of removing any water that may accumulate within excavations.

G.3. Sideslopes

The contractor will be required to slope or shore the excavations as needed to meet OSHA requirements for safety. Clayey soils will likely classify as Type B soils as defined by OSHA. Sands and saturated clays would likely classify as Type C soils. Trench boxes or other stabilization methods will likely be necessary.

G.4. Filling and Compacting

Fill should be placed in lifts adjusted to the compactor being used and the material being compacted. We recommend limiting lifts to no more than 12 inches for the recommended fill materials – assuming large, self-propelled or tow behind compactors are used.

If site grading is anticipated during cold weather, we recommend that good winter construction practices be observed. All snow and ice should be removed from cut and fill areas prior to additional grading. No fill should be placed on soils that have frozen or contain frozen material. Frozen soils should not be used as fill.

G.5. Construction Testing and Documentation

The bottom of all excavations should be evaluated and documented by geotechnical personnel, after the unsuitable soils are removed from the building site, and before filling. Fill placed below building and paved areas should be evaluated for conformance to the project gradation recommendations and should be tested for compaction. If the filling proceeds during periods of freezing weather, full-time testing should be considered to help confirm that imported fill is thawed prior to and during compaction, and that all snow has been removed before placement of the fill.

Although our firm offers testing services relating to civil and structural components of the building (such as concrete testing, reinforcement observations, etc.) specification of such services is beyond our work scope and the designer should be consulted as to such requirements.

H. Level of Care

The services provided for this project have been conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in this area, under similar budget and time constraints. This is our professional responsibility. No other warranty, expressed or implied, is made.

Appendix

Boring Location Sketch

Log of Boring # 1-4

Legend to Soil Description

Soil Boring Location Sketch


Proposed NICC Maintenance Facility

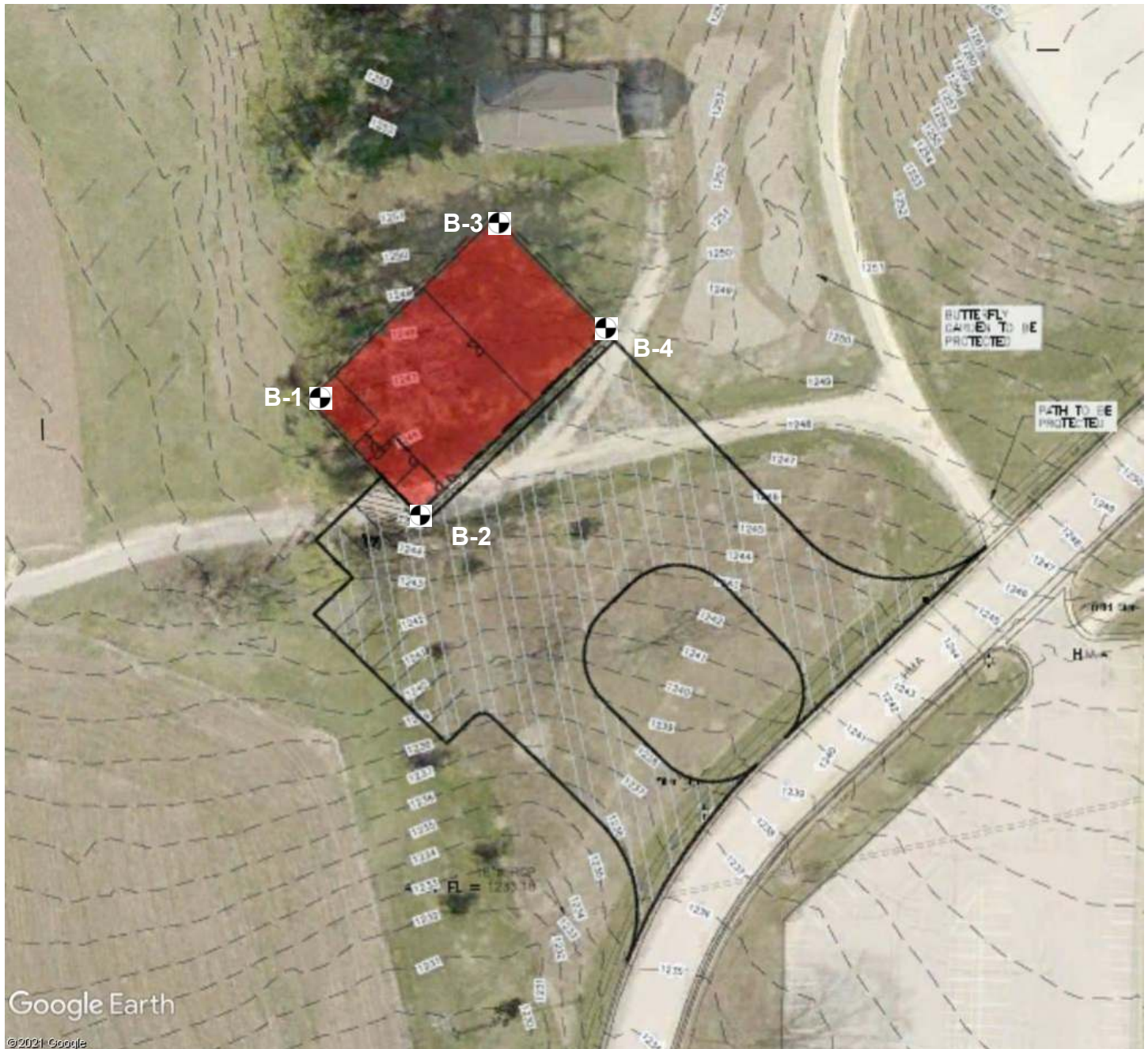
1625 Iowa Highway 150

Calmar, Iowa

18098.21.IAM

Legend

 Boring locations



LOG OF BORING

CHOSEN VALLEY TESTING



PROJECT: 18098.21.IAM Design Phase Geotechnical Evaluation NICC Maintenance Building 1625 Iowa Highway 150 Calmar, Iowa				BORING: B-01		
				LOCATION: See attached sketch		
				DATE: 3/30/2021	SCALE: 1" = 3'	
Elev. 1247.4	Depth 0.0	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
		CL OL	<u>Slightly Organic LEAN CLAY</u> (Topsoil)			Elevations provided by Fehr Graham.
1245.4	2.0	CL	<u>LEAN CLAY</u> trace of sand, trace of organics, brown, wet, soft. (Loess)	2		PP = 1.0 tsf MC = 25.3%
1243.4	4.0	CL ML	<u>SILTY CLAY</u> trace of sand, brown, wet, soft to rather soft. (Loess)	2		PP = 0.5 tsf
				4		PP = 1.25 tsf MC = 28.3%
				4		PP = 0.25 tsf
				3		PP < 0.25 tsf MC = 26.7%
				4		PP = 0.5 tsf MC = 26.3%
1229.4	18.0	CL	<u>LEAN CLAY</u> trace of sand, brown, wet, rather stiff. (Glacial Till)			
1226.4	21.0			9		PP = 1.0 tsf MC = 16.2%
			End of Boring. Boring sealed upon completion.			

CVT STANDARD 18098.21.IAM (NICC MAINTENANCE BUILDING).GPJ LOG A.GNIN06.GDT 4/7/21

LOG OF BORING

CHOSEN VALLEY TESTING



PROJECT: 18098.21.IAM Design Phase Geotechnical Evaluation NICC Maintenance Building 1625 Iowa Highway 150 Calmar, Iowa				BORING: B-02		
				LOCATION: See attached sketch		
				DATE: 3/30/2021		SCALE: 1" = 3'
Elev. 1245.7	Depth 0.0	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1245.3	0.4	CL	<u>Slightly Organic LEAN CLAY</u> (Topsoil)			Elevations provided by Fehr Graham.
1244.7	1.0	OL				
		CL	<u>AGGREGATE BASE</u>			
1243.7	2.0	OL	<u>Slightly Organic LEAN CLAY</u> trace of organics, dark brown, wet			
		CL	(Fill)	3		PP = 0.25 tsf
			<u>LEAN CLAY</u> trace of organics, brown, wet, soft. (Loess)			
1241.7	4.0	CL	<u>SILTY CLAY</u> trace of sand, brown, wet, soft to rather soft. (Loess)			
		ML				
				5		PP = 0.5 tsf MC = 25.7%
				4		PP = 0.5 tsf
						MC = 31.6%
				4		PP = 0.25 tsf
				3		PP = 1.0 tsf MC = 27.0%
1227.7	18.0	CL	<u>LEAN CLAY</u> trace of sand, brown, wet, rather stiff. (Glacial Till)			
				9		PP = 1.0 tsf MC = 15.0%
			End of Boring. Boring sealed upon completion.			

CVT STANDARD 18098.21.IAM (NICC MAINTENANCE BUILDING).GPJ LOG A.GNIN06.GDT 4/7/21

LOG OF BORING

CHOSEN VALLEY TESTING



PROJECT: 18098.21.IAM Design Phase Geotechnical Evaluation NICC Maintenance Building 1625 Iowa Highway 150 Calmar, Iowa				BORING: B-03		
				LOCATION: See attached sketch		
				DATE: 3/30/2021	SCALE: 1" = 3'	
Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1251.7	0.0					
1251.5	0.2	CL OL	<u>Slightly Organic LEAN CLAY</u> (Topsoil)			Elevations provided by Fehr Graham.
		CL OL	<u>Slightly Organic LEAN CLAY with GRAVEL</u> dark brown, wet			
1249.7	2.0		(Fill)			
		CL	<u>LEAN CLAY</u> trace of gravel, trace of sand, brown, wet, soft.	0		PP = 0.25 tsf
			(Loess)			
1247.7	4.0					
		CL ML	<u>SILTY CLAY</u> trace of sand, brown, wet, soft to medium.	0		PP = 0.5 tsf MC = 27.1%
			(Loess)			
				3		PP = 0.25 tsf
				4		PP = 0.5 tsf MC = 27.3%
				5		PP = 0.75 tsf
				6		PP = 0.75 tsf MC = 27.5%
1233.7	18.0					
		CL	<u>LEAN CLAY</u> trace of sand, brown, wet, rather stiff.			
			(Glacial Till)			
				12		PP = 1.25 tsf MC = 20.3%
1230.7	21.0					
			End of Boring. Boring sealed upon completion.			

CVT STANDARD 18098.21.IAM (NICC MAINTENANCE BUILDING).GPJ LOG A.GNIN06.GDT 4/7/21

LOG OF BORING

CHOSEN VALLEY TESTING



PROJECT: 18098.21.IAM Design Phase Geotechnical Evaluation NICC Maintenance Building 1625 Iowa Highway 150 Calmar, Iowa				BORING: B-04		
				LOCATION: See attached sketch		
				DATE: 3/30/2021	SCALE: 1" = 3'	
Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1249.0	0.0					
1248.8	0.2	CL OL	<u>Slightly Organic LEAN CLAY</u> (Topsoil)			Elevations provided by Fehr Graham.
		CL	<u>LEAN CLAY with GRAVEL</u> trace of gravel, trace of organics, brown, wet			
1247.0	2.0		(Fill)			
		CL	<u>LEAN CLAY</u> trace of sand, brown, wet, very soft (Loess)	0		PP = 0.5 tsf
				0		PP = 0.5 tsf MC = 28.7%
1242.5	6.5					
		CL ML	<u>SILTY CLAY</u> brown, wet, soft. (Loess)	2		PP = 0.75 tsf
				2		PP = 0.25 tsf MC = 27.1%
				3	▽	PP = 0.75 tsf Water found at a depth of about 13 feet below the surface.
				2		PP < 0.25 tsf MC = 28.9%
1229.0	20.0					
1228.0	21.0	CL	<u>LEAN CLAY</u> trace of sand, brown, wet, rather stiff. (Glacial Till)	5		PP = 0.75 tsf MC = 16.8%
			End of Boring. Boring sealed upon completion.			

CVT STANDARD 18098.21.IAM (NICC MAINTENANCE BUILDING).GPJ LOG A GINN06.GDT 4/7/21

UNIFIED SOIL CLASSIFICATION (ASTM D-2487/2488)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND	
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	Cu>4 AND 1<Cc<3	GW	WELL-GRADED GRAVEL	
			Cu>4 AND 1>Cc>3	GP	POORLY-GRADED GRAVEL	
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL	
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL	
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	Cu>6 AND 1<Cc<3	SW	WELL-GRADED SAND	
			Cu>6 AND 1>Cc>3	SP	POORLY-GRADED SAND	
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND	
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND	
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	PI>7 AND PLOTS>"A" LINE	CL	LEAN CLAY	
			PI>4 AND PLOTS<"A" LINE	ML	SILT	
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT	
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY	
			PI PLOTS <"A" LINE	MH	ELASTIC SILT	
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT	
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT	

Relative Proportions of Sand and Gravel	
TERM	PERCENT
Trace	< 15
With	15 - 29
Modifier	> 30
Relative Proportions of Fines	
TERM	PERCENT
Trace	< 5
With	5 - 12
Modifier	> 12
Grain Size Terminology	
TERM	SIZE
Boulder	< 12 in.
Cobble	3 in. - 12 in.
Gravel	#4 sieve to 3 in.
Sand	#200 sieve to #4 sieve
Silt or Clay	Passing #200 sieve

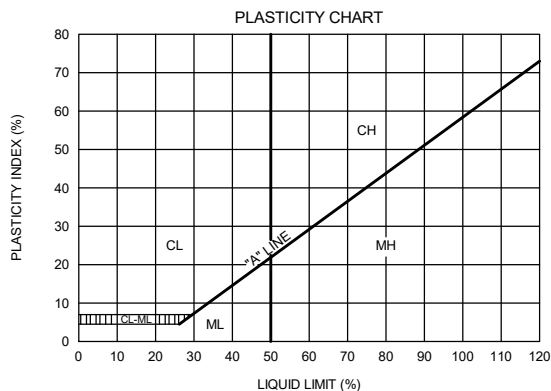
SAMPLE TYPES

- Hollow Stem
 Standard Penetration Test

TEST SYMBOLS

- | | |
|-----------------------------|--|
| MC - MOISTURE CONTENT | LL - LIQUID LIMIT |
| OC - ORGANIC CONTENT | PI - PLASTISITY INDEX |
| CN - CONSOLIDATION | SW - SWELL TEST |
| DD - DRY DENSITY | UU - Unconsolidated Undrained triaxial |
| PP - POCKET PENETROMETER | |
| RV - R-VALUE | |
| SA - SIEVE ANALYSIS | |
| P200 - % PASSING #200 SIEVE | |

- WATER LEVEL (WITH TIME OF MEASUREMENT)



PENETRATION RESISTANCE (RECORDED AS BLOWS / 0.5 FT)				
SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	COMPRESSIVE STRENGTH (TSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 1	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 3	0.25 - 0.50
MEDIUM DENSE	10 - 30	RATHER SOFT	4 - 5	0.50 - 1.0
DENSE	30 - 50	MEDIUM	6 - 8	
VERY DENSE	OVER 50	RATHER STIFF	9 - 12	1.0 - 2.0
		STIFF	13 - 16	2.0 - 4.0
		VERY STIFF	17 - 30	OVER 4.0
		HARD	OVER 30	

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

Chosen Valley Testing

Job No. 18098.21.IAM

LEGEND TO SOIL DESCRIPTIONS



SECTION 00 40 00

NICC CALMAR PLANT SERVICES MAINTENANCE BUILDING SUMMARY OF MULTIPLE CONTRACTS

RELATED DOCUMENTS:

The general provisions of the Contract, including General and Supplementary Conditions and other General Requirements Sections, apply to the work specified in this Section.

DESCRIPTION OF REQUIREMENTS:

Refer to the General Conditions; the terms Work and Project have substantially the same meaning in these contract documents; because, substantially the work of the Contract is recognized to be the complete project unless otherwise specified in this or other sections.

PROJECT/WORK IDENTIFICATION:

The name of the project is **NICC CALMAR PLANT SERVICES MAINTENANCE BUILDING**. The work of this Contract has been identified in the Contract Documents by Straka Johnson Architects and other consultants.

CONTRACTS:

Construct work under the Sub-Contract construction format with all contracts direct with Northeastern Iowa Community College for all Sub-Contracts described below.

Norm Racicot, NICC Construction Manager, is the Construction Manager on this project and will issue contracts.

Specification Sections included with each Sub-Contract are a part of and necessary to perform the work of each contract. Each Sub-Contractor shall provide all labor, materials, equipment, Tax Except, permits fees as applies, installation with a competent field superintendent, and administration necessary to provide a complete project as indicated on the plans and specifications.

Sub-Contractors shall include all costs required to provide the following:

- **Complete project per the phasing plans and Milestone Schedule.**
- **Contractors shall include all administration, supervision, labor, and layout to perform the contracted work per plans and specifications.**
- **Offload and stage all materials**
- **Provide field measurements as required to coordinate with shop drawings.**
- **Coordinate shop drawings with Owner & Architect**
- **Layout all work as required per contract**
- **Provide traffic control as required to perform work**

CONTRACT #1 – EARTHWORK/ SITE UTILITIES/ SITE WORK

Contractors shall provide labor, materials, installation and administration necessary for a complete and operable system as indicated on the plans and specifications. The following is the Scope of Work for the Earthwork/ Site Utilities Contract.

PHASE 1: EARTHWORK/SITE UTILITIES (Planning/ Pre-Construction Phase; Start February 22, 2022, Completion March 30, 2022; PHASE 1 – Start March 30, 2022- If frost is substantially out of the ground, Completion APRIL 30, 2022 -Weather Permitting; “Four week Site Rest & Settlement”, Start April 30, 2022, Completion May 30, 2022)

1. Removal of trees, concrete curbs and gutters, existing utilities, and site grubbing as shown on Sheet C.02.
 - a. Also refer to Specified Divisions (as related to this Contract)
2. Over excavate and remove unsuitable soil and replace with engineered fill as noted and shown on Sheet C.03 and in Section 00 31 32 – Geotechnical Report.
3. Install Site Utilities and run to within 5 feet of the building as shown on Sheet C.05, C.06, C.07, C.08, C.09. Prepare grade up to the building pad, install rip-rap at storm basins, install and compact stone base for paved areas as shown on Sheet C.03 and C.05.
4. Provide temporary erosion control and prepare site for “Rest and Settlement” as required in Section 00 31 32 – Geotechnical Report and Shown on Sheet C.03.
5. Refer to the following Specification sections:
 - DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 01 – GENERAL REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 02 – EXISTING CONDITIONS
 - 02 01 10 EXISTING UTILITIES
 - 02 41 00 DEMOLITION
 - DIVISION 31 – EARTHWORK
 - 31 11 00 CLEARING AND GRUBBING
 - CLEAR AND REMOVE ALL ITEMS AS SHOWN ON THE CIVIL PLANS
 - 31 14 00 TOPSOIL STRIPPING, SALVAGING, AND SPREADING
 - STRIP EXISTING TOPSOIL AND STORE FOR REUSE IN PHASE 2.
 - 31 22 00 EARTHWORK AND GRANULAR MATERIALS
 - OVEREXCAVATE EXISTING POOR SOIL AND COMPACT WITH SUITABLE SOILS PER GEOTECHNICAL REPORT
 - 31 23 30 EXCAVATING TRENCHING AND BACKFILLING FOR UTILITIES
 - DIVISION 33 – UTILITIES
 - 33 05 00 COMMON WORK RESULTS FOR UTILITIES

PHASE 2: SITE WORK (Begin upon Completion of Contract #2, Contract #3, Contract #4; Completion September 30, 2022.)

1. Coordinate with Contract #3 and Contract #4 contractors on verifying stone underlayment is at acceptable elevation, depth, and compaction for pouring concrete approaches, curbs and gutters, and paving the parking and drives.
2. Finish grading to be completed as shown on Sheet C.05.
3. Permanent Erosion Control to be as indicated on Sheet C.03.
4. Additional Landscaping, types, and locations to be coordinated with the Owner.
5. Until 70% vegetative coverage of disturbed areas is met or until the areas to the area drains have vegetative cover, temporary protection around the drain intakes is required to be maintained by contractor to prevent mud and silt from clogging the drains.
6. The contractor will be responsible for cleaning out clogged pipes in the event the silt or mud gets into the drains.

7. Refer to the following Specification sections:

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

All Specified Divisions (as related to this Contract)

DIVISION 01 – GENERAL REQUIREMENTS

All Specified Divisions (as related to this Contract)

DIVISION 02 – EXISTING CONDITIONS

02 01 10 EXISTING UTILITIES

02 41 00 DEMOLITION

DIVISION 31 – EARTHWORK

31 11 00 CLEARING AND GRUBBING

- CLEAR AND REMOVE ALL ITEMS AS SHOWN ON THE CIVIL PLANS

31 23 10 EXCAVATION AND FILL for BUILDINGS

- PROVIDE ALL EXCAVATION, SUBGRADE AND FILL AS SHOWN ON FOUNDATION PLAN

31 23 30 EXCAVATING TRENCHING AND BACKFILLING FOR UTILITIES

DIVISION 33 – UTILITIES

33 05 00 COMMON WORK RESULTS FOR UTILITIES

CONTRACT #2 – GENERAL CONTRACT FOR THE CONSTRUCTION OF THE MAINTENANCE BUILDING- POLE

BUILDING – (Planning/Pre-Construction Phase Start February 22, 2022, completion May 30, 2021; Phase 2 – Building Construction Start May 30, 2022 or four weeks after completion of Contract #1-Phase 1, Completion August 31, 2022)

Contractors shall provide labor, misc. materials, installation and administration necessary for a complete and operable system as indicated on the plans and specifications. Contractor to coordinate with state and local building officials for required inspections and coordinate with Design Build Plumbing, HVAC, and Electrical Contractors. The following is the Scope of Work for the General Contract for the Construction of the Maintenance Building:

1. Contractor to submit to the NICC Construction Manager and Architect for review and approval Engineered Shop Drawings for the Pole building signed and sealed by an Engineer licensed in the State of Iowa during Planning/ Pre-Construction Phase. Obtain a building permit from local building official.
2. The construction on the Maintenance Building cannot begin until the site has “Rested and Settled” for four weeks after completion of Contract #1- Phase 1 as required in Section 00 31 32 – Geotechnical Report.
3. Prepare site and excavate for footings and foundations as shown on Sheet C.04, S1.1, A1.1, A2.3, A2.4. and related specifications sections.
4. Coordinate with the Design Build Plumbing, HVAC, and Electrical contractors to prepare under slab plumbing and electrical and to tie to the Site Utilities located 5’ from building. Refer to Sheets A1.1, E1.1, C.04, C.05 and related specification sections.
5. Construct Maintenance Building as per the Pole Building provider’s requirements and as shown on Sheets A1.1, A1.2, A2.1, A2.2, A2.3, A2.4, A3.1, S1.1, S1.2 and related specifications sections.
6. Coordinate with Design Build Plumbing, HVAC, and Electrical contractors for MEP rough-in and coordinate with State and local building officials for required rough-in inspections.
7. Insulate exterior walls, interior walls, attic, and mezzanine as required in Architectural Drawings and in Specifications.
8. Install interior metal siding on exterior walls and ceiling as required by the pole building provider.
9. Install Gypsum Board, mud, tape, and texture to an orange peel finish. Install gypsum board for interior walls and fire rated walls as required in the Architectural drawings and specifications.
10. Provide and install all interior and exterior doors, windows, trim, exterior and interior sheathing, and coordinate with Design Build Mechanical, Electrical, and Plumbing contractors to install MEP fixtures.

11. Paint and finish walls, ceilings, doors, and trim, base, etc. as shown on Sheets A1.1, A1.2, A3.1 and related specification sections.
12. Coordinate with NICC Construction Manager for items to be built "by Owner" or "Provided and Installed by Owner as shown on drawings or in specifications.
13. Install gutters, downspouts, caulk, and weather seal as required by pole building provider and as called out in specifications.
14. Coordinate with Owner to schedule final inspection by state and local building officials and obtain an Occupancy permit.
15. Refer to the following Specification Sections:
 - DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 01 – GENERAL REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 05 – METALS
 - 05 05 19 POST-INSTALLED ANCHORS
 - 05 40 00 COLD-FORMED METAL FRAMING
 - DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES
 - 06 10 00 ROUGH CARPENTRY
 - 06 17 53 SHOP- FABRICATED WOOD TRUSSES
 - 06 20 00 FINISH CARPENTRY
 - 06 83 16 FIBERGLASS REINFORCED PANELING
 - DIVISION 07 – THERMAL AND MOISTURE PROTECTION
 - 07 62 00 SHEET METAL FLASHING AND TRIM
 - 07 65 00 FLASHING
 - 07 84 00 FIRESTOPPING
 - 07 92 00 SEALANTS AND CAULKING
 - DIVISION 08 – OPENINGS
 - 08 11 00 STEEL DOORS AND FRAMES
 - 08 31 00 ACCESS DOORS AND PANELS
 - 08 33 00 OVERHEAD SECTIONAL DOORS
 - 08 71 00 DOOR HARDWARE
 - DIVISION 09 – FINISHES
 - 09 21 16 GYPSUM BOARD
 - 09 90 00 PAINTING
 - DIVISION 10 – SPECIALTIES
 - 10 20 00 INTERIOR SPECIALTIES
 - 10 28 13 TOILET ACCESSORIES
 - 10 44 00 FIRE PROTECTION SPECIALTIES
 - 10 44 00 FIRE EXTINGUISHERS
 - DIVISION 13 – SPECIAL CONSTRUCTION
 - 13 34 18 POST FRAME BUILDING SYSTEMS

CONTRACT #3 – CONCRETE (Planning/ Pre-construction Phase, Start February 22, 2022, Completion May 30, 2022; Phase 2 – Construction phase Start May 31, 2022, Coordinate with Contract #1 & Contract #2 Contractors and NICC Construction Manager; Completion August 31, 2022; Exterior Concrete, Start August 31, 2022; Completion September 30, 2022.)

Contractors shall provide labor, misc. materials, installation and administration necessary for a complete and operable system as indicated on the plans and specifications. The following is the Scope of Work for the Concrete:

1. Set forms, install reinforcing, pour concrete footings and foundations as required in Sheet S1.1, S1.2, and Architectural Details on Sheets A2.3, A2.4 or as required by Engineered Building Shop Drawings.
2. Pour interior concrete floor slab, seal coat, and finish as called out on Sheet A1.1 and S1.1.
 - a. Coordinate with Contract #2, Contract #5, Contract #6, Contract #7 Contractors prior to pouring floor slab.
3. Contractor to install exterior concrete approaches, Curbs & gutters, and sidewalks as shown on Sheet C.04. Contractor to coordinate with Contract #1 contractor to verify the stone underlayment is at the acceptable elevation, depth, and compaction to pour the exterior concrete.
4. Contractor to pour concrete paving if Alternate #1 is accepted by the Owner.
5. Refer to the following specification sections:
 - DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 01 – GENERAL REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 03 – CONCRETE
 - 03 10 00 CONCRETE FORMING AND ACCESSORIES
 - 03 11 13 STRUCTURAL CAST-IN-PLACE CONCRETE FORMING
 - 03 15 00 CONCRETE ACCESSORIES
 - 03 20 00 CONCRETE REINFORCING
 - 03 30 00 CAST-IN-PLACE CONCRETE
 - DIVISION 31 – EARTHWORK
 - 31 23 10 EXCAVATION AND FILL for BUILDINGS
 - PROVIDE ALL EXCAVATION, SUBGRADE AND FILL AS SHOWN ON FOUNDATION PLAN
 - DIVISION 32 – EXTERIOR IMPROVEMENTS
 - 32 13 73 CONCRETE PAVING JOINT SEALANTS
 - PROVIDE JOINT SEALANTS

CONTRACT #4 – HMA PAVING (Planning/ Pre-Construction Phase, Start February 22, 2022, Completion May 30, 2022; Building Construction Phase 2 – Start May 31, 2022 Coordinate with Contract #1, Contract #2, Contractor #3 Contractors and NICC Construction Manager; Completion, September 30, 2022)

Contractors shall provide labor, misc. materials, installation and administration necessary for a complete and operable system as indicated on the plans and specifications. The following is the Scope of Work for the HMA Paving:

1. Coordinate with Contract #1 contractor to verify the stone underlayment is at the acceptable elevation, depth, and compaction prior to paving the parking and drive. Paving should not be done until after building construction is complete to minimize damage from construction activities.
2. Coordinate with Contract #3 contractor to schedule pouring the concrete approaches to the building, curbs and gutters prior to starting HMA paving.
3. Contractor to install HMA paving in thickness as required in Sheet C.04.
4. Contractor to paint stripes after HMA has cured the recommended amount of time. Paint striping to be as shown on Sheet C.04.
5. Refer to the following Specification Sections:
 - DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 01 – GENERAL REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 32 – EXTERIOR IMPROVEMENTS

32 17 23 PAVEMENT MARKINGS
PROVIDE PAVEMENT MARKINGS AS SHOWN ON THE CIVIL PLANS

CONTRACT #5 – PLUMBING (Planning/Pre-Construction Phase, Start February 22, 2022, Completion May 30, 2022; Building Construction Phase 2; Start May 31, 2022, Coordinate with Contract #2, Contract #6, Contract #7 Contractors and NICC Construction Manager; Completion August 31, 2022)

Contractors shall provide fabrication labor, materials, and administration necessary for supplying a complete and operable system as indicated on the plans and specifications. The contract will be a Design-Build of the Plumbing system. The following is the Scope of Work for the Plumbing contract:

1. Contractor to submit Design-Build Plumbing Plan to NICC Construction Manager and Architect for review and approval during Planning/ Pre-construction phase.
2. Contractor's plumbing installation is to comply with all applicable plumbing and building codes and to tie to the site utilities 5' feet from building as shown on Sheet C.05, C.06, C.07.
3. Plumbing fixture locations and general notes as basis of design are shown on Sheets A1.1 and A1.2 and related specification sections in Chapters 22. Plumbing Design-Build drawings should include the location of under slab plumbing with slopes; location of floor drains, cleanouts, vents and all penetrations through the walls and roof. The drawings should also include any substitutions or modifications to the basis of design for the NICC Construction Manager and Architect's review.
4. Contractor to provide a complete plumbing system and coordinate with Contract #2 contractor and the NICC Construction Manager to schedule under slab and rough-in inspections by the building official. Testing should be done on plumbing system as required by code and the specifications.
5. Contractor is responsible for fire caulking through wall penetrations in fire rated walls as necessary and caulking and sealing around plumbing fixtures and through the wall or roof penetrations as required to prevent leaking and to weatherproof the system.
6. Contractor to coordinate with Black Hills Energy for installing the natural gas meter and coordinate with the HVAC contractor to run gas piping to HVAC equipment.
7. Refer to the following Specification Sections:
DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
All Specified Divisions (as related to this Contract)
DIVISION 01 – GENERAL REQUIREMENTS
All Specified Divisions (as related to this Contract)
DIVISION 07 – THERMAL AND MOISTURE PROTECTION
07 84 00 FIRESTOPPING (As applies)
DIVISION 22 – PLUMBING
22 00 00 PLUMBING GENERAL PROVISIONS

CONTRACT #6 – HVAC (Planning/ Pre-Construction Phase; Start February 22, 2022, Completion May 30, 2022; Building Construction Phase 2; Start May 31, 2022, Coordinate with Contract #2, Contract #5, Contract #7 Contractors and NICC Construction Manager; Completion, August 31, 2022)

Contractors shall provide fabrication labor, materials, and administration necessary for a supplying a complete and operable system as indicated on the plans and specifications. The contract will be a Design-Build of the HVAC system. The following is the Scope of Work for the HVAC contract:

1. Contractor to submit Design-Build HVAC drawings to NICC Construction manager and Architect for review and approval during Planning/ Pre-construction Phase.
2. Contractor's HVAC system installation is to comply with all applicable mechanical and building codes.

3. HVAC equipment requirements are in specifications sections Chapter 23. The HVAC contractor's Design-build drawings should include: the location of HVAC equipment, vents, and ductwork; power requirements of all equipment; energy efficiency of equipment, and locations of vents and exhaust penetrations through the walls and roof. The drawings should also include any substitutions or modifications to the basis of design indicated in the specification sections for the NICC Construction Manager and Architect to review.
4. Contractor to provide a complete HVAC system and coordinate with the Contract #2 Contractor to schedule rough-in inspections by the building official. Testing should be done on system as required by code and the specifications.
5. Contractor is responsible for fire caulking through wall penetrations in fire rated walls as necessary and caulking and sealing around exterior wall or roof penetrations as required to prevent leaking and to weatherproof the system.
6. Refer to the following Specification sections:
 DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
 All Specified Divisions (as related to this Contract)
 DIVISION 01 – GENERAL REQUIREMENTS
 All Specified Divisions (as related to this Contract)
 DIVISION 07 – THERMAL AND MOISTURE PROTECTION
 07 84 00 FIRESTOPPING (As applies)
 DIVISION 23 - HVAC
 23 00 00 HVAC GENERAL PROVISIONS

CONTRACT #7 – ELECTRICAL (Planning/ Pre-construction Phase; Start February 22, 2022, Completion May 30, 2022; Building Construction Phase 2; Start May 31, 2022, Coordinate with Contract #2, Contract #5, Contract #6 Contractors and NICC Construction Manager; Completion, August 31, 2022)

Contractors shall provide fabrication labor, materials, and administration necessary for a supplying a complete and operable system as indicated on the plans and specifications. The contract will be a Design Build of the Electrical system. The following is the Scope of Work for the Electrical contract:

1. Contractor to submit Design-Build Electrical Drawings to NICC Construction Manager and Architect for review and approval during the Planning/ Pre-construction phase.
2. Contractor's Electrical system installation is to comply with all applicable NEC and building codes.
3. An electrical fixture plan with notes and fixture schedule is shown on Sheets E1.1 and E1.2 as a basis of Design as well as Specification sections in Chapter 26. The HVAC contractor's Design-Build drawings should include: the substitutions and modifications to the basis of design; location of conduit under slab and in walls; location of exterior and roof penetrations for junction boxes, electrical meters, and exterior light fixtures and outlets.
4. Electrical Contractor is responsible for providing power to HVAC or Plumbing equipment and wiring the equipment as necessary. The contractor is responsible for sizing the panel and appropriating breaker space for all the Electrical, HVAC, and Plumbing fixtures that require power within and outside the building for a complete system.
5. The drawing provided is schematic. The contractor is responsible for providing electrical wiring, boxes, outlets, switches, etc. to all rooms to meet all current codes and to meet the Owner's needs.
6. The contractor will provide Category 5 telephone wire and RG-6 coaxial cable from the Closet to communications outlets in the office, workroom, and in at least one location in Shop Bay #1 and Shop Bay #2. Coordinate locations with Owner.
7. Contractor to provide smoke detectors/heat detectors/NOX detectors as required by all applicable codes.

8. The contractor is responsible for pulling wiring in the conduit to the grinder pump in the grinder pump station; wiring the grinder pump; and installing and wiring the grinder pump control panel within the building. The grinder pump and the control panel will be supplied by the Site Utilities contractor. Electrical contractor to coordinate with site utilities contractor for grinder pump system start up.
9. Electrical Contractor to coordinate with Owner to provide conduit with a pull string from the conduit located 5' away from the building for the Glass Fiber. The conduit should run to the IT Com location shown on Sheet A1.1. The Owner will pull the glass fiber to the IT Com location and install and hook up the IT panel or equipment. Electrical contractor to provide power to IT equipment as necessary.
10. Contractor is responsible for fire caulking through wall penetrations in fire rated walls as necessary and caulking and sealing around exterior wall or roof penetrations as required to prevent leaking and to weatherproof the system.
11. Contractor is to coordinate with Alliant Energy on installation of the electrical meter and running wiring to the electrical panel as required by Alliant Energy.
12. Refer to the following Specification sections:
 - DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 01 – GENERAL REQUIREMENTS
 - All Specified Divisions (as related to this Contract)
 - DIVISION 07 – THERMAL AND MOISTURE PROTECTION
 - 07 84 00 FIRESTOPPING (As applies)
 - DIVISION 26 – ELECTRICAL
 - 26 00 00 ELECTRICAL GENERAL PROVISIONS

CONSTRUCTION ON ALL CONTRACTS TO BE SUBSTANTIALLY COMPLETED ON SEPTEMBER 30, 2022.

END OF SUMMARY OF MULTIPLE CONTRACTS

SECTION 00 41 13

BID FORM

BID PROPOSAL FOR:

**PLANT SERVICES MAINTENANCE BUILDING
PHASE 1: EARTHWORK/ SITE UTILITIES
PHASE 2: BUILDING CONSTRUCTION/ CONCRETE/ PLUMBING/ HVAC/ ELECTRICAL/ PAVING/ SITE
WORK**

**1625 IA-150
CALMAR, IOWA 52132**

BID TO: Attn: Dave Dahms
Vice President of Finance
NICC Calmar Campus
Darwin Schrage Administration Building
1625 Hwy 150 S.
Calmar, Iowa 52132

BID DATE and TIME: **February 14, 2022 @ 2:00 p.m. Local Time**

BID FROM: _____ (an individual)
(a partnership)
(a corporation)

We/I have examined the Contract Documents for the proposed **NICC Plant Services Maintenance Building** as prepared by Straka Johnson Architects, PC Dubuque, Iowa, Fehr Graham Engineering & Environmental, and the conditions affecting the work, including Advertisement for Bids, Specifications and Plans.

In accordance therewith, the undersigned proposes to furnish all labor and materials for Construction as set forth in the Contract Documents, including Addenda Nos. _____ issued thereto, and have included their provisions in this bid.

Bids must be submitted before **2:00 p.m. Local Time on February 14, 2022**. Bids will be opened publicly and read on or about 2:00 pm Local Time on February 14, 2022.

1. Accompanying this proposal is a Bid Security for all work, which is required to be furnished by the Contract Documents, the same being subject to forfeiture in the event of default by the undersigned.
2. Accompanying this proposal is a completed **Acknowledgement and Certification Form** - Section 00 41 14
3. Accompanying this proposal is a completed Iowa "**Bidder Status Form**", pursuant to Iowa Code 73A.21 - Section 00 41 15
4. We/I agree to submit a list of principal Subcontractors as required by the Instructions to Bidders within twenty four (24) hours of bidding.
5. We/I agree to accomplish all work in accordance with the Contract Documents as stated.
6. We/I agree to complete the work in the time stipulated as follows; Substantial Completion of the project to be **Planning/ Pre-construction Phase: (February 22, 2022 – March 30, 2022; Phase 1: Earthwork/ Site Utilities (Start March 30, 2022 (if frost is out of ground) – completion April 30, 2022** and also includes 4 weeks for the site to “rest and settle per Geotechnical Report; **Phase 2: Building Construction/ Concrete/ HVAC/ Plumbing/ Electrical – (Start May 31, 2022 or 4 weeks after completion of Phase 1 – completion August 31,**

2022 – Exterior Concrete/ HMA Paving/ Site Work (Start August 31, 2022, Completion September 30, 2022)

7. We/I understand the Owner reserves the right to reject any or all bids, and it is agreed that this bid may not be withdrawn for a period of forty five (45) days from the opening thereof.
8. We/I agree to comply with all laws of the State of Iowa and the local Municipality, being a duly licensed Contractor in good-standing, for the type of work proposed.
9. We/I agree to enter into and execute an Agreement if awarded on the basis of this bid and to furnish a Performance Bond and Labor and Material Payment Bond.

A. Bid Contract #1 Earthwork/ Site Utilities/ Site Work: (Lump Sum): Planning/ Pre-construction phase (Start February 22, 2022); **Phase 1:** (Start March 30, 2022 if frost is substantially out of ground, Completion April 30, 2022 weather permitting; 4 week “Site Rest & Settlement”, Start April 30, 2022, Completion May 30, 2022). **Phase 2 – Site Work** (Start upon completion of Building Construction and Paving, Completion September 30, 2022)

1. The Bidder agrees to perform all work including, but not necessarily limited to: All Civil Construction indicated as Contract #1 for the Base Bid Sum of:

_____ Dollars \$

B. Bid Contract #2 – Building Construction: (Lump Sum): Planning/ Pre-construction phase (Start February 22, 2022, completion May 30, 2022); **Phase 2** (Start May 31, 2022 or four weeks after completion of Phase 1, Completion August 31, 2022)

1. The Bidder agrees to perform all work including, but not necessarily limited to: All Building construction as indicated in Contract #2 for the Base Bid Sum of:

_____ Dollars \$

C. Bid Contract #3 - Concrete: (Lump Sum): Planning/ Pre-Construction Phase (Start February 22, 2022, Completion May 30, 2022); **Building Construction** (Start when Contract #1 is complete, Completion August 31, 2022); **Exterior Concrete**, Completion September 30, 2022)

1. The Bidder agrees to perform all work including, but not necessarily limited to: All Concrete as indicated in Contract #3 for the Base Bid Sum of:

_____ Dollars \$

D. Bid Contract #4 – HMA Paving: (Lump Sum): Planning/ Pre-Construction Phase (Start February 22, 2022, Completion May 30, 2022); **Building Construction Phase 2** (Start when Contract #2 is complete, Completion September 30, 2022)

1. The Bidder agrees to perform all work including, but not necessarily limited to: All HMA Paving as indicated in Contract #4 for the Base Bid Sum of:

_____ Dollars \$

D. Bid Contract #5 - Plumbing: (Lump Sum): Planning/ Pre-Construction Phase (Start February 22, 2022, Completion May 30, 2022); **Building Construction Phase 2** (Start May 31, 2022, Coordinate with Contract #2 Contractor, Completion August 31, 2022)

1. The Bidder agrees to perform all work including, but not necessarily limited to: All Plumbing as indicated in Contract #5 for the Base Bid Sum of:

_____ Dollars \$ _____

E. Bid Contract #6 - HVAC: (Lump Sum): Planning/ Pre-Construction Phase (Start February 22, 2022, Completion May 30, 2022) **Building Construction Phase 2** – (Start May 31, 2022, Coordinate with Contract #2 Contractor, Completion August 31, 2022)

1. The Bidder agrees to perform all work including, but not necessarily limited to: All HVAC as indicated in Contract #6 for the Base Bid Sum of:

_____ Dollars \$ _____

F. Bid Contract #7 - Electrical: (Lump Sum): Planning/ Pre-Construction Phase (Start February 22, 2022, Completion May 30, 2022; **Building Construction Phase 2** (Start May 31, 2022. Coordinate with Contract #2 Contractor, Completion August 31, 2022)

1. The Bidder agrees to perform all work including, but not necessarily limited to: All Electrical as indicated in Contract #7 for the Base Bid Sum of:

_____ Dollars \$ _____

G. Alternates:

1. The Bidder agrees to add to or deduct from the Base Bid Sum (circle the appropriate term, where required) the following amounts to perform the Alternate work described in Section 01 23 00, including all associated costs.

- a. Alternate No. 1 (Contract #3) – **Portland Cement Concrete (PCC) paving in lieu of Hot Mix Asphalt (HMA) paving.**

Additive/Deduct _____ Dollars \$ _____

H. Unit Prices:

1. If the required quantities of materials listed below are increased or decreased by Change Order, the adjustment unit prices set forth below shall apply to such increased or decreased quantities (see Section 01 22 00):

- a. Unit Price No. 1 (Contract #1): **Overexcavation – Building** (per cubic yard):

Add _____ / cubic yard (Dollars \$ _____ / ton)

- b. Unit Price No. 2 (Contract #1): **Overexcavation - Parking and Drives** (per cubic yard):

Add _____ / cubic yard (Dollars \$ _____ / ton)

- c. Unit Price No. 3 (Contract #1): **Stone underlayment - Parking and Drives** (per cubic yard):

Add _____ / cubic yard (Dollars \$ _____ / ton)

- d. Unit Price No. 4 (Contract #3): **PCC Paving** (per square yard):

Add _____ / sq. yd (Dollars \$ _____ / sq. yd)

e. Unit Price No. 5 (Contract #4): **HMA Paving** (per square yard):

Add _____ / sq. yd (Dollars \$ _____ / sq. yd)

I. Signature and Firm Information:

DATE _____

FIRM NAME _____

OFFICIAL ADDRESS _____

TELEPHONE NUMBER (____) _____

FAX NUMBER (____) _____

BY _____ (signature)

_____ (printed name)

TITLE _____

IOWA CONTRACTOR LICENSE NUMBER _____

END OF SECTION 00 41 13

SECTION 00 41 14

ACKNOWLEDGMENT AND CERTIFICATION

(Include this Form with your Bid)

_____("Company")
Company name

is providing services to NICC as a vendor, supplier, contractor, or professional services provider or is operating or managing the Operations of a vendor, supplier, contractor or professional service provider. The services provided by the Company may involve the presence of the Company's employees upon the real property of NICC.

The Company acknowledges that Iowa law prohibits a sex offender who has been convicted of a sex offense against a minor from being present upon the real property of NICC. The Company further acknowledges that, pursuant to law, a sex offender who has been convicted of a sex offense against a minor may not operate, manage, be employed by, or act as a contractor, vendor, supplier, provider of services or volunteer at NICC.

The Company hereby certifies that no one who is an owner, operator or manager of the Company has been convicted of a sex offense against a minor. The Company further agrees that it shall not permit any person who is a sex offender convicted of a sex offense against a minor to provide any services to NICC in accordance with the prohibitions set forth above.

This Acknowledgment and Certification is to be construed under the laws of the State of Iowa. If any portion hereof is held invalid, the balance of the document shall, notwithstanding, continue in full legal force and effect.

In signing this Acknowledgment and Certification, the person signing on behalf of the Company hereby acknowledges that he/she has read this entire document, that he/she understands its terms, and that he/she not only has the authority to sign the document on behalf of the Company, but has signed it knowingly and voluntarily.

Dated: _____, Contractor

By: _____

Printed Name: _____

Title: _____

END OF SECTION 00 41 14

SECTION 00 41 15

IOWA BIDDER STATUS

Pursuant to Iowa Code Section 73A.21, Bidders are required to complete an Iowa "**Bidder Status Form**", which is included in this specification. Failure to submit a fully completed Iowa "**Bidder Status Form**" with the Bid may result in the bid being deemed nonresponsive and rejected.

The Iowa "**Bidder Status Form**" is included herein, or is available for download at the following web address:
www.iowaworkforce.org/labor/bidderstatusform.pdf.

The Iowa "**Bidder Status Form**" is to be submitted with the Bid Form.

END OF SECTION 00 41 15

Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

☐ Yes ☐ No

My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).

☐ Yes ☐ No

My company has an office to transact business in Iowa.

☐ Yes ☐ No

My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

☐ Yes ☐ No

My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No

My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company's home state or foreign country offer preferences to resident bidders, resident labor force preferences or any other type of preference to bidders or laborers?

☐ Yes ☐ No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: _____

Signature: _____ Date: _____

Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

- ☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.
- ☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.
- ☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.
- ☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
- ☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.
- ☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
- ☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
- ☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
- ☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
- ☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
- ☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.



AIA®

Document A310™ – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

BOND AMOUNT: \$

PROJECT:

(Name, location or address, and Project number, if any)

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

Init.

Signed and sealed this day of ,

(Contractor as Principal) (Seal)

(Witness)

(Title)

(Surety) (Seal)

(Witness)

(Title)

Init.

/

AIA[®] Document A312[™] – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

CONSTRUCTION CONTRACT

Date:

Amount: \$ 0.00

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

Signature: _____

Name and

Title:

SURETY

Company: (Corporate Seal)

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the

Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____
(Corporate Seal)

SURETY

Company: _____
(Corporate Seal)

Signature: _____

Name and Title: _____

Address: _____

Signature: _____

Name and Title: _____

Address: _____

Init.



AIA Document A312™ – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond:

☐

None

☐

See Section 18

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

SURETY

Company: (Corporate Seal)

Signature: _____

Name and

Title:

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

Init.

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User Notes:

(1313681783)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

Init.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

SURETY

Company:

(Corporate Seal)

Company:

(Corporate Seal)

Signature: _____

Name and Title: _____

Address: _____

Signature: _____

Name and Title: _____

Address: _____

Init.

AIA[®] Document G702S[™] - 2017

Application and Certificate for Payment, Contractor-Subcontractor Version

TO CONTRACTOR:

PROJECT: .

APPLICATION NO: 001

PERIOD TO:

Distribution to:

OWNER: ☐

ARCHITECT: ☐

CONTRACTOR: ☐

FIELD: ☐

OTHER: ☐

FROM

SUBCONTRACTOR:

SUBCONTRACT FOR:

SUBCONTRACT DATE: / /

PROJECT NOS: / /

SUBCONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Subcontract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL SUBCONTRACT SUM \$0.00
2. NET CHANGE BY CHANGE ORDERS \$0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2) \$0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$0.00

5. RETAINAGE:

- a. 0 % of Completed Work
(Column D + E on G703) \$0.00
 - b. 0 % of Stored Material
(Column F on G703) \$0.00
- Total Retainage (Lines 5a + 5b or Total in Column I of G703) \$0.00

6. TOTAL EARNED LESS RETAINAGE \$0.00

(Line 4 Less Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT \$0.00

(Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE \$0.00

9. BALANCE TO FINISH, INCLUDING RETAINAGE

(Line 3 less Line 6) \$0.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$0.00	\$0.00
Total approved this Month	\$0.00	\$0.00
TOTALS	\$0.00	\$0.00
NET CHANGES by Change Order		\$0.00

The undersigned Subcontractor certifies that to the best of the Subcontractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Subcontract Documents, that all amounts have been paid by the Subcontractor for Work for which previous Certificates for Payment were issued and payments received from the Contractor, and that current payment shown herein is now due.

SUBCONTRACTOR:

By: _____

Date: _____

State of: _____

County of: _____

Subscribed and sworn to before
me this _____ day of _____

Notary Public: _____

My Commission expires: _____



- 2017

Continuation Sheet, Contractor-Subcontractor Version

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Subcontractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

[illegible]

SECTION 00 72 00

GENERAL CONDITIONS

The “General Conditions of the Contract for Construction”, AIA Document A201, 2017 Edition, as published by the American Institute of Architects, Article 1 through 15, inclusive, are hereby made a part of the Contract Documents to the same extent and effect as if bound herein and as supplemented hereinafter.

A copy of AIA Document A201 – 2017 is on file at the Architect’s office.

Copies of the document may be purchased through AIA Iowa’s online store at <http://aiaia.affiniscap.com/storeindex.cfm>.

END OF SECTION 00 72 00

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

The following supplements modify AIA Document A201-2017, General Conditions of the Contract for Construction. Where a portion of the General Conditions is modified or deleted by these Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

Delete last sentence of Section 1.1.1 and add the following:

The Contract Documents also include the bidding requirements (Notice to Bidders and Instructions to Bidders). Unless specifically enumerated in the Agreement, the Contract Documents do not include sample forms and the Contractor's Bid Form. The Contract Documents executed or identified in accordance with Subparagraph 1.5.1 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations involving computers.

Add Section 1.1.2.1 as follows:

§ 1.1.2.1 The Contract Documents shall be signed by the Owner and Contractor. If either the Owner or Contractor or both do not sign all of the Contract Documents, the Architect/Engineer shall identify such unsigned Documents. No Contract shall be formed between the parties until all Contract Documents are executed by both parties.

Modify the second sentence in Section 1.1.8 to read as follows:

"The Initial Decision Maker shall not be liable for results of interpretations or decisions rendered in good faith."

Add Section 1.1.9 to Section 1.1:

§ 1.1.9 Terms

The terms indicated below shall be defined as having the meanings assigned to them as follows:

- .1** Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- .2** Furnish: To supply and deliver, unload, inspect for damage.
- .3** Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, and make ready for use.
- .4** Provide: To furnish and install.
- .5** Substitute the word "Architect/Engineer" for "Architect" each time the latter word appears.

§ 1.2 Correlation and Intent of the Contract Documents

Add the following sentence to the end of Section 1.2.1:

"In the case of an inconsistency between Drawings and Specifications, or within either Document itself, not clarified by Addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation. In any case of discrepancy, the facts are to be brought to the attention of the Architect for a decision or interpretation."

Add Section 1.2.4 to Section 1.2:

§ 1.2.4 Sections of Division 01 - General Requirements govern the execution of the Work of all sections of the specifications.

§ 1.4 Interpretation

Add Section 1.4.1 to Section 1.4

§ 1.4.1 In the event of conflicts or discrepancies among the Contract Documents not clarified by Addendum, interpretations will be based on the following priorities:

- .1** Modifications to Contract.
- .2** The Agreement.
- .3** Addenda, with those of later date having precedence over those of earlier date
- .4** The Supplementary Conditions.
- .5** The General Conditions of the Contract for Construction.
- .6** Drawings and Specifications

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

Delete Section 1.5.1 and substitute the following:

§ 1.5.1 Design Documents or other Instruments of Service are Owner's exclusive property. Owner retains all common law, statutory and other reserved rights in the Design Documents or other Instruments of Service, including all copyrights in and to Design Documents and other Instruments of Service. Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim copyright in Design Documents or other Instruments of Service. Submittal or distribution to meet official regulatory requirements, or for other purposes in connection with Project are not to be construed as publication in derogation of Owner's reserved rights.

§ 1.7 Digital Data Use and Transmission

Delete Section 1.7 text and add Section 1.7.1:

§ 1.7.1 The Architect/Engineer may, with the concurrence of the Owner, furnish to the Contractor versions of Instruments of Service in electronic form. The Contract Documents executed or identified in accordance with Subparagraph 1.5.1 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations involving computers.

ARTICLE 2 OWNER

Modify Section 2.1.2 to read as follows:

"The Owner shall furnish to the Contractor within fifteen (15) days after the receipt of a written request, information necessary and relevant for the Contractor to give notice of or enforce its rights against the Owner under Iowa law."

§ 2.2 Evidence of the Owner's Financial Arrangements

Delete entire Section 2.2.

§ 2.3 Information and Services Required of the Owner

Modify Section 2.3.3 to read as follows:

"If the employment of the Architect terminates, the Owner shall employ a successor whose status under the Contract Documents shall be that of the Architect."

Add the following at end of Section 2.3.4:

"The Contractor shall compare information furnished by the Owner (including surveys and soils tests with observable physical conditions) and the Contract Documents, and on the basis of such review, shall report to the Owner and Architect/Engineer any conflicts, errors or omissions. Contractor shall be responsible for any additional costs, delays, and damages resulting from the Contractor's failure to immediately report any such errors, inconsistencies or omissions it discovers."

Delete Section 2.3.6 and substitute the following:

§ 2.3.6 The Owner will furnish the Contractor, free of charge, as many copies of Contract Documents as can be allocated for this use from quantities returned by Bidders. Contractor may purchase additional copies at the cost of reproduction, postage, and handling.

§ 2.5 Owner's Right to Carry Out the Work

Delete Section 2.5 text and substitute the following:

"If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails within a seven (7) day period, or such shorter time period as may be reasonable under circumstances, after receipt of written notice from the Owner to the Contractor, to commence and continue correction of such default or neglect with diligence and promptness, the Owner may notify the Surety and request it to assume the obligations of the Contractor within seven (7) days following receipt by Contractor and Surety of written notice or the Owner may, without prejudice to any other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order or Construction Change Directive shall be issued deducting from the payments then or thereafter due the Contractor, the cost of correction of such deficiencies, including reasonable attorney's fees and compensation for the Architect/Engineer's additional services incurred as result of such default, neglect or failure. Such action by Owner, and amounts charged to the Contractor are both subject to prior concurrence with Architect/Engineer. If current or future payments thereafter due Contractor are not sufficient to cover such amounts, Contractor, or Surety, shall pay difference to Owner."

Add Section 2.6 as follows:

ARTICLE 3 CONTRACTOR

§ 3.1 General

Add the following at end of Section 3.1.1:

[Each Prime] "Contractor shall at request of Owner prior to execution of Agreement and promptly from time to time as requested by the Owner, thereafter furnish Owner an update and current financial statement and/or Contractor Qualification Statement on AIA Document A305."

Add Section 3.1.2.1 as follows:

§ 3.1.2.1 The Contractor shall supervise and direct Work in excellent and workmanlike manner, complete the work and everything properly incidental thereto as stated in the Project Manual and Drawings or reasonably implied therefrom and otherwise in accordance with Contract Documents. In no case shall the Contractor proceed with any portion of the Work in any uncertainty.

Add the following at the end of Section 3.1.3:

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor. To the extent permitted by law, the Contractor waives any rights, claims, or causes of action against Owner as a result of activities or duties or intentional or negligent misconduct by the Architect in the Architect's administration of the Contract, or representations made by Architect/Engineer in Instruments of Service.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

Add the following at end of Section 3.2.1:

"The Contractor also represents that all Contract Documents for the Project have been examined; including those intended for work of trades not normally performed by Contractor's own forces, and that they have become thoroughly familiar with all conditions which may pertain to, or affect Work under the Contract."

Modify Section 3.2.2 to add the words:

"including any ordering of materials" in line two after the word "Work."

Delete Sections 3.2.3 and 3.2.4 and substitute the following:

§ 3.2.3 Contractor shall take field measurements and verify Site conditions, and shall carefully compare such field measurements and Site conditions and other information know to Contractor with Contract Documents, before ordering any material or doing any Work at Site.

§ 3.2.4 Contractor shall make frequent inspections during progress of Work to confirm that Work previously performed by Contractor is in compliance with Contract Documents and applicable laws and regulations bearing on performance of Work and Referenced Standards and that portion of Work previously performed by Contractor or by others are in proper condition to receive subsequent Work

Add Sections 3.2.5 thru 3.2.8 to Section 3.2:

§ 3.2.5 If Contractor believes that any portion of Contract Documents do not comply with applicable laws, statutes, ordinances, building codes, and rules and regulations, or any orders by code enforcement officials or Owner or its designees acting in capacity of building code inspectors or Referenced Standards, Contractor shall promptly notify Owner and Architect/Engineer of non-compliance as provided in Section 3.2.6 and request direction before proceeding with affected Work.

§ 3.2.6 Contractor shall promptly notify Owner and Architect/Engineer in writing of any apparent errors, inconsistencies, omission, ambiguities, construction impracticalities or code violations discovered as result of Contractor's review of Contract Documents including any differences between actual and indicated dimensions, locations and descriptions, and shall give Owner and Architect/ Engineer timely notice in writing of same and any corrections, clarifications, additional Drawings or Specifications, or other information required to define Work in greater detail or to permit proper progress of Work. Contractor shall provide similar notice with respect to any variance between its review of Site and physical data and Site conditions observed.

§ 3.2.7 If Contractor performs any Work involving an apparent error, inconsistency, ambiguity, construction impracticality, omission or code violation in Contact Documents of which Contractor is aware, or which could reasonably have been discovered by review required by Section 3.2, without promptly written notice to Owner and Architect/Engineer and request for correction, clarification or additional information, as appropriate, Contractor does so at its own risk and expense and all claims relating thereafter are specifically waived.

§ 3.2.8 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect/Engineer for evaluating and responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, or other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

§ 3.3 Supervision and Construction Procedures

Modify Section 3.3.1 to add the word "written" between the words "timely" and "notice" in line 7.

Add Section 3.3.4 as follows:

§ 3.3.4 The Contractor acknowledges that it is Contractor's responsibility to hire all personnel for the proper and diligent prosecution of the Work and the Contractor shall use its best efforts to maintain labor peace for the duration of the Project. In the event of a labor dispute, the Contractor shall not be entitled to any increase in the Contract Sum.

§ 3.4 Labor and Materials

Add the following at end of Section 3.4.1:

"Work required by the Contract Documents to be performed after working hours, or work the Contractor elects to perform after hours shall be completed at no additional cost to the Owner."

Add Sections 3.4.2, 3.4.2.1, 3.4.2.2 and 3.4.2.3 to Section 3.4.2:

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.2.1 After the Contract has been executed, the Architect, Owner, and Contractor shall function as a team to evaluate, review and consider substitution of products in place of those specified under the conditions set forth by the Architect.

§ 3.4.2.2 After the Contract has been executed, the Owner and Architect/ Engineer may consider requests for the substitution of products in place of those specified. The Owner and Architect/Engineer may, but are not obligated to, consider only those substitution requests that are in full compliance with the conditions set forth in the General Requirements (Division 1 of the Specifications). By making requests for substitutions, the Contractor:

- .1** represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
- .2** represents that it will provide the same warranty for the substitution as it would have provided for the product specified;
- .3** certifies that the cost data presented is complete and includes all related costs for the substituted product and for Work that must be changed as a result of the substitution, except for the Architect/ Engineer's redesign costs, and waives all claims for additional costs related to the substitution that subsequently become apparent; and
- .4** Agrees that it shall, if the substitution is approved, coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects. [; and]

§ 3.4.2.3 The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect/Engineer for reviewing the Contractor's proposed substitutions and making agreed-upon changes in the Drawings and Specifications resulting from such substitutions.

Add the following to the end of Section 3.4.3:

Persons permitted to perform Work under Contractor or any Subcontractor or Sub-Subcontractor shall meet all employment eligibility, safety training, security or drug/alcohol testing requirements required by law or by Owner. Any person not complying with all such requirements shall be immediately removed from the site.

Add Section 3.4.3.1 to Section 3.4.3:

§ 3.4.3.1 The Contractor or its Subcontractors shall not be owned, operated, or managed by a registered sex offender who has been convicted of a sex offense against a minor in accordance with Iowa Code 692A.113. In addition, the Contractor or their Subcontractors shall not permit an employee who is a registered sex offender convicted of a sex offense against a minor on real property of the schools of the Owner in accordance with Iowa Code 692A.113. The Contractor and its Subcontractors shall further acknowledge and certify services provided under this Contract comply with Iowa Code 692A.113, and shall fully execute and deliver copies of Acknowledgment and Certification to the Owner prior to execution of Agreement.

§ 3.5 Warranty

Delete Section 3.5.1 and add Sections 3.5.1 through 3.5.5:

§ 3.5.1 Contractor shall warrant to Owner that materials and equipment furnished under Contract will be of good quality and new unless otherwise required or permitted by Contract Documents, that workmanship will be free from defects not inherent in quality required or permitted, that workmanship will comply with all applicable laws, building codes, rules and regulations, and that workmanship will conform to requirements of Contract Documents.

§ 3.5.2 Contractor's general warranty and any additional or special warranties shall not be limited by Contractor's obligations to specifically correct defective or nonconforming Work as provided in Article 12, nor shall they be limited by any other remedies provided in Contract Documents. Contractor shall also be liable for any damage to property or

persons (including death) including consequential and direct damages relating to any breach of Contractor's general warranty or any additional or special warranties required by Contract Documents.

§ 3.5.3 Contractor shall furnish all special warranties required by Contract Documents to Owner no later than Substantial Completion. Owner may require additional special warranties in connection with approval of "Or Equals" or Substitutions, Allowance items, Work that is defective or nonconforming, or acceptance of nonconforming Work pursuant to Article 12.

§ 3.5.4 In case of Work performed by Subcontractors and where warranties are required, secure warranties from said Subcontractors addressed to and in favor of Owner. Deliver copies of same to Architect/Engineer upon completion of Work. Delivery of said warranties shall not relieve Contractor from any obligations assumed under any other provision of Contract.

§ 3.5.5 All material, equipment or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4

§ 3.6 Taxes

Delete Section 3.6 text and add Sections 3.6.1 through 3.6.7 to Section 3.6:

§ 3.6.1 Iowa Use Taxes shall be paid on all supplies and materials used in, and made component parts of, the Project.

§ 3.6.2 Iowa Sales Taxes shall not be paid on qualified materials purchased, or withdrawn from inventory, which will be incorporated into real property for Project.

§ 3.6.3 The Owner is a designated exempt entity and will complete an online application to register this Contract with the Iowa Department of Revenue and Finance. The Owner will distribute Tax Exemption Certificates and Authorization Letters to the Contractor and all Subcontractors who have been identified at, or before filing of the Performance Bond. Refer to Iowa Department of Revenue and Finance publications available at <http://www.state.ia.us/tax/business/Contr-ExEnt-Index.html>.

§ 3.6.4 At or before the time the Performance Bond is filed, Contractor shall provide a listing to the Owner identifying all Subcontractors. Listing shall indicate company name, address, telephone number, fax number, contact name, and Employer ID # for Contractor and each Subcontractor. Contractor and Subcontractors shall make copies of the Tax Exemption Certificate and provide to each supplier providing construction material, a copy of the Tax Exemption Certificate. This Certificate will allow the Contractor and Subcontractors to purchase qualified building materials free from sales tax for the Project. The Tax Exemption Certificate and Authorization Letter have been developed exclusively for this purpose and are applicable only for the specific Project under this Contract.

§ 3.6.5 Contractor shall be responsible for informing themselves of tax laws, requirements, regulations, and interpretations as they apply to this Project.

§ 3.6.6 Contractor shall maintain all records, invoices, receipts, or other accounting data regarding material purchases and shall allow, upon written request of Owner, and within reasonable time frame after receipt of such request, Owner to audit such records to verify tax savings. If audit reveals taxes paid or savings not transferred to Owner, Contractor shall be liable to Owner for those amounts and Owner may back charge Contractor for those amounts if balance of funds due and payable remains at time of such discovery.

- .1** Contractor shall require all Subcontractors of any tier to maintain all records, invoices, receipts, or other account data regarding material purchases. Contractor shall collect such records with each application for payment if receives from its Subcontractors and shall maintain such records in same manner and location as Contractor's records.
- .2** Contractor shall ensure its Subcontractors and any lower-tier Subcontractors including these obligations in their contracts and bind themselves in same manner as Contractor is bound to Owner.

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

Delete Section 3.7.1 and substitute the following:

§ 3.7.1 Unless otherwise specified in the Contract Documents, the Contractor shall secure and pay for all permits and governmental fees, licenses, and inspections, including storm water permits, necessary for proper execution and completion of the Work which are legally required when bids are received or negotiations concluded. Unless noted otherwise on drawings, Contractor shall file “Notice of Intent for NPDES Coverage Under General Permit”, file and implement “Storm Water Pollution Prevention Plan (SWPPP)”, maintain pollution prevention devices, and file “Notice of Discontinuation” upon stabilization of site for storm water run-off associated with Project. Refer to Iowa Department of Natural Resources publications regarding storm water management; available at <http://www.iowadnr.com/water/stormwater/forms.html> or call 515-281-7017 for filing requirements. Contractor shall also pay for governmental inspection fees associated with Storm Water Pollution Prevention Plan.

Delete Section 3.7.3 and substitute the following:

§ 3.7.3 If the Contractor, or any of its Subcontractors, performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

Modify Section 3.7.4 as follows:

§ 3.7.4 Add the words “, in writing,” in line 11 after the word “Contractor.”

Add Sections 3.7.6 through 3.7.8 to Section 3.7:

§ 3.7.6 The Contractor shall be responsible for scheduling inspections related to performance of its Work, and shall ensure Work is complete and ready for inspections. Any costs associated with reinspection caused by irregularities, deficiencies or non-conforming Work will be borne by the responsible Contractor, including all architectural and engineering services related to evaluation of problems and development of any acceptable solutions.

§ 3.7.7 The Contractor shall take note and comply with all governing laws, rules, and regulations affecting the Work. This may include, but is not limited to, such laws, rules, and regulations as:

- .1 Licensing of Contractors for special requirements, e.g. hazardous waste removal.
- .2 Requirements for special construction permits.
- .3 Exemption from sales tax, if applicable.
- .4 Wage rates and employment requirements when required by law or by Owner.
- .5 Local labor requirements.
- .6 Non-discriminatory hiring practices.

§ 3.7.8 State of Iowa, its agencies, and its political subdivisions, including cities, school districts and public utilities are required by Iowa Code 73A.21 to require reciprocal resident bidder and resident labor force preference.

§ 3.7.8.1 “Resident Bidder” means person or entity authorized to transact business in State of Iowa and having place of business for transacting business with state at which it is conducting and has conducted business for at least three (3) years prior to date of first advertisement for public improvement. If another state or foreign country has more stringent definition of Resident Bidder, more stringent definition shall be applicable as to bidders from that state or foreign country.

§ 3.7.8.2 Resident Bidder shall be allowed preference against nonresident bidder from state or foreign country other than Iowa if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including, but not limited to, any preference to bidders, the imposition of any type of force preference, or any other form of preferential treatment to bidders or laborers from state or foreign country. Preference allowed shall be equal to preference given or required by state of foreign country in which nonresident bidder is resident.

§ 3.7.8.3 If Contractor is nonresident bidder Contractor is required to specify in Agreement between Owner and Contractor, whether any preference is in effect in nonresident bidder’s state or country at time of this bid and identify source of regulations.

§ 3.9 Superintendent

Add the following to the end of the first sentence of Section 3.9.1:

“, including Work of the Contractor’s subcontractors.

Add the following to the end of Section 3.9.1:

“The approved superintendent will work in this position until completion of the Work unless the superintendent shall no longer be in the Contractor’s employ, or shall be released at the request of the Architect and/or Owner.”

Delete Subparagraph 3.9.2 and substitute the following:

§ 3.9.2 The Contractor shall, within three (3) business days of the Owner’s notification of an intent to award the Contract, submit to the Owner, and Architect/Engineer, the name and qualifications of the proposed superintendent(s) for review and approval. Within fourteen (14) days of receipt of the information, the Architect shall notify the Contractor whether the Owner or Architect has reasonable objection to the proposed superintendent. When the superintendent(s) are approved, they shall not be removed without the Owner’s written approval which will not be unreasonable withheld. The responsibility of the superintendent is to supervise, schedule, coordinate, and manage field operations.

Add Subparagraph 3.9.3.1 as follows:

§ 3.9.3.1 The Superintendent or Superintendents shall be thoroughly competent with full experience in all phases of the Work to be performed under this Contract. Anyone not deemed capable of directing all trades involved in the Work shall be replaced or supplemented immediately upon request, by someone who is satisfactory. After a satisfactory superintendent has been assigned, they shall not be withdrawn without the consent of the Architect and/or Owner.

§ 3.10 Contractor’s Construction and Submittal Schedules

Delete Sections 3.10.1 and 3.10.2 and substitute the following:

§ 3.10.1 The Contractor, within ten (10) days of award of Contract, shall prepare and submit in its native electronic and graphic format, Owner’s and Architect/ Engineer’s approval Contractor’s baseline construction schedule for Work. Schedule shall not exceed time limits current under Contract Documents, shall be revised at appropriate intervals as required by conditions of Work and Project, shall be related to entire Project to extent required by Contract Documents, or as requested by Owner or Architect/Engineer, and shall provide for expeditious and practicable execution of Work.

Schedule at minimum shall demonstrate rate of work (ROW), availability dates, permits, submittals, working drawings, procurement, fabrication, delivery of materials, construction, and other activities necessary to complete Work.

Thereafter, Contractor shall prepare and update construction schedule on at least a monthly basis, if not more frequently at Owner’s or Architect’s request, to be submitted to Owner in graphic and native electronic format with each Application for Payment. Each update shall include narrative including:

- .1 Description of status of schedule.
- .2 Discussion of current and anticipated delays.
- .3 Discussion of progress of critical path activities.
- .4 Discussion of critical path for remainder of project.
- .5 Listing and discussion of logic changes and duration changes.

§ 3.10.2 Contractor shall prepare submittal schedule within fourteen (14) days after being awarded Contract and thereafter as necessary to maintain current submittal schedule, and shall submit schedule(s) for Architect/Engineer’s approval. Architect/Engineer’s approval shall not unreasonably be delayed or withheld. Submittal schedule shall:

- .1 be coordinated with Contractor’s construction schedule, and;
- .2 allow Architect/Engineer reasonable time to review submittals.

If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

Add Section 3.10.4 as follows:

§ 3.10.4 The Contractor shall furnish information concerning the Work. This information will include, but not be limited to the following:

Daily:	Manpower by craft.
Weekly:	Two week look ahead schedule update. Delivery requirements and status of materials.
Monthly:	Written report including schedule update as outlined above and cost information.

§ 3.11 Documents and Samples of Site

Delete Section 3.11 text and substitute the following:

Contractor shall maintain at site for Owner one copy of Drawings, Specifications, Addenda, Current Construction Schedule, Change Orders and other Modifications, in good order and marked currently to indicate field and similar required submittals. Contractor shall display current Construction Schedule at site for reference and reliance by Owner and Architect/Engineer. These shall be available to Architect/Engineer and shall be delivered to Architect/Engineer for submittal to Owner upon completion of Work as record of Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

Add the following at end of Section 3.12.5:

“Contractor shall provide Owner and Architect/Engineer with copies of all submittals made to regulatory agencies.”

Add the following at end of Section 3.12.7:

“Contractor shall correct at their cost, and without any adjustment in Contract time, any Work the correction of which is required due to Contractor’s failure to obtain approval of submittal required to have been obtained prior to proceeding with Work, including, but not limited to, correction of any conflicts in Work resulting from such failure.”

Modify Section 3.12.10.1 by adding the word “reasonably” before the word “rely” in line 4.

Add Section 3.12.11 to Section 3.12:

§ 3.12.11 The Architect/Engineer’s and Consultant’s review of Contractor’s submittals will be limited to examination of an initial submittal and 1 resubmittal. Architect will notify the Contractor before beginning a further review that such review will result in additional cost to the Owner which can be charged back to Contractor. The Contractor shall reimburse the Owner for amounts paid to the Architect/Engineer for evaluation of additional resubmittals.

§ 3.13 Use of Site

Add Sections 3.13.1, 3.13.2, and 3.13.3 to Section 3.13:

§ 3.13.1 Except as may be specifically provided in Contract Documents, Contractor shall provide all necessary temporary facilities, including power, water, sanitation, scaffolding, storage, and security. If Owner makes any such facilities available to Contractor, it is without representation or warranty as to their adequacy for Contractor’s use, and Contractor shall indemnify, defend, and hold Owner harmless from and against any claims arising out of Contractor’s use of such facilities.

§ 3.13.2 Contractor shall perform Work so as to cause minimum of inconvenience to and interruption of Owner’s operations. Any and all interruptions of operations of Owner necessary for performance of Work shall be noted in progress schedule and Contractor shall additionally give Owner sufficient advance notice of such interruption as to allow Owner to adjust operations accordingly. Contractor’s failure to give Owner timely notice of such intentions shall place responsibility of any resulting delays or additional costs solely on Contractor.

§ 3.13.3 Contractor shall not bring or permit any subcontractor, supplier or anyone else for whom Contractor is responsible, to bring on site any asbestos, PCB's, petroleum, hazardous waste, or radioactive materials (except for proper use in performing Work).

§ 3.15 Cleaning Up

Delete Section 3.15 title above and substitute the following:

§ 3.15 Cleaning Up, Working Hours, and Noise Ordinance

Delete Sections 3.15.1 and 3.15.2 and substitute the following

§ 3.15.1 Work shall be performed in accordance with Contract Documents, Applicable Building Codes, and other applicable law governing Contractor's performance of Work. No delays resulting from compliance with applicable laws or regulations may form basis for any claim by Contractor for delay damages or additional compensation or for any extensions of Contract Time. Contractor shall not permit work outside of hours established in Contract Documents on Saturday, Sunday or State or federal holiday without written consent of Owner, given after prior written notice to Architect/Engineer and any other applicable consultants; such consent, if given, may be conditioned upon payment by Contractor of Owner's, Architect/Engineer's and any other applicable consultants' additional costs and fees, testing or regulatory agency costs incurred in monitoring such off-hours Work. Contractor shall notify Owner as soon as possible if Work must be performed outside of such times in interest of safety and protection of persons or property at Site or adjacent thereto, or in event of emergency. In no event shall Contractor permit Work to be performed at Site without presence of Contractor's superintendent and person responsible for protection of persons and property at Site and compliance with all applicable laws and regulations, if different from superintendent.

§ 3.15.2 Contractor shall comply with any applicable Noise Ordinances and any successor or substitute provisions covering regulation of noise levels. It shall be the duty of Contractor to familiarize themselves with those provisions and perform Work in compliance with those provisions.

Add Section 3.15.3 to Section 3.15:

§ 3.15.3 Contractor shall keep Site and adjacent areas free from accumulation of waste materials or rubbish caused by operations under Contract, and shall keep tools, construction equipment, machinery and surplus materials suitably stored when not in use. If Contractor fails to do so in manner reasonably satisfactory to Owner or Architect/Engineer within 48 hours after notice or as otherwise required by Contract Documents, Owner may clean Site and back charge Contractor for all costs associated with cleaning. Contractor shall keep premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under Contract. At completion of Work, Contractor shall remove waste materials, rubbish, Contractor's tools, construction equipment, machinery and surplus materials from and about Project.

§ 3.17 Royalties, Patents and Copyrights

Insert the words "reasonably suspected or" in line six of Section 3.17 after the word "is" and before the word "discovered."

§ 3.18 Indemnification

Delete Section 3.18.1 and substitute the following:

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless Owner, its agents, representatives, and employees from and against all claims, damages, losses and expenses, including, but not limited to, attorney's fees, arising out of or resulting from or in connection with performance of the Work, but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity or contribution which would otherwise exist, as to any party or person described in Contract Documents.

Add Section 3.18.3 to Section 3.18:

§ 3.18.3 If a suit, action, arbitration or other legal proceeding is instituted in connection with any controversy arising out of this Agreement or to interpret or enforce any rights under this Agreement, the Owner shall be entitled to recover from the non-prevailing party all attorney fees, costs, expert witness fees, and expenses incurred by the Owner during pre-suit collection attempts, suit and post judgment or settlement collection, including those incurred on appeal.

ARTICLE 4 ARCHITECT

§ 4.1 General

Delete Section 4.1.1 and substitute the following:

The “Architect” is defined in this Contract as the Engineer or Architect lawfully licensed by the State to practice architecture or engineering or an entity, licensed by the State to lawfully practice architecture or engineering identified as such in this Contract and as is referred to throughout the Contract documents as if singular in number. The term “Engineer,” “Architect/Engineer,” “Engineer/Architect,” “Architect’s authorized representative,” “Engineer’s authorized representative,” or “Architect/Engineer’s authorized representative” shall mean “Architect” as defined in this paragraph.

§ 4.2 Administration of the Contract

Delete Section 4.2.2 and substitute the following:

§ 4.2.2

The Architect, as a representative of the Owner, shall attend all official construction meetings and visit the site while Work is in progress not less than weekly, or as otherwise mutually agreed to by the parties in Section 4.2.3 of the B101 Owner/Architect Agreement, to observe and evaluate the site and the Work; to become familiar with the progress and quality of the Work; and to determine whether the Work evaluated and observed is proceeding in accordance with the Contract Documents and construction schedule and whether there are defects or deficiencies in the Work evaluated and observed.

Add Section 4.2.2.1 to Section 4.2.1:

§ 4.2.2.1 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect/Engineer for site visits made necessary by the fault of the Contractor or by defects and deficiencies of the Work.

Delete Section 4.2.3 and substitute the following:

§ 4.2.3 On the basis of on-site observations and evaluations, the Architect shall keep the Owner reasonably informed of the progress and quality of the Work and its conformance with the Contract Documents and the construction schedule. The Architect will provide the Owner with a field observation report within five (5) working days of each visit and construction update minutes as the Project progresses. The Architect shall report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor and (2) defects and deficiencies observed in the Work. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor’s rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

Delete Section 4.2.4 and substitute the following:

§ 4.2.4 Communications

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall include the Architect in communications that relate to or affect the Architect’s services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any relevant direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect’s consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

Add Section 4.2.7.1 to Section 4.2.7:

§ 4.2.7.1 In no case will the Architect/Engineer's review period on any submittal be less than fifteen (15) days after receipt of the submittal from the Contractor.

Modify Section 4.2.12 to delete the words "will not show partiality to either."

Add Section 4.2.14.1 to Section 4.2.14:

§ 4.2.14.1 Contractor's requests for information shall be prepared and submitted in accordance with Division 1 "General Requirements" sections on form acceptable to Architect/Engineer. The Architect/Engineer will return without action requests for information that does not conform to requirements of the Contract Documents. In no case will Architect/Engineer's review period on any submittal be more than fifteen (15) days after receipt of the submittal from the Contractor.

ARTICLE 5 SUBCONTRACTORS

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

In the 2nd line of Section 5.2.1, after the word "Contractor", delete the phrase "as soon as practicable after award of the Contract", and insert the phrase "within ten (10) days after the date of the notice of award of the Contract".

Add the following to the end of Section 5.2.1:

"A list of Subcontractors shall be submitted in duplicate on AIA Document G805, 2001 Edition. Contractor shall update this list throughout Project and keep Owner and Architect/Engineer advised of any new subcontractors employed."

Add Section 5.2.5 to Section 5.2:

§ 5.2.5 Manufacturers and Fabricators

§ 5.2.5.1 Not later than thirty (30) days after the date of commencement of the Work, the Contractor shall furnish in writing to the Owner through the Architect/Engineer the names of persons or entities proposed as manufacturers or fabricators for certain products, equipment and systems identified in the General Requirements (Division 1 of the Specifications) and, where applicable the name of the installing Subcontractor. The Architect/Engineer may reply within fourteen (14) days to the Contractor in writing stating:

- .1 whether the Owner or the Architect/Engineer has reasonable objection to any such proposed person or entity, or
- .2 that the Architect/Engineer requires additional time to review.

Failure of the Owner or Architect/Engineer to reply within the fourteen (14) day period shall constitute notice of no reasonable objection.

§ 5.2.5.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect/Engineer has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.5.3 If the Owner or Architect/Engineer has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect/Engineer has no reasonable objection. If the proposed but rejected manufacturer or fabricator was reasonable capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute manufacturer's or fabricator's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.5.4 The Contractor shall not substitute a person or entity previously selected if the Owner or Architect/Engineer makes reasonable objection to such substitution.

§ 5.4 Contingent Assignment of Subcontracts

Delete Section 5.4.2 in its entirety.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contractors

Add the following to the end of Section 6.1.1

The Contractor shall give notification of the potential of a claim in writing to the Owner and/or Separate Contractor within forty-eight (48) hours of the occurrence or discovery of the potential of an occurrence of the delay or action that will result in making a claim.

§ 6.2.2 Delete the last sentence of Section 6.2.2 and insert the following to the end of section:

“, except as to defects not then reasonably discoverable.”

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

Add the following at end of Section 7.1.1:

“No claim for an addition to the maximum Contract sum shall be considered a valid claim unless a written change order procedure is followed as outlined in this Section. Verbal authorization for changes must be supported by written approval before being considered valid.”

Add Section 7.1.4 to Section 7.1:

§ 7.1.4 The combined overhead and profit included in the total cost to the Owner for a change in the Work, whether by Change Order or Construction Change Directive shall be based on the following schedule, except that the percentages may be adjusted to reflect differences for different trade practices if satisfactorily substantiated to Architect:

- .1** 10% if Work is performed by the Contractor, 5% if Work is performed by Subcontractor or Sub-subcontractor.
- .2** 5% if Work is performed by Subcontractor or Sub-subcontractor. Subcontractor and Sub-subcontractor's total aggregate shall not exceed 10% of the cost.
- .3** Cost to which overhead and profit is to be applied shall be determined in accordance with Section 7.3.4.
- .4** On Work deleted from the Contract, credit to the Owner shall be the Architect/Engineer approved net cost plus ½ of the overhead and profit percentage noted above.
- .5** In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner described above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change involving over \$500.00 be approved without such itemization.

§ 7.2 Change Orders

Add Section 7.2.2 to Section 7.2:

§ 7.2.2 Contractor shall submit change proposals covering contemplated Change Order within ten (10) days after request of Owner, or Architect/Engineer or within ten (10) days after event giving rise to Contractor's claim for change in Contract Sum or Contract Time. No increase in Contract Sum or extension of Contract Time will be allowed Contractor for cost or time involved in making change proposals. Change proposals shall define or confirm in detail Work which is proposed to be added, deleted, or changed and shall include any adjustment which Contractor believes to be necessary in

(i) Contract Sum, (ii) Contract time. Any proposed adjustment shall include detailed documentation including, but not limited to; cost, properly itemized and supported by sufficient substantiating data to permit evaluation including cost of labor, materials, supplies and equipment, rental cost of machinery and equipment, additional bond cost, plus fixed fee for profit and overhead (which includes office overhead and site-specific overhead and general conditions) of 10% if Work is performed by Contractor, or 5% if Work is performed by Subcontractor or Sub-subcontractor. Subcontractors and Sub-subcontractors overhead and profit in turn shall not exceed total aggregate of 10%.

Change proposals shall be binding upon Contractor and may be accepted or rejected by Owner at their discretion. Owner may, at their option, instruct Contractor to proceed with Work involved in change proposal in accordance with this section without accepting change proposal in its entirety.

Add Sections 7.2.3 and 7.2.4 to Section 7.2 as follows:

§ 7.2.3 If the Owner determines that a change proposal is appropriate, the Architect will prepare and submit a request for a Change Order or Contract Amendment providing for an appropriate adjustment in the Contract Sum or Contract Time, or both, for further action by the Owner. No such change is effective until the Owner and Architect sign the Change Order.

§ 7.2.4 The forms used to process a Change Order will include AIA Document, G701 Change Order.

§ 7.3 Construction Change Directives

Add the following at end of Section 7.3.2:

“; upon prior written approval from Owner.”

Add the words “Owner and the” in line two of Section 7.3.4 after the word “the” and before the word “Architect.”

ARTICLE 8 TIME

§ 8.1 Definitions

Add the following at end of Section 8.1.2:

“or the date of the Notice to Proceed, whichever occurs later”.

§ 8.2 Progress and Completion

Add the following at end of 1st sentence of Section 8.2.2:

“, or prior to approval of Certificates of Insurance, and Additional Insured Endorsement and Notice of Cancellation Endorsement required to be submitted to Owner under Contract”.

Add the following at end of Section 8.2.3:

“If Contractor’s Work shall fall behind schedule for reasons that are not excused under terms of Contract, Contractor shall add additional workers or shifts, and/or work overtime as necessary to maintain Construction Schedule’.

Add Section 8.2.4 through 8.2.8 to Section 8.2.

§ 8.2.4 Contractor shall conform to most recent approved Construction Schedule. Contractor shall complete indicated Work or achieve required percentage of completion, as applicable, within any interim completion dates established in most recently approved Construction Schedule.

§ 8.2.5 Contractor shall maintain at Site, available to Owner and Architect/ Engineer for their reference during progress of Work, a copy of approved Construction Schedule and any approved revisions thereto. Contractor shall keep current

records of, and mark on copy of approved Construction Schedule actual commence date, progress, and completion date of each scheduled activity, indicated on Construction Schedule.

§ 8.2.6 Contractor represents that their Bid includes all costs, overhead and profit which may be incurred throughout Contract Time and period between Substantial and Final Completion. Accordingly, Contractor shall not make any claim for delay damages based in whole or in part on premise that Contractor would have completed Work prior to expiration of Contract time but for any claimed delay.

§ 8.2.7 If Contractor's progress is not maintained in accordance with approved Construction Schedule, or the Owner determines that Contractor is not diligently proceeding with Work or has evidence reasonably indicating that Contractor will not be able to conform to most recently approved Construction Schedule, Contractor shall, promptly and at no additional cost to Owner, take all measures necessary to accelerate its progress to overcome delay and ensure that there will be no further delay in progress of Work and notify Owner.

§ 8.2.8 Owner reserves right to issue written directive to accelerate Work that may be subject to an appropriate adjustment, if any, in Contract Sum. If Owner requires an acceleration of Construction Schedule and no adjustments are made in Contract Sum, or if Contractor disagrees with any adjustment made, Contractor shall file claim as provided in Article 15 or same will be deemed to be conclusively waived.

§ 8.3 Delays and Extensions of Time

Delete the words "labor dispute" and add the words "excusable weather delays as defined in Section 15.1.5.2," between the words "fire" and "unusual" in 3rd line of section 8.3.1.

Add the following at end of Section 8.3.1:

"A time extension shall be Contractor's only remedy and compensation for all such delays other than those resulting from the acts of negligence of the Owner, the Architect/Engineer, or the Owner's separate contractors (collectively "Owner Caused Delays"). For proven Owner Caused Delays, the Contractor may recoup the actual costs resulting from such delays, but not for any additional profit or fee."

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.2 Schedule of Values

In the 1st sentence, add the words "thirty (30) days" between the words "Architect," and "before".

§ 9.3 Applications for Payment

Delete Section 9.3.1 and substitute the following:

§ 9.3.1 At least thirty (30) days before the date established for each progress payment, Contractor shall submit to Architect/Engineer an itemized Application for Payment for operations completed in accordance with Schedule of Values. Such application shall be notarized, supported by such data substantiating Contractor's right to payment as Owner or Architect/Engineer may require, such as copies of requisitions and release of claims from Subcontractors and suppliers. If the Contract Documents require Owner to retain a portion of payments until some future time, Applications for Payment shall clearly state percentage and amount to be retained.

Once Application is approved by Architect/Engineer, Application for Payment will be submitted to Owner for its approval at its next regularly scheduled meeting. The Application must be received at the Owner's office in accordance with Owner's outlined procedures as applicable. Unless notified otherwise, the Application shall be received by Owner at least one week prior to scheduled meeting for it to be included in that meeting's scheduled business.

The form of Application for Payment, duly notarized, shall be current authorized edition of AIA Document G702-1992, Application and Certification for Payment, supported by a current authorized edition of AIA Document G703-1992, Continuation Sheet.

Modify Section 9.3.1.2 by inserting the following after the word “Payments” in line 1: “must be consistent with the approved Schedule of Values and”.

Add Sections 9.3.1.3 through 9.3.1.5 to Section 9.3.1:

§ 9.3.1.3 Until Substantial Completion the Owner shall pay 95% of the amount due the Contractor on account of progress payments.

§ 9.3.1.4 The Owner’s release of retained funds and final payment to the Contractor shall be made in accordance with Iowa Code Chapters 26 and 573 provisions.

§ 9.3.1.5 Progress Payments shall be made monthly upon application. Monthly estimates will be paid to the Contractor as the Work progresses in amounts equal to 95% of the Contract value of the Work completed during preceding calendar month, including actual cost of materials and equipment of permanent nature to be incorporated in the Work, and delivered to and stored at the job site. Such monthly payments shall in no way be construed as an act of acceptance for any part of the Work, partially or totally completed. The Contractor shall submit a final application for payment of retainage at conclusion of Project. Final payment of 5% due the Contractor will be paid not earlier than thirty-one (31) days from date of final acceptance of Work by Owner, and after receipt of satisfactory evidence that all claims pertaining to such Contract have been paid in full as approved in Contract Documents for said Work.

§ 9.5 Decisions to Withhold Certification

Add following at end of Section 9.5.1:

- .8 Service work not attended to;
- .9 Evidence of lack of careful workmanship;
- .10 Unworkmanlike or over expeditious construction;
- .11 Lack of attention to special field duties specified.

Delete Section 9.5.4 in its entirety.

§ 9.6 Progress Payment

Add the words “following Board approval” between the words “payment” and “in” in 1st line of Section 9.6.1.

Add Section 9.6.1.1 to 9.6.1 as follows:

§ 9.6.1.1 Owner will, within thirty (30) days of presentation to them of Notarized Certificate for Payment, pay Contractor progress payment on basis of approved Application for Payment. Laws of State of Iowa shall be followed regarding Contractor Payment, with a 5% retainage held from each progress payment. Final payment shall be made no sooner than thirty-one (31) days following final approval and acceptance of completed Project.

Delete Paragraph 9.6.4 and substitute the following:

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven (7) days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Regardless of any requests made pursuant to this section, neither the Owner nor Architect/Engineer shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

Modify Section 9.6.8 by deleting the word “lien” throughout and replacing it with the words “Iowa Code Chapter 573.”

Add Section 9.6.8.1 to Section 9.6 as follows:

§ 9.6.8.1 Payment to Contractor will be made by Owner from cash on hand from such sources as may be legally available.

§ 9.7 Failure of Payment

Delete Section 9.7 and substitute the following:

If Owner does not pay the Contractor within sixty (60) days after the Contractor submits an Application for Payment to the Architect, the Contractor may file a claim in accordance with Article 15 of this Contract.

§ 9.8 Substantial Completion

Add the following at end of Section 9.8.1:

“; subject only to completion of minor punch list items, the absence of completion of which does not interfere with Owner’s intended use of Project. The Contractor assumes the responsibility for notifying the Architect in writing when the Project is complete and ready for inspection and review by Architect. This letter to the Architect shall include the date after which the Contractor will be ready for final review and inspection. Designated portions of the Work will be reviewed separately.”

Add Section 9.8.3.1 to Section 9.8.3:

9.8.3.1 The Architect/Engineer will perform no more than 2 inspections to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect/Engineer for any additional inspections.

Add Sections 9.8.6 through 9.8.9 to Section 9.8:

§ 9.8.6 The Certificate of Substantial Completion and accompanying punch list must be submitted to the Owner and Contractor for execution, which, when signed, will constitute their written acceptance of responsibilities assigned to them in such Certificate. Contractor must make all corrections on the punch list prior to notifying Architect of its completion as outlined in Section 9.10. The Contractor shall reimburse Owner for any Architect/Engineer’s Additional Services and/or attorney’s fees incurred as result of Contractor’s failure to finally complete Work within sixty (60) days after date specified in Contract Documents for Project Substantial Completion, or subsequently modified by Change Order or dates established in the Certificate of Substantial Completion. Reimbursement for these additional services will be deducted by the Owner from the amounts due the Contractor and paid directly to the Architect/Engineer. For purposes of this Paragraph “incurred as result of” includes any Architectural fees charged to Owner as Additional Fees under contract due to fact that services were performed sixty (60) days (or some other amount of time specified in Architect/Engineer Agreement) after Substantial Completion. Nature of services performed (and whether they would have otherwise been performed as normal closeout services at some point under Basic Services) is not relevant to Contractor’s obligations for reimbursement under this section if contract between Owner and Architect/Engineer states that any services and related fees are defined as Additional Services solely because they were performed more than sixty (60) days (or some other amount of time specified in Owner/Architect/Engineer Agreement) after Substantial Completion.

§ 9.8.7 Upon achieving Substantial Completion, as defined by Iowa Code law, the Contractor may request release of all or part of retained funds being held on the Project. Remaining retained funds shall not become due until the Contractor submits to the Architect/Engineer:

- .1** Sworn statement that ten (10) calendar days prior to filing request for release of retained funds, a notice was given to all known subcontractors, sub-subcontractors, and suppliers that Contractor was requesting release of retained funds. The notice shall be substantially similar to the following:

“Notice of Contractor’s Request for Early Release of Retained Funds”

“You are hereby notified that [name of contractor] will be requesting an early release of funds on a public improvement Project designated as [name of project] for which you have or may have provided labor or materials. The request will be made pursuant to Iowa Code section 26.13. The request may be filed with the [name of public entity] after ten (10) calendar days from the date of this notice. The purpose of the request is to have [name of public entity] release and pay funds for all work that has

been performed and charged to [name of public entity] as of the date of this notice. This notice is provided in accordance with Iowa Code section 26.13."

- .2 Itemized list of Work left to complete, including estimated value of labor and materials.
- .3 Itemized list of Iowa Code Chapter 573 claims currently on file at time request for release of retained funds is received.
- .4 Written confirmations from governmental agencies that all permit and inspection fees, including SWPPP inspections fees have been paid by Contractor.
- .5 Operation, Maintenance, and Warranty Manuals and Record Drawings and Specifications.

§ 9.8.8 If proper documentation requested in Subparagraph 9.8.7 is received from Contractor, Owner shall make payment due Contractor at Owner's next monthly meeting or within thirty (30) days, whichever is less, except the Owner may retain the following to the extent authorized by law:

- .1 An amount equal to 200% of the value of labor and materials yet to be provided on the Project as determined by the Owner and its authorized contract representative. For purposes of this Section, "authorized contract representative" means the Architect. Final values to be withheld shall be determined by the Architect/Engineer based on initial estimates provided by Contractor and Architect/Engineer's on-site visits and observations.
- .2 Double the amount of any Iowa Code Chapter 573 claims currently on file.
- .3 An amount equal to ½% of the total value of the Project for Operation, Maintenance, and Warranty Manuals and Record Drawings and Specifications not submitted ten (10) days prior to Substantial Completion inspection.

§ 9.8.9 If the Owner withholds any amounts of retained funds, the Architect/ Engineer, on behalf of the Owner, shall provide an itemization and list of reasons why amounts are being withheld within thirty (30) calendar days of receipt of request.

Add the Sections 9.8.10 through 9.8.13 as follows:

§ 9.8.10 Warranties required by the Contract Documents will commence on the Date of Substantial Completion of the Work unless otherwise provided in the Certificate of Substantial Completion or the Contract Documents.

§ 9.8.11 Upon execution of the Certificate of Substantial Completion, the Contractor will deliver custody and control of such Work to the Owner. The Owner will thereafter provide the Contractor reasonable access to such Work to permit the Contractor to fulfill the correction, completion and other responsibilities remaining under the Contract and the Certificate of Substantial Completion.

§ 9.8.12 Unless otherwise provided in the Certificate of Substantial Completion, the Contractor must complete or correct all items included in the final Punch List within sixty (60) days, subject to the availability of special order parts and materials, after the Date of Substantial Completion.

§ 9.8.13 Closeout Documentation

Not later than ten (10) days after the date of Substantial Completion, the Contractor shall furnish to the Architect/Engineer all Closeout Documentation identified in General Requirements (Division 1 of the Specifications). Except with the consent of the Owner, the Architect/Engineer will perform Closeout Documentation review only during the sixty (60) day period following Substantial Completion. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect/Engineer for additional reviews beyond the 60 day time period identified.

§ 9.8.14 At the time of Substantial Completion, in addition to removing rubbish and leaving the building "broom clean," the Contractor must replace any broken or damaged materials, remove stains, spots, marks and dirt from decorated Work, clean all fixtures, vacuum all carpets and wet mop all other floors, replace HVAC filters, clean HVAC coils, and comply with such additional requirements, if any, which may be specified in the Contract Documents.

§ 9.10 Final Completion and Final Payment

Delete Sections 9.10.1 through 9.10.5.

Add Sections 9.10.1 and 9.10.1.1 as follows:

§ 9.10.1 When Contractor has completed or corrected all items on final Punch List and considers that Work is complete and ready for final acceptance, Contractor shall give written notice to Owner and Architect/Engineer and request final inspection of Work as provided in Section 9.10.2. Contractor's notice and request for final inspection shall be accompanied by final Application for Payment and Submittals required by Section 9.10.3.

§ 9.10.1.1 The Architect/Engineer will perform no more than two (2) inspections to determine whether the Work or a designated portion thereof has attained Final Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect/Engineer for any additional inspections.

Add Sections 9.10.2 as follows:

§ 9.10.2 Upon receipt of Contractor's notice and request for final inspection, Owner and Architect/Engineer shall promptly make such inspection and, when Owner and Architect/Engineer concur that Work has been fully completed and is acceptable under Contract Documents, Architect/Engineer will issue Certificate of Final Completion to Owner. Contractor's notice and request for final inspection constitutes representation by Contractor to Owner and Architect/Engineer that the Work has been completed in full and strict accordance with terms and conditions of Contract Documents. Architect/Engineer will promptly notify Contractor if Owner and Architect/Engineer do not concur that Work is finally complete. In such case, Contractor shall bear cost of any additional services or inspection of Owner or Architect/Engineer until Work is determined to be finally complete.

Add Section 9.10.2.1 to Section 9.10.2:

§ 9.10.2.1 The Contractor shall provide Project Record Documents, Operation and Maintenance Manuals, Instruction to Owner's personnel, Final Cleaning and other closeout procedures specified elsewhere.

Add Section 9.10.3 as follows:

§ 9.10.3 Final Payment will be made no earlier than thirty-one (31) days following approval of Board at regularly scheduled meeting, receipt of all Chapter 573 Claim Releases (equivalent of lien waivers under Iowa law for public improvement projects), Sales Tax Information, and all other required closeout documents, and are subject to conditions of and in accordance with provisions of Iowa Code Chapter 573 and Iowa Code Chapter 26. Owner may withhold from final payment any and all amounts required to reimburse Owner for all costs, fees (including reasonable attorney's fees) incurred as result of any Chapter 573 Claims filed on Project. Neither final payment nor any remaining retained percentage will become due until Contractor submits following documents to Architect/Engineer.

- .1 Affidavit that payrolls, bills for materials and equipment, and other indebtedness with Work for which Owner or Owner's property might be responsible or encumbered (less amounts withheld by Owner), have been paid or otherwise satisfied, submitted on AIA Document G706, Affidavit of Payment of Debts and Claims (latest edition) or such other form as may be prescribed by Owner;
- .2 Release or waiver of liens and Iowa Code Chapter 573 claims on behalf of Contractor and similar release or waiver on behalf of each Subcontractor and supplier, accompanied by AIA Document G706A, Affidavit of Release of Liens (latest edition) or such other form as may be prescribed by Owner;
- .3 Certificate evidencing that Contractor's liability insurance and Performance Bond remain in effect during one-year correction period following Substantial Completion as set forth in Section 12.2.2.1 and 12.2.2.2;
- .4 Written statement that Contractor knows of no substantial reason that insurance will not be renewable to cover period required by Contract Document(s);
- .5 Consent of surety to final payment submitted on AIA Document G707 (latest edition) or other form prescribed by Owner;
- .6 Other data required by Owner establishing payment or satisfaction of obligations, such as receipts, releases and waivers of claims, security interests or encumbrances arising out of Contract, to extend and in such forms as may be prescribed by Owner;
- .7 Certified building location survey and as-built site plan in form and number required by Contract Documents
- .8 All warranties and bonds required by Contract Documents; and
- .9 Record Documents and return of Contract Documents as provided therein.

Add Section 9.12 to Article 9:

§ 9.12 ASSIGNMENT

§ 9.12.1 No assignment by the Contractor of any principal contract or any part thereof, or of the funds to be received thereunder by the Contractor, will be recognized unless such assignment has had the written approval of the Owner and the Surety has been given due notice of such assignment and has furnished written consent thereto. In addition to the usual recitals in the Assignment Contract, the following language must be set forth:

“It is agreed that the funds to be paid to the Assignee under this Assignment are subject to prior lien/Iowa Code Chapter 573 claims for services rendered on materials supplied for the performance of all work called for in said Contract, in favor of all persons, firms or corporations rendering such services supplying such materials.”

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.2 Safety of Persons and Property

Add Section 10.2.4.1 to Section 10.2.4:

§ 10.2.4.1 When use or storage of explosives, or other hazardous materials, substances or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall give the Owner reasonable advance notice.

Add Section 10.2.5.1 to Section 10.2.5:

§ 10.2.5.1 Contractors required remedial action for damage and loss to property referred to in Sections 10.2.1.2 and 10.2.1.3 shall repair the damaged materials and surfaces to their original condition, or better, to the satisfaction of the Owner. All such repairs are the responsibility of the Contractor and shall be accomplished at no additional cost to the Owner.

Add Section 10.2.9 to Section 10.2:

§ 10.2.9 Contractor shall at all times, protect the excavation, trenches and/or the buildings from damage or rain water, spring water, ground water, backing up of drains, or sewers, etc. Provide all pumps, equipment, and enclosures to give this protection.

Contractor shall construct and maintain all necessary temporary drainage and do all pumping necessary to keep excavations free of water.

Contractor shall provide all shoring, bracing, and sheeting as required for safety and for the proper execution of the Work. Remove when work is completed.

At end of day's work, all new work likely to be damaged shall be covered. During cold weather protect all work from damage. If low temperatures make it impossible to continue operations safely in spite of cold weather precautions, work shall cease after notifying Architect/Engineer. All other protective measures not mentioned above which may be required shall be furnished by the particular Contractor responsible for such protection.

§ 10.3 Hazardous Materials and Substances

Modify Section 10.3.1 by deleting the word “notify” in line six and replacing it with the words “report the condition in writing to”.

§ 10.4 Emergencies

Delete Section 10.4 and substitute the following:

In an emergency affecting safety of persons or property, the Contractor must take all necessary action, without the necessity for any special instruction or authorization from the Owner or Architect, to prevent threatened damage, injury or loss. The Contractor must promptly, but in all events with twenty-four (24) hours of the emergency, report such action

in writing to the Owner and Architect. If the Contractor incurs additional costs on account of or is delayed by such emergency, the Contractor may request a change in the Contract Sum or Contract Time to account for such additional costs or delay in accord with Articles 7, 8 and 15. The Contractor must file any such request within ten (10) days of the emergency or it is deemed waived. Any adjustment in the Contract Sum or Contract time shall be limited to the extent that the emergency work is not attributable to the fault or neglect of the Contractor or otherwise the responsibility of the Contractor under the Contract Documents.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

Section 11.1.1 shall be deleted and replaced with Exhibit A to these Supplementary Conditions, which is attached hereto and incorporated by reference herein.

Section 11.1.2 shall be deleted and replaced with the following:

11.1.2 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100% of the Contract Sum.

- .1 The Contractor shall deliver the required bonds to the Owner not later than ten (10) days following the date the Agreement is entered into, or, if the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.
- .2 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.
- .3 The Contractor shall require the bonding company to be registered with authority to transact business in State of Iowa.

§ 11.2 Owner's Insurance

Add the following sentence to Section 11.2.1:

Owner's insurance will be provided by Owner with customary exclusions of certain perils.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

Add the words "upon written authorization from Owner" between the words "Architect" and "be uncovered" in 2nd line of Section 12.1.1.

Add the words "upon written authorization from Owner" between the words "any request" and "to see" in 2nd line of Section 12.1.2.

§ 12.2.1 Before Substantial Completion

Delete Section 12.2.1 and substitute the following:

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

Delete Section 12.2.2.1 and substitute the following:

§ 12.2.2.1 In addition to Contractor's obligations under Section 3.5, if, within two (2) years after date of Substantial Completion of Work or designated portion thereof or after date of commencement of warranties established under any other provision of Contract Documents, or by terms of an applicable special warranty required by Contract Documents, any of Work is found not to be in accordance with requirements of Contract Documents, Contractor shall correct it promptly after receipt of written notice from Owner to do so. Owner shall give such notice promptly after discovery of condition. Before commencing correction of Work, Contractor shall submit to Owner written description of their proposed repairs. This proposal shall be approved by Design Professional before Contractor commences repair. Once Contractor has completed repair work, they shall notify Owner and Design Professional who shall promptly review corrected work. If Design Professional or Owner rejects corrected Work, Contractor shall continue with repairs until such time as Design Professional and Owner accept corrected Work. Where Contractor corrects defective Work during initial two (2) year period after Substantial Completion, if Owner discovers defects in corrected Work within one (1) year after repairs are made, then Contractor shall be obligated, upon written notice from Owner, to correct such defects within one (1) year from date that repairs were made.

Add Section 12.2.6 to Section 12.2 as follows:

§ 12.2.6 If Contractor fails or refuses to correct Work in accordance with their obligations under Contract Documents after written notice from Owner, then Owner may correct Work and Contractor shall be liable for costs to correct Work, any related architectural, engineering or other consulting costs, attorney's fees and expenses, and fines or penalties, if any. Any amounts due to Owner from Contractor under this Section may be withheld from balance of Contract Sum not yet paid.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

Delete Section 13.1 and substitute the following:

§ 13.1 Governing Laws

The Contractor shall be governed by the laws of the State of Iowa.

Add Section 13.1.1 to Section 13.1 as follows:

§ 13.1.1 Compliance with Law Provision: the Contractor agrees that it will comply with all applicable Federal, State and local laws, statutes, codes, rules, and regulations having jurisdiction over the Project. Contractor shall take all necessary precautions to keep the site and work in compliance with the safety and health regulations for construction issued by the Bureau of Labor Standards of the U.S. Department of Labor as well as the Occupational Safety and Health Standards, as amended and as enforced by the State of Iowa.

§ 13.2 Successors and Assigns

Delete Section 13.2.2.

§ 13.4 Tests and Inspections

Add the following after the 2nd sentence in Section 13.5.1:

"Contractor shall schedule all tests, inspections, or specific approvals required by law or Contract Documents so as to avoid any delay in Work."

Delete last 2 sentences of Section 13.4.1.

Add Section 13.4.7 to Section 13.4.

§ 13.4.7 In addition to tests required by Section 13.5, Owner may at any time arrange for other tests, inspections and specific approvals to be performed by others selected by Owner, at Owners expense. Contractor shall cooperate with Owner and provide access to Work for such tests, inspections and approvals.

§ 13.5 Interest

Delete Section 13.5 text and substitute the following:

“Payments due and unpaid under Contract Documents shall bear interest from date payment is due and shall bear interest at rate established in Iowa Code Section 74A.2 or Iowa Code Section 573.14, whichever is less.”

Add Sections 13.6 through 13.11 to Article 13:

§ 13.6 Owner’s Right to Occupy

Owner shall have the right to occupy, without prejudice to rights of either party, any completed or largely completed portion of structure or Work, notwithstanding the fact that time for completing entire Work, or such portion thereof, may not have expired. Such occupancy and use shall not be an acceptance of Work taken or used.

§ 13.7 Rebates

Owner shall have the right to apply for, and secure all rebates which are available when Bids are received. Contractor shall provide invoices, itemizations, and cooperation to the Owner in this regard.

§ 13.8 Conformance with Laws

The Contractor shall conform with provisions of Federal Civil Rights Act, the Code of Iowa, Chapter 216 Civil Rights Commission and rules and regulations adopted thereto by the Iowa Civil Rights Commission. The Contractor shall comply with applicable federal, state, and local laws, rules, regulations, ordinances, policies and procedures, including Owner’s policies and procedures, and Iowa Smoke Free Air Act. The Contractor shall require similar clauses in all of their subcontracts for service or materials.

§ 13.9 Equal Opportunity

§ 13.9.1 The Contractor shall maintain policies of employment as follows:

§ 13.9.1.1 The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, creed, religion, color, sex, national origin, ancestry, familial status, age, mental or physical disability, sexual orientation, gender identity, genetic information or any other protected class under state or federal law. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, creed, religion, color, sex or national origin, ancestry, familial status, age, mental or physical disability, sexual orientation, gender identity, genetic information or any other protected class under state or federal law. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

§ 13.9.1.2 The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, creed, religion, color, sex, national origin, ancestry, familial status, age, mental or physical disability, sexual orientation, gender identify, genetic information or any other protected class under state or federal law.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

Delete Section 14.1.1 and substitute the following:

§ 14.1.1 Contractor has no right to stop Work as consequence of non-payment. In event of any disagreement between Contractor and Owner involving Contractor's entitlement to payment, Contractor's only remedy is to file Claim in accordance with Article 15. Contractor shall diligently proceed with Work pending resolution of Claim.

- .1 If, however, an Application for Payment has been approved for payment by Owner, and Owner fails to make payment within sixty (60) days of approval of payment by Owner, Contractor may upon ten (10) day written notice to Owner, stop work if payment is not made by Owner within ten (10) days following notice.

Delete Sections 14.1.2 through 14.1.4 in their entirety.

§ 14.2 Termination by the Owner for Cause

Delete Sections 14.2.1 through 14.2.4 and substitute the following:

§ 14.2.1 Owner may terminate Contract for cause if Contractor:

- .1 Fails to supply adequate properly skilled workers or proper materials;
- .2 Fails to make payment to Subcontractors or Suppliers for materials or labor in accordance with respective agreements between Contractor and Subcontractors or Suppliers;
- .3 Fails to comply with any laws, ordinances, or rules, regulations or orders of public authority having jurisdiction;
- .4 Fails to perform Work in accordance with Contract Documents or otherwise breaches any provision of Contract Documents;
- .5 Anticipatorily breaches or repudiates Contract;
- .6 Fails to make satisfactory progress in prosecution of Work required by Contract; or
- .7 Endangers performance of Contract.

§ 14.2.2 Owner may terminate Contract, in whole or in part, whenever Owner determines that sufficient grounds for termination exist as provided in Section 14.2.1. Owner will provide Contractor with written notice to cure default. If default is not cured, termination for default is effective on date specified in Owner's written notice. However, if Owner determines that default contributes to curtailment of an essential service or poses an immediate threat to life, health, or property, Owner may terminate Contract immediately upon issuing oral or written notice to Contractor without any prior notice or opportunity to cure. In addition to any other remedies provided by law or Contract, Contractor shall compensate Owner for additional costs that foreseeably would be incurred by Owner, whether costs are actually incurred or not, to obtain substitute performance. Termination for default is termination for convenience if termination for default is later found to be without justification.

§ 14.2.3 Upon receipt of written notice from Owner of termination, Contractor shall:

- .1 Cease operations as directed by Owner in notice and, if required by Owner and County, participate in an inspection of Work with Owner, County and Architect/Engineer to record extent of completion thereof to identify Work remaining to be completed or corrected, and to determine what temporary facilities, tools, equipment and construction machinery are to remain at Site pending completion of Work;
- .2 Complete or correct items directed by Owner, and take actions necessary, or that Owner may direct, for protection and preservation of any stored materials and equipment and completed Work;
- .3 Unless otherwise directed by Owner, remove their tools, equipment and construction machinery from Site; and
- .4 Except as directed by Owner, terminate all existing subcontracts and purchase orders and enter into no further subcontracts or purchase orders.

§ 14.2.4 Following written notice from Owner of termination, Owner may:

- .1 Take possession of Site and all materials and equipment thereon, and at Owner's option, such temporary facilities, tools, construction equipment and machinery thereon owned or rented by Contractor that Owner elects to utilize in completing Work;
- .2 Accept assignment of subcontracts and purchase orders, and
- .3 Complete Work by whatever reasonable method Owner may deem expedient.

Add Sections 14.2.5 through 14.2.9 to Section 14.2:

§ 14.2.5 Upon termination for cause, Contractor shall take those actions described in Section 14.2.3, and Owner may take those actions described in Section 14.2.4, subject to prior rights of Contractor's Surety, as applicable.

§ 14.2.6 When Owner terminates Contract for cause, Contractor is not entitled to received further payment until Work is completed and costs of completion have been established.

§ 14.2.7 If unpaid balance of Contract Sum less amounts which Owner is entitled to offset from unpaid Contract balance, including actual or Liquidated Damages, compensation for Architect/Engineer's services and expenses made necessary thereby, and other damages and expenses incurred by Owner, including reasonable attorney's fees, exceeds cost of completing Work, including compensation for Owner's and Architect/Engineer's services made necessary thereby, such excess will be paid to Contractor or Surety, as directed by Surety. If such costs exceed unpaid Contractor balance, Contractor shall pay difference to Owner upon written demand. This obligation for payment shall survive termination of Contract.

§ 14.2.8 In completing Work following termination for cause, Owner is not required to solicit competitive bids or to award completion work to lowest bidder, but may obtain such completion work and related services on basis of sole source procurement and negotiated compensation.

§ 14.2.9 If Contractor files for protection, or petition is filed against it, under Bankruptcy laws, and Contractor wishes to affirm Contract, Contractor shall immediately file with Bankruptcy Court motion to affirm Contract and shall provide satisfactory evidence to Owner and to Court of their ability to cure all present defaults and their ability to timely and successfully complete Work. If Contractor does not make such an immediate filing, Contractor accepts that Owner shall petition Bankruptcy Court to lift Automatic Stay and permit Owner to terminate Contract.

§ 14.4 Termination by the Owner for Convenience

Delete Sections 14.4.1 through 14.4.3 and substitute the following:

§ 14.4.1 Owner may, at any time, terminate the Contract or any portion thereof or Work for Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from Owner of termination, Contractor shall:

- .1 Cease operations as directed by Owner in notice and, if required by Owner, participate in inspection of Work with Owner and Architect/Engineer to record extent of completion thereof, to identify Work remaining to be completed or corrected, and to determine what temporary facilities, tools, equipment and construction machinery are to remain at Site pending completion of Work;
- .2 Complete or correct items directed by Owner, and take actions necessary, or that Owner may direct, for protection and preservation of stored materials and equipment and completed Work.
- .3 Unless otherwise directed by Owner, remove their tools, equipment and construction machinery from Site, and
- .4 Except as directed by Owner, terminate all existing subcontracts and purchase orders related to Work and enter into no further subcontracts of purchase orders thereof.

§ 14.4.3 Following written notice from Owner of termination, the Owner may:

- .1 Take possession of Site and of all materials and equipment thereon, at Owner's option, such temporary facilities, tools, construction equipment and machinery thereon owned or rented by Contractor that Owner elects to utilize in completing Work;
- .2 Accept assignment of subcontracts and purchase orders; and
- .3 Complete Work by whatever reasonable method Owner may deem expedient.

Add Section 14.4.4 and 14.4.5 to Section 14.4:

§ 14.4.4 In case of termination for Owner's convenience, Contractor will be entitled to compensation only for following items:

- .1 Payment for acceptable Work performed up to date of termination;
- .2 Costs of preservation and protection of Work if requested to do so by Owner;
- .3 Cost of terminating following contracts including:
 - a. Purchased materials but only if not returnable and provided to Owner, or restocking or return charge, if any, if returnable at Owner's written election;

- b. Equipment rental contracts if not terminable at no cost but not to exceed an amount equal to thirty (30) day rental;
 - c. Documented transportation costs associated with removing Contractor-owned equipment;
 - d. Documents demobilization and close-out costs; and
 - e. Overhead and profit on foregoing not to exceed 10%.
- .4 Contractor will not be compensated for cost of terminating subcontracts, which shall be terminable at no cost to Owner if Contract is terminated.
- .5 Contractor will not be compensated for cost of any idled employees unless employee is underwritten employment contract entitling employee to continued employment after termination of Contract and employee cannot be assigned to other Work provided that in all events Contractor's costs shall be limited to thirty (30) days of employment costs from date of notice of termination. Contractor shall not be entitled to any other costs or compensation (including lost or expected profit, uncompensated overhead or related expenses, or cost of preparing and documenting their compensable expenses under this Section 14.4.4 as consequence of Owner's termination of Contract for convenience). Contractor conclusively and irrevocably waives their right to any other compensation or damages (compensation or Punitive) arising from termination of Contract. If Owner and Contractor are unable to agree upon amounts specified in this Section, Contractor may submit Claim as provided in Article 15. Claim must be limited to resolution of amounts specified in Section 14.4.4.1, 14.4.4.2, 14.4.4.3, and 14.4.4.4 of Section 14.4.4. No other cost, damages or expenses may be claimed or paid to Contractor or considered as part of Claim, same being hereby conclusively and irrevocably waived by Contractor. Any such Claim shall be delivered to Owner within thirty (30) days of termination of Contract and shall contain written statement setting forth specific reasons and supporting calculations and documentation as to amounts Contractor claims to be entitled to under this Section as result of termination of Contract.

§ 14.4.5 Contractor's obligations surviving final payment under Contract, including without limitation those with respect to insurance, indemnification, and correction of Work that has been completed at time of termination, remains effective notwithstanding termination for convenience of Owner.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1.1 Definition

Delete Section 15.1.1 text and substitute the following:

"A Claim is a written demand or assertion by Contractor seeking, as matter of right, payment of money, a change in the Contract Time, or other relief with respect to terms of Contract. Responsibility to substantiate Claims shall rest with Contractor. Nothing contained in this section is intended to apply to or in any way limit Owner's right to make claims related to or arising out of Contract."

§ 15.1.2 Time Limits on Claims

Delete the words "Substantial Completion" in line 4 of Section 15.1.2 and replace it with "Final Acceptance."

Delete the last sentence of Section 15.1.2

§ 15.1.3 Notice of Claims

Delete Section 15.1.3.1 and substitute the following:

§ 15.1.3.1 Claims by Contractor shall be initiated by written notice to Owner and to Initial Decision Maker with copy sent to Architect/Engineer, if Architect/Engineer is not serving as Initial Decision Maker. Claims by Contractor shall be initiated within ten (10) days after occurrence of event giving rise to such Claim or within ten (10) days after Contractor first recognizes condition giving rise to Claim, whichever is later. As condition of making claim for additional costs, Contractor shall maintain and produce accurate records to substantiate all additional costs actually incurred. If Claim for actual cost is approved, Owner shall pay Contractor actual costs incurred plus either (a) 10% for overhead and profit for work performed by Contractor, or (b) 5% overhead and profit for work performed by subcontractor, as applicable."

§ 15.1.4 Continuing Contract Performance

Delete Section 15.1.4.1 and substitute the following:

§ 15.1.4.1 Pending final resolution of Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, Contractor shall proceed diligently with performance of Contract and Owner shall continue to make payments as may be required in accordance with Contract Documents.

§ 15.1.6 Claims for Additional Time

Delete Section 15.1.6.2 and substitute the following:

§ 15.1.6.2 If adverse weather conditions are the basis of a Claim for additional time, the Claim shall be documented by data substantiating that the weather conditions upon which the Claim is based (1) were abnormal when compared to the previous 5-year period, during the same time frame and at the location of the Work, (2) could not have been reasonably anticipated, and (3) had an adverse effect on the date of substantial completion of the Work.

Add Sections 15.1.6.3 and 15.1.6.4 to Section 15.1.6:

§ 15.1.6.3 Claims for increase in the Contract Time shall set forth in detail the circumstances that form the basis for the Claim, the date upon which each cause of delay began to affect the progress of the Work, the date upon which each cause of delay ceased to affect the progress of the Work and the number of days' increase in the Contract Time claimed as a consequence of each such cause of delay. The Contractor shall provide such supporting documentation as the Owner may require including, where appropriate, a revised construction schedule indicating all the activities affected by the circumstances forming the basis of the Claim.

§ 15.1.6.4 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of the Contractor.

§ 15.1.7 Waiver of Claims for Consequential Damages

Delete Section 15.1.7.

§ 15.2 Initial Decision

Modify the first sentence of Section 15.2.1 to read as follows:

"Claims, excluding those arising under Sections 10.3, 10.4 and 11.5 shall be referred to the Initial Decision Maker for initial decision."

Delete Section 15.2.6 and substitute the following:

§ 15.2.6 The parties may file for mediation of an initial decision at any time, upon mutual agreement of the parties.

Delete Section 15.2.6.1.

Delete Section 15.2.8.

§ 15.3 Mediation

Delete Section 15.3.1.

Delete Section 15.3.2 and substitute the following:

§ 15.3.2 The parties shall endeavor in good faith to resolve claims, disputes and other matters in question between them by mutual agreement and may, by mutual agreement and in their discretion, submit same to non-binding mediation which shall be in accordance with Iowa Code Chapter 679C, unless otherwise mutually agreed upon by the parties.

Requests for mediation shall be given in writing to the other Party to this Agreement. If the Owner and Contractor are unable to mutually agree upon mediator in writing within sixty (60) days of receiving written request for mediation, either party may then institute legal or equitable proceedings. Mediation shall be voluntary only and shall not be a prerequisite to litigation or other means of dispute resolution.

Delete Section 15.3.3

Delete Section 15.4 substitute the following:

§ 15.4 Litigation

§ 15.4.1 Any legal claim brought under this Agreement shall be filed in the Iowa District Court in and for Dubuque County, unless otherwise mutually agreed to by the parties.

Add Article 16 as follows:

ARTICLE 16 SMOKING AND RELATED ADVERTISING

§ 16.1 Smoking will not be allowed on Owner's property, which shall include inside private vehicles parked on Owner's property. In addition, employees of Contractor, Subcontractors, and materials suppliers shall not wear apparel that advertises tobacco, alcohol, or illicit drugs, nor has profane language or images on them.

END OF SECTION 00 73 00

EXHIBIT A

NORTHEAST IOWA COMMUNITY COLLEGE

CONTRACTOR'S MINIMUM INSURANCE REQUIREMENTS:

Refer to AIA A201, Article 11 – Insurance:

Commercial General Liability:

Limit

Each Occurrence	\$1,000,000
Damage to Rented Premises (Each Occurrence)	\$100,000
Medical Expense (Any One Person)	\$5,000
Personal Injury & Advertising Injury	\$1,000,000
General Aggregate	\$2,000,000
Products/Completed Operations Aggregate	\$2,000,000

Commercial General Liability policy shall be written on an occurrence form using ISO form CG 00 01 or equivalent form.

Policy shall include the following endorsements:

1. ISO endorsement CG 20 10 or equivalent endorsement naming the Northeast Iowa Community College, its board members, employees and agents as an additional insured.
2. ISO endorsement CG 20 32 or equivalent endorsement naming Project Engineers, Architects and Surveyors as an additional insured.
3. ISO endorsement CG 20 37 or equivalent endorsement naming the Northeast Iowa Community College, its board members, employees and agents as an additional insured for completed operations. This endorsement shall be maintained for a minimum of two years after completion and acceptance of the project by the Northeast Iowa Community College.
4. ISO Endorsement CG 20 01 or equivalent endorsement indicating additional insured status for the Northeast Iowa Community College, its board members, employees and agents is primary and non-contributory.
5. ISO endorsement CG 25 03 or equivalent endorsement, Designated Construction Project(s) General Aggregate Limit.
6. ISO endorsement CG 24 04 or equivalent endorsement, Waiver of Transfer of Rights of Recovery Against Others to Us, naming the Northeast Iowa Community College.
7. Governmental Immunities Endorsement (see attached specimen).

Commercial Auto Liability

Limit

Bodily Injury & Property Damage – CSL	\$1,000,000
Any auto (owned, hired, non-owned)	

Or

Bodily Injury (per person)	\$1,000,000
Bodily Injury (per accident)	\$1,000,000
Property Damage	\$1,000,000

Business auto liability shall be written on ISO form CA 00 01 or equivalent form.

1. Policy shall include Symbol 1 (Any Auto). If no owned autos, hired and non-owned auto liability is acceptable.
2. Include ISO endorsement CA 04 44 or equivalent endorsement, Waiver of Transfer of Rights of Recovery Against Others to Us, naming the Northeast Iowa Community College.
3. Include ISO endorsement CA 99 48, Pollution Liability – Broadened Coverage for Covered Autos, or equivalent endorsement if the Contractor has vehicles that transport fuel onto Northeast Iowa Community College.

Workers Compensation

	<u>Limit</u>
Workers Compensation Coverage	Statutory Requirements
Bodily Injury by Accident	\$500,000
Bodily Injury by Disease (Each employee)	\$500,000
Bodily Injury by Disease (Policy Limit)	\$500,000

Workers Compensation shall include the following endorsement: WC 0003 13, Waiver of Our Right to Recover from Others, in favor of the Northeast Iowa Community College.

Sole Proprietors, Partners and Members must be included for coverage. Executive Officers may not be excluded from coverage.

Umbrella Liability

	<u>Limit</u>
Each Occurrence	\$1,000,000
Annual Aggregate	\$1,000,000
Follow Form	Yes

Umbrella or Excess liability policy shall provide excess coverage and be at least as broad in coverage as the following required policies and endorsements: Commercial General Liability, Business Auto and Employer's Liability.

Employee Theft Coverage

	<u>Limit</u>
Limit per Loss	\$100,000
Include Theft of Customer's/3rd Party Property	Yes

Special Provisions:

1. The OWNER and its wholly owned subsidiaries, agents, affiliates, owners, officers, directors, and employees are named as Additional Insured on the Commercial General Liability, Auto Liability, and Umbrella Liability coverages, on a Primary & Non-Contributory basis.
2. With respect to the General Liability and Umbrella Liability, the Additional Insured coverage must extend to include both Ongoing Operations, plus the Work and Products/Completed Operations. This can be accomplished by a combination of ISO endorsements CG 2010 (07/04), and CG 2037 (07/04), or equivalent.
3. The Completed Operations coverage noted above must be maintained for a period equal to statute of repose/statute of limitation in the respective project state.
4. The Commercial General Liability must include contractual liability, via the definition of an 'Insured Contract' equivalent to ISO form CG0001. Additionally, the Commercial General Liability must also include Limited Contractual Liability Coverage for Personal & Advertising Injury, via ISO form CG 2274 (10/01), or equivalent. The Umbrella Liability must follow-form.
5. A Waiver of Subrogation in favor of the OWNER and its wholly owned subsidiaries, agents, affiliates, owners, officers, directors, and employees, must be included on the General Liability, Auto Liability, Workers Compensation, and Umbrella Liability coverage.

6. As necessary per the scope of operations in the contract and per their insurable interest, the General Contractor shall be responsible for maintaining Contractor's Equipment and Installation Floater coverage.
7. If the General Contractor's scope of work for the project(s) include operations, materials, and/or equipment that could be reasonably expected to potentially cause and/or result in environmental damage, clean-up, and/or injury, the General Contractor shall be required maintain Contractors Pollution Liability coverage, with minimum limits of \$1,000,000 Each Claim / \$1,000,000 Aggregate. Coverage shall include the project worksite, transit, mold/bacteria, and non-owned disposal site exposures.
8. If the General Contractor's scope of work for the project(s) include design, engineering, architectural, or other professional services, the General Contractor shall be required maintain Contractors Professional Liability coverage, with minimum limits of \$1,000,000 Each Claim / \$2,000,000 Aggregate.
9. If the General Contractor contracts with or employs a design professional, the General Contractor shall require the design professional to maintain Professional Liability coverage, with minimum limits of \$1,000,000 Each Claim / \$2,000,000 Aggregate.
10. The General Contractor will be solely responsible for payment of any and all deductible and/or self-insured retention amounts which may be incurred by a loss covered by one or more of the required lines of coverage.
11. All policies noted above shall be endorsed to include a 30 Day's Notice of Cancellation be provided to OWNER and CONTRACTOR.
12. The above-stated insurance coverage shall be evidenced on a Certificate of Liability Insurance via an Acord 25 form or equivalent.
13. The above-stated insurance shall also be required by any and all subcontractors of the Contractor, with respect to operations performed under the contract/agreement. It is the responsibility of the Contractor to obtain and maintain proof the required insurance coverage.

NORTHEAST IOWA COMMUNITY COLLEGE GOVERNMENTAL IMMUNITIES ENDORSEMENT

1. Nonwaiver of Governmental Immunity. The insurance carrier expressly agrees and states that the purchase of this policy and the including of Northeast Iowa Community College as an Additional Insured does not waive any of the defenses of governmental immunity available to the Northeast Iowa Community College under Code of Iowa Section 670.4 as it now exists and as it may be amended from time to time.
2. Claims Coverage. The insurance carrier further agrees that this policy of insurance shall cover only those claims not subject to the defense of governmental immunity under the Code of Iowa Section 670.4 as it now exists and as it may be amended from time to time. Those claims not subject to Code of Iowa Section 670.4 shall be covered by the terms and conditions of this insurance policy.
3. Assertion of Governmental Immunity. The Northeast Iowa Community College shall be responsible for asserting any defense of governmental immunity, and may do so at any time and shall do so upon the timely written request of the insurance carrier.
4. Non-Denial of Coverage. The insurance carrier shall not deny coverage under this policy and the insurance carrier shall not deny any of the rights and benefits accruing to the Northeast Iowa Community College under this policy for reasons of governmental immunity unless and until a court of competent jurisdiction has ruled in favor of the defense(s) of governmental immunity asserted by the Northeast Iowa Community College.

No Other Change in Policy. The above preservation of governmental immunities shall not otherwise change or alter the coverage available under the policy.

END OF EXHIBIT A

SECTION 00 80 00

CODE ANALYSIS

NICC PLANT SERVICES MAINTENANCE BUILDING

1625 IA-150

Calmar, Iowa 52132

Applicable Codes:

- 2015 International Building Code (IBC)
- 2015 International Mechanical Code (IMC)
- 2015 International Fuel Gas Code (IFGC)
- 2015 National Electrical Code (NEC)
- 2012 International Energy Conservation Code (IECC)
- 2015 International Plumbing Code
- 2010 ADA

Project Description

1. Project includes (1) 1-story building.
 - a. 6000 sf new building
 - b. No automatic fire sprinkler system.

Construction Type

1. Proposed building is Type V-B Construction.

Building

1. Use and Occupancy Classification (**Chapter 3**)
 - a. Primary Use; Business Group S1 (311.2)
 - i. Motor vehicle repair garage
2. Building Height (Chapter 5)
 - a. Allowable Height in feet above Grade Plane (Table 503) = 40'
 - i. Maximum Height: 27'-8", varies according to building design.
 - ii. Therefore, OK
 - b. Allowable number of Stories above Grade Plane (Table 503) = 1 Stories
 - i. Actual number of Stories: 1 Stories
 - ii. Therefore, OK
3. Building Area (**Chapter 5**) – including Proposed building
 - a. Allowable Floor Area (Table 503) = 9,000 sf
 - b. Actual Floor Area:
 - i. Proposed building = 6000 sf (gross)
 - ii. Therefore, OK
4. Type of Construction (**Chapter 6**)

a. BUILDING ELEMENT (Table 601)	TYPE V-B
Primary structural frame	0
Bearing Walls	
Exterior	0
Interior	0
Nonbearing walls and partitions	
Interior	0
Floor construction and associated secondary members	0
Roof construction and associated secondary members	0
b. Exterior Wall Fire-resistance rating, based on FIRE SEPARATION DISTANCE (Table 602) $10' \leq X < 30'$	0
5. Fire and Smoke Protection Features (Chapter 7)

- a. Section 707 Fire Barrier Walls (**Chapter 7, Table 707.3.10**): In S-1 Occupancy, walls shall have a 3 hr fire resistance rating.
 - i. Section 903.2.9, Paragraph 4: A Group S-1 fire area used for the storage of commercial motor vehicles where the fire area exceeds 5,000 square feet requires an automatic sprinkler system.
 - ii. Fire barrier wall separating building with a 3- hour wall per Table 707.3.10 so building on each side of fire barrier wall is below the 5000 sf requirement to require fire sprinklers.
 - 1. Building #1 – 3,600 sf.
 - 2. Building #2 – 2,400 sf.
6. Interior Finishes (**Chapter 8**)
- a. Interior wall & ceiling finish classification: (IBC Table 803.9, S-1 Group, Non-sprinklered)
 - i. Vertical Exits and Exit Passageways Class B*
 - ii. Exit Access Corridors and Other Exit ways Class B*
 - iii. Rooms and Enclosed Spaces Class C*
- *Per IBC Section 803.1,
 Class A: flame spread 0-25; smoke developed 0-450
 Class B: flame spread 26-75; smoke developed 0-450
 Class C: flame spread 76-200; smoke developed 0-450
7. Fire Protection Systems (**Chapter 9**)
- a. Portable Fire Extinguishers will be installed per Section 906.
8. Means of Egress (**Chapter 10**)
- a. Occupant Load (Table 1004.1.2)
 - i. Actual Occupant load will be 5 persons working at Maintenance building
 - ii. Total occupancy load less than 15. Therefore, OK
 - b. Per Table 1006.2.1 common path of egress with occupancy load ≤ 30 to be 100', OL > 30, 75 feet.
 - i. egress travel does not exceed 75' at any location.
 - c. Per Table 1006.3.1 two exits are required.
 - ii. Three exits are provided.
 - iii. Therefore, OK
 - b. Exit Doorway Configuration (1007.1.1)
 - i. [Exits] shall be placed a distance apart equal to not less than one-third of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between them. Distance to exits is less than 1/3 of length of diagonal of building.
 - ii. Therefore, OK.
 - c. Signs (1013.4)
 - i. Signage meeting the requirements of this section and Chapters 2 and 7 of the 2010 ADA Guidelines for Accessible Design shall be provided
 - ii. Signage shall include but not necessarily be limited to: Restroom.
 - 1. Restroom will have braille signage.
 - d. Exit access travel distance (Table 1017.2)
 - i. Group S-1 Occupancy; Non-Sprinklered Building = 200'
 - ii. Travel distance to exit is significantly less than 200 feet; Therefore, OK.
9. Accessibility (**Chapter 11**)
- a. Scoping Requirements (1103.1)
 - i. Sites, buildings, structures, facilities, elements and spaces, temporary or permanent, shall be accessible to individuals with disabilities
 - ii. Building is designed to be accessible as required by this code
 - iii. Therefore, OK
 - b. Employee Work Areas (1104.3.1)
 - i. Common use circulation paths within employee work areas shall be accessible routes
 - ii. All common use circulation paths within an employee work area are designed to be accessible
 - iii. Therefore, OK
 - c. Accessible Entrances (1105.1)
 - i. International Building Code
 - 1. In addition to accessible entrances required by Sections 1105.1.1 - 1105.1.7, at least 60 percent of all public entrances shall be accessible, and;

- ii. All of three entrances to the building are designed to be accessible
 - iii. Therefore, OK
- d. Accessible Parking Spaces (1106.1)
 - i. Total Parking Spaces: 1 thru 25 people = 1 parking space required
 - ii. Actual Accessible Parking Spaces Provided = 1
- e. Toilet and Bathing Facilities (1109.2)
 - i. Restroom is fully handicapped accessible per the ADA.
 - ii. Project is designed throughout with accessible hardware in compliance with ADA guidelines
 - iii. Therefore, OK
- f. Employee Work Areas (1104.3.1)
 - i. Common use circulation paths within employee work areas shall be accessible routes
 - ii. All common use circulation paths within an employee work area are designed to be accessible
 - iii. Therefore, OK
- g. Accessible Entrances (1105.1)
 - i. International Building Code
 - 1. In addition to accessible entrances required by Sections 1105.1.1 - 1105.1.7, at least 60 percent of all public entrances shall be accessible, and;
 - ii. All of three entrances to the building are designed to be accessible
 - iii. Therefore, OK
- h. Accessible Parking Spaces (1106.1)
 - i. Total Parking Spaces: 1 thru 25 people = 1 parking space required
 - ii. Actual Accessible Parking Spaces Provided = 1
- i. Toilet and Bathing Facilities (1109.2)
 - i. Restroom is fully handicapped accessible per the ADA.
 - ii. Project is designed throughout with accessible hardware in compliance with ADA guidelines
 - iii. Therefore, OK

10. Interior Environment (**Chapter 12**)

- a. Ventilation (1203.2)
 - i. An air space of not less than 1 inch shall be provided between the insulation and the roof sheathing.
 - ii. The net free ventilating area shall be not less than 1/150 of the area of the space being ventilated.
 - iii. Exception: The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided both of the following conditions are met:
 - 1. In Climate Zones 6, 7, and 8, a Class I or Class II vapor retarder is installed on the warm-in-winter side of ceiling.
 - a. Calmar is in Climate Zone 6. Therefore, a Class I or Class II vapor retarder is required on the warm-in-winter side of ceiling.
 - 2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet below the ridge or highest point of the space, measured vertically, with the balance of the ventilation provided by eave or cornice vents.
 - a. Attic Ventilation Calculations (Sheet A1.2).
 - i. Attic Area: 6530 sf.
 - ii. Net free ventilation (using 1/300)
 - 1. $6,530/300 = 21.76 \text{ sf} = 3,134 \text{ sq. in. of ventilation required.}$
 - 2. Upper portion required: $3,134 \times 0.40 = 1,254 \text{ sq. in.}$
 - 3. Remainder required (Soffits): $3,134 - 1,254 = 1,880 \text{ sq. in.}$
 - iii. Proposed Ridge Vents for upper portion ventilation (20 sq. in./ LF used):
 - 1. Shop Bay #1: $59 \text{ LF} \times 20 \text{ sq. in./ LF} = 1,180 \text{ sq. in.}$
 - 2. Shop Bay #2: $38 \text{ LF} \times 20 \text{ sq. in./ LF} = 760 \text{ sq. in.}$
 - 3. Total Ridge Vents: $= 1,940 \text{ sq. in.}$
 - iv. Total upper portion is 1,940 sq. in. provided > 1,254 sq. in. required. Therefore, Okay.
 - v. Proposed Fully vented Soffit ventilation (17.98 sq. in./ sq. ft. used)
 - 1. Shop Bay #1: $(1'-4" \times 59 \text{ LF}) \times 2 \times 17.98 \text{ sq. in./ sq. ft.} = 2,822 \text{ sq. in. net free area.}$

2. Shop Bay #2: $(1'-4" \times 59 \text{ LF}) \times 2 \times 17.98 \text{ sq. in./sq. ft.} = 1,817 \text{ sq. in.}$
3. Total Soffit Ventilation: $2,822 + 1,817 = 4,639 \text{ sq. in. net free area.}$ $4,639 \text{ sq. in. provided} > 1,880 \text{ sq. in. required.}$
Therefore, Okay.

11. Plumbing Systems (**Chapter 29**)

- a. Minimum number of plumbing fixtures per table 2902.1
- b. Group S-1, 5 actual number of employees and customers is 5 occupant load.
 - i. Male
 1. Required - 1 per 100 = 1
 - ii. Female
 1. Required - 1 per 100 = 1
 - iii. Lavatories
 1. Required - 1 per 100 = 1
 - iv. Bathtubs or Showers
 1. Required - N/A
 - v. Drinking Fountains or Water Coolers
 1. Required - 1 per 1000 = 1
 - vi. Service Sink
 1. Required - 1
- c. Building Summary: Per Section 2902.2, Exception 2: "Separate Facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer."
 - i. Unisex restroom: Water Closets/Urinals
 1. Required 1
 2. Actual 1 water closets are provided
 - ii. Unisex Restroom Lavatories
 1. Required 1
 2. Actual 1 lavatories are provided
 - iii. Bathtubs or Showers
 1. Required - N/A
 2. Actual N/A
 - iv. Drinking Fountains or Water Coolers
 1. Required 1
 2. Actual 1 drinking fountains or water coolers are provided
 - v. Service Sink
 1. Required 1
 2. Actual 1 service sinks are provided
 - vi. Therefore; **OK**

1. International Energy Conservation Code (IECC) 2012

- a. Per Table C402.1.2 (Zone 6, All Other):
 - i. Roofs – Attic and other
 1. R = 49 required
 2. R = 49 proposed
 - ii. Walls, Above Grade – Wood Framed:
 1. R = 20 + 3.8 ci required
 2. R = 20 + 5.0 ci proposed
 - iii. Slab-on-Grade Floors - Unheated slabs:
 1. R = 10 for 24" below grade required
 2. R = 10 proposed
 - iv. Opaque Doors - Swinging
 1. U = 0.37 required
 2. U=0.14 proposed
 - v. Roll-up or sliding
 1. R = 4.75 required
 2. R = 16 proposed (overhead door)
- b. Per Table C402.3 of the IECC (Zone 6):

- i. Fixed Fenestration
 - 1. U = 0.36 required
 - 2. U = 0.29 provided
 - ii. Operable Fenestration
 - 1. U = 0.43 required
 - 2. U = 0.29 provided
 - iii. Entrance Doors
 - 1. U=0.77 required
 - 2. U=0.23 provided
 - iv. SHGC
 - 1. 0.40 required
 - 2. 0.36 provided
- c. Section C402.4.1.1 Air Barrier Construction
 - i. A continuous air barrier shall be provided throughout the building thermal envelope. The air barriers shall be permitted to be located on the inside or outside of the building envelope, located within the assemblies composing the envelope, or any combination thereof. The air barrier shall comply with Section C402.4.1.1. and C402.4.1.2
 - ii. Section C402.4.1.2.1
 - 1. Materials with an air permeability no greater than 0.004 cfm/ft² under a pressure differential of 0.3 inches water gauge when tested in accordance with ASTM E 2178 shall comply with this section:
 - 2. [#5] Closed cell spray foam a minimum density of 1.5 pcf and having a thickness of not less than 1 ½”.
- d. Therefore, OK

END OF SECTION 00 80 00

SECTION 01 00 00

TEMPORARY CONDITIONS

PART 1 GENERAL

1.01 APPLICABLE DOCUMENTS

- A. Bidding Requirements, Conditions of the Contract, and pertinent portions of Sections in Divisions 00 and 01 of these Specifications apply to the Work of this Section.

1.02 SUMMARY

- A. Work Covered By Contract Documents:
1. Work for the project includes:
In general, the work of the project includes (but is not limited to):
Phase 1: demolition of existing site and landscaping features, earthwork, utilities, and erosion control required for preparing site for "rest & settlement" for 4 weeks as required by the Geotechnical Report before building construction can begin. It also includes finish grading, seeding, permanent erosion control after building construction and paving is completed.
Phase 2: Building Construction; concrete footings, foundations, floor slab, approaches, sidewalks, curbs and gutters; HMA paving; Design-Build Plumbing, HVAC, and Electrical. Construction to start 4 weeks after "Rest & Settlement" and Geotechnical testing of earthwork indicates engineered fill soil can support building and paving.
- B. All Contractor's Duties:
1. Unless otherwise provided in the Contract Documents, provide and pay for:
 - a. Labor, materials and equipment.
 - b. Tools, construction equipment and machinery.
 - c. Temporary water, heat, electricity, sanitary facilities and transportation required for construction.
 - d. Other facilities and services necessary for property execution and completion of Work.
 2. Pay legally required sales, consumer and use taxes. Refer to Section 00 73 00 Supplementary Conditions for more information.
 3. Secure and pay for, as necessary for proper execution and completion of Work, and as applicable:
 - a. Permits.
 - b. Local fees.
 - c. Licenses.
 4. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of all public authorities which bear on performance of Work, whether local, state or national.
 5. All materials shall be new and installed true, plumb and square in a good, neat and workmanlike manner as judged by the industry-wide standards.
 6. Contract #1 Contractor shall be responsible for the building pad and site utilities layout, measurements and dimensions. Verify all dimensions of existing construction, as no assurance of dimensional accuracy is given.
 7. All Contractors shall submit to the Owner all required documentation, including Performance Bond, Labor and Material Bonds and a Certificate of Insurance as required in the General Conditions.
 8. The General Conditions are made part of the Section as if herein written.

1.03 BACKGROUND AND EMPLOYMENT CHECKS

- A. All Contractors shall submit a background and employment check indicating conformance to the requirements of Section 00 41 14 - Acknowledgement and Certification for all proposed personnel to be used on the Project. Forms shall be completed prior to that person being issued an identification badge and allowed on the Project Site. Contractor shall provide a List of Personnel authorized to work on the Project Site to the Owner.

PART 2 PRODUCTS: Not Used

PART 3 EXECUTION:

3.01 GENERAL

- A. All Contractors shall schedule and coordinate work under their contracts with the NICC Construction Manager so as to progress the work expeditiously, and to avoid unnecessary delays.

PART 4 SPECIAL PROJECT REQUIREMENTS:

4.01 GENERAL

- A. Job Sign:
 - 1. Contract #2 Contractor to provide one (1) 4'x8' job sign stating name of project, architect, consultants, engineers and general contractor. Consult with architect on design and location of signs.
 - 2. Place sign prior to commencement of work in place designated by architect. Sign shall remain in place until project is complete.
 - 3. Upon completion of work, general contractor shall remove sign and repair area as required.
 - 4. No other signs or advertisements by any other entity will be permitted on the site.

END OF SECTION 01 00 00

SECTION 01 01 10

SITE CONDITIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Each Contractor acknowledges that they have satisfied themselves as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.

1.02 INFORMATION ON SITE CONDITIONS

- A. All information obtained by the Owner regarding site conditions, topography, subsurface information, groundwater elevations, existing utilities, existing construction of site facilities as applicable, and similar data will be available for inspection at the office Straka Johnson Architects, PC upon request. Such information is offered as supplementary information only. Neither the Engineer, the Architect, nor the Owner assumes any responsibility for the completeness, accuracy or for the Contractor's interpretation of such supplementary information.

1.03 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

- A. Before excavating, each Contractor performing excavation activities shall contact the Joint Utility Locating Information for Excavators (J.U.L.I.E.), at 811 or 1-800-892-0123 to place a local request. E-requests are also available by visiting at http://newtina.julie1call.com/newtinweb/e_request.nas.
- B. Where the Contractor's operations could cause damage or inconvenience to telephone, television, power, oil, gas, water, sewer, the Contractor shall make all arrangements necessary for the protection of these utilities and services.
- C. Each Contractor performing excavation activities shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
- D. Neither the Owner nor its officers or agents shall be responsible to a Contractor for damages as a result of a Contractor's failure to protect utilities encountered in the work.
- E. The Contractor shall replace, at his own expense, any and all other existing utilities and existing structures removed or damaged during construction, unless otherwise provided for in these Contract Documents.

1.04 INTERFERING STRUCTURES

- A. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground.

1.05 COORDINATION

- A. The Contractor shall schedule and coordinate work under this contract with the schedule of the Owner so as to progress the work expeditiously, and to avoid unnecessary delays.

1.06 SITE CONDITIONS

- A. Existing conditions of site are available for viewing without coordination of Owner.
- B. Review of existing interior conditions shall be coordinated through the Owner's Representative.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01 01 10

SECTION 01 06 00

DEFINITIONS AND STANDARDS

PART 1: GENERAL

1.01 APPLICABLE DOCUMENTS

- A. Bidding Requirements, Conditions of the Contract, and pertinent portions of Sections in Divisions 00 and 01 of these Specifications apply to the Work of this Section.

1.02 DEFINITIONS

- A. **NOTE:** A substantial amount of specification language constitutes definitions for terms found in other contract documents, including the drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain items used in the contract documents are defined generally in this article. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the work to extent not stated more explicitly in another provision of the contract documents.
- B. **Bidding and Contract Requirements:** The provisions of Division 00 Bidding and Contract Requirements Sections apply to entire Work of Contract and, where so indicated, to other elements of Work which are included in the Project.
- C. **General Requirements:** The provisions of Division 01 General Requirement Sections apply to entire Work of Contract and, where so indicated, to other elements of Work which are included in the Project.
- D. **Indicated:** The term "indicated" is a cross-reference to details, notes or schedules on the drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in the contract documents. Where terms such as "shown", "noted", "scheduled-", and "specified, are used in lieu of "indicated-, it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.
- E. **Directed, Requested, etc.:** Terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by Architect/Engineer", "requested by Architect/Engineer", etc. However, no such implied meaning will be interpreted to extend Architect's/Engineer's responsibility into Contractor's area of construction supervision.
- F. **Approve:** Where used in conjunction with Architect's/Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Architect's/Engineer's responsibilities and duties as specified in the Architect/Owner Agreement. In no case will "approval" by Architect/Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of the Contract Documents.
- G. **Project Site:** The space available to Contractor for performance of the Work, either exclusively or in conjunction with others performing other Work as part of the Project. The extent of project site is shown on the drawings, and may or may not be identical with description of the land upon which Project is to be built.
- H. **Furnish:** Supply and deliver products and materials to project site, ready for unloading, unpacking, assembly, installation, or other related project activities as applicable in each instance.
- I. **Furnished by Others:** A note used to alert the Contractor for the work that a specific item is to be supplied by another source for the Project. The Contractor is responsible to coordinate the Work so that the item supplied by other source can be incorporated into the project to attain the final results desired by Contract Documents.
- J. **Install:** Operations at project site which include unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations, as applicable in each instance.
- K. **Provide:** Furnish and install, complete and ready for intended use, as applicable in each instance.
- L. **Permanent Enclosure:** The building is considered permanently enclosed when:
 - 1. Exterior walls are erected to full thickness, height and insulated to R-value specified.
 - 2. Roof surface is installed, with insulation to specified R-values, flashing and accessories required to make it weather-tight.
 - 3. Roof and wall openings are covered with weather-tight, exterior enclosures capable of sustaining any imposed loads without failure or loss of weather-tight integrity.
 - 4. Exterior enclosures installed can be locked or otherwise secured to prevent access during unoccupied periods.
- M. **Overlapping and Conflicting Requirements:** Where compliance with 2 or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, most stringent requirement (which is generally recognized to be also most

costly) is intended and will be enforced, unless specifically detailed language written into the Contract Documents (not by way of reference to an industry standard) clearly indicates that a less stringent requirements is to be fulfilled. Refer to apparently-equal-but-different requirements, and uncertainties as to which level of quality is more stringent, to Architect/Engineer for a decision before proceeding.

- N. **Trades:** Except as otherwise indicated, the use of titles such as “carpentry” in specification text, implies neither that the work must be performed by an accredited or unionized tradesman of the corresponding generic name (such as “carpenter”), nor that specified requirements apply exclusively to work by tradesmen of that corresponding generic name.
- O. **Abbreviations:** The language of specifications and other contract documents is of the abbreviated type in certain instances, and implied words and meanings which will be appropriately interpreted. Actual word abbreviations of a self-explanatory nature have been included in the text. Specific abbreviations have been established principally for lengthy technical terminology and primarily in conjunction with coordination of specifications requirements with notations on drawings and in schedules.

1.03 INDUSTRY STANDARDS

- A. Applicable standards of construction industry have some force and effect and are made a part of contract documents by reference as if copied directly into contract documents, or as if published copies were bound herewith.
- B. Reference standards (referenced directly in contract documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.
- C. Non-referenced standards recognized in the construction industry are hereby defined, except as otherwise limited in contract documents, to have direct applicability to the work, and will be so enforced for performance of the work.
- D. Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of contract documents.
- E. Copies of Standards: Provide where needed for proper performance of the work; obtain directly from publication sources.
- F. Abbreviations and Names: Where acronyms or abbreviations are used in specifications or other contract documents they are defined to mean the industry recognized name of trade association, standards generating organization, governing authority or other entity applicable to context of text provision. Refer to “Encyclopedia of Associations”, published by Gale Research Co., available in large libraries.

1.04 FORMAT AND SPECIFICATION EXPLANATIONS

- A. The format of principal portions of these specifications can be described as follows; (although other portions may not fully comply, no particular significance will be attached to such compliance or non-compliance):
 - 1. Sections and Divisions: For convenience, basic unit of specification text is a “section”, each unit of which is named and numbered. These are organized into related families of sections, and various families of sections are organized into “divisions”, which are recognized as the present industry consensus on uniform organization and sequencing of specifications. The section title is not intended to limit meaning or content of section, nor to be fully descriptive of requirements specified therein, nor to be an integral part of text.
 - 2. Each section of specifications has been subdivided into 3 (or less) “parts” for uniformity and convenience (Part 1 - General, Part 2 - Products, and Part 3 - Execution). These do not limit the meaning of and are not an integral part of text which specifies requirements.
 - 3. Underscoring: Used strictly to assist reader of specification text in scanning text for key words in content (for quick recall). No emphasis on or relative importance of text is intended where underscoring is used.
 - 4. Imperative Language: Used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by Contractor, or when so noted, by others.
 - 5. Section Numbering: Used to facilitate cross-references in contract documents. Sections are placed in Project Manual in numeric sequence; however, numbering sequence is not complete, and listing of sections at beginning of Project Manual must be consulted to determine numbers and names of specification sections in the contract documents.
 - 6. Page Numbering: Numbered independently for each section. Section number is shown with page number at bottom of each page, to facilitate location of text in Project Manual. In all cases the final page of each section is identified.

END OF SECTION 01 06 00

SECTION 01 11 00

SUMMARY OF THE WORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Phasing of the Work (Steps of Construction).
 - 3. Work under other contracts.
 - 4. Use of premises.
 - 5. Owner's occupancy requirements.
 - 6. Punchlist Completion.
 - 7. Work restrictions.
 - 8. Specification formats and conventions.
- B. Related Sections include the following:
 - 1. Division 01 Section - Temporary Facilities and Controls for limitations and procedures governing temporary use of Owner's facilities.

1.03 PROJECT IDENTIFICATION

- A. Project Name: NICC Plant Services Maintenance Building
- B. Owner: NICC Calmar Campus
1625 IA-150
Calmar, Iowa 52132
- C. Owner's Representative: Norm Racicot, NICC Construction Manager
Office: 563-202-0426
- D. Architect: Straka Johnson Architects, P.C.
3555 Digital Drive
Dubuque, Iowa 52003-8958
- E. Civil Engineers: Fehr Graham Engineering & Environmental
128 South Vine Street
West Union, Iowa 52175

1.04 SUMMARY OF THE WORK

- A. Briefly and without force and effect upon the Contract Documents, the Work of these sub-contracts can be summarized as follows:
- B. Work shall be done in two phases based on the requirements for replacing pour soils as required in Section 00 31 32 - Geotechnical Report.
 - 1. Phase 1
 - a. Removal of trees, grubbing, top soil, and unsuitable soil and replacing it with engineered granular fill.
 - b. Compacting and preparing building pad and paving pad to grade as shown on the Civil Drawings.
 - c. Installation of Site Utilities up to within 5 feet of the building.

- d. Installation and compaction of stone underlayment for concrete and HMA paving.
- e. Installation of temporary erosion control measures per Civil drawings on preparing site to “rest” for four weeks as required in Section 00 31 32 – Geotechnical Report
- 2. Phase 2
 - a. Excavation for Footings and foundations for the pouring of concrete for the construction of the Maintenance Garage.
 - b. Construction of the maintenance garage and installing building envelope components.
 - c. Connecting Plumbing, Electrical, and Natural gas to site utilities and pouring the concrete floor slab.
 - d. Installing interior wall and roof sheathing; cabinetry and interior finishes; and MEP fixtures installation.
 - e. Caulking, sealing, and weatherproofing building.
 - f. Pouring exterior concrete approaches, sidewalks, and curbs and gutters, and HMA paving.
 - g. Site Work, finish grading, seeding, landscaping, and permanent soil erosion per Civil Drawings.

C. Keep Architect fully informed about progress of the work, performance of the work and potential problems.

1.05 WORK PHASES

- A. Work of Sub-Contracts shall progress according to timeline indicated in Contract Documents.
- B. Start submittal process immediately upon contract award by the Board (anticipated to be **February 22, 2022**). Planning/ Pre-construction phase may commence on **February 22, 2022** following receipt of signed sub-contracts.
- C. Phase 1 shall begin **March 30, 2022** if frost is substantially out of ground with completion April 30, 2022 weather permitting.
 - 1. 4 week “Rest & Settlement” period required by Geotechnical Report shall begin April 30, 2022 with completion at May 30, 2022.
- D. Phase 2 shall begin **May 31, 2022** or four weeks after the completion of Phase 1 as per Section 00 31 32 - Geotechnical Report Requirements. Completion of Phase 2 – Building Construction to be **August 31, 2022** – Exterior Concrete/ Paving/ Site Work completion, **September 30, 2022**.

1.06 PRODUCTS ORDERED IN ADVANCE

- A. All Contractors shall pay for storing materials and equipment in an insured storage facility off site, if required. Contractors may submit payment application for stored material and equipment by submitting proof of ownership to Architect for review. Proof of ownership shall include photographic documentation, insurance certificate(s), bills-of-sale, first-person site inspection, and other reasonable assurances that the materials are purchased and intended for use on the project.

1.07 WORK WITH OTHER CONTRACTS

- A. Cooperate fully with the NICC Construction Manager and other sub-contractors so work may be carried out smoothly, without interfering with or delaying the project.
- B. Concurrent Work: Sub-contract work may be conducted simultaneously and contractors are to coordinate with each other and the NICC Construction Manager to maintain the project schedule.

1.08 USE OF PREMISES

- A. General: Sub-Contractors may have limited use of premises for construction operations as indicated on Drawings.
 - 1. All Contractors are to visit site and be familiar with existing conditions. Contractors will be required to coordinate with the NICC Construction Manager and accept existing conditions on site prior to mobilizing.
- B. Use of Site: Limit use of Project site to work areas indicated by Contractor’s construction schedule. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Staging: Coordinate with NICC Construction Manager.

2. Allow for Owner occupancy of Project site.
3. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Public ways must be maintained and available for use at all times.
4. Deliveries:
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
5. Public Streets: Maintain clear of automobile parking, equipment or material storage unless arrangements have been made with the appropriate jurisdiction.
6. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.
- C. Each Sub-contractor will dispose of construction waste and debris accumulated from their construction activities; remove debris as it accumulates and, unless specified otherwise, dispose of legally off-site.
- D. Conform to NICC noise control regulations, including limited hours of construction operations.

1.09 LAYING OUT WORK

- A. Locate all general reference points. Where dimensions or observed scope of work differ substantially from Drawings, notify Architect for decision.
- B. Lay out Work from the reference points furnished and be responsible for all lines, elevations, and measurements inside workspace. Exercise proper precaution to verify figures shown on Drawings before laying out work and will be held responsible for any error resulting from his failure to exercise such precaution.
- C. Utilities Contractor to hire the services of a locator company to locate all privately owned utilities that may be disturbed by construction operations.
- D. Coordinate utility connections with municipality/utility company in which project is being constructed.

1.10 WORK RESTRICTIONS

- A. The Contractor's access to and use of the site/facility for completion of work shall be subject to the following:
 1. Work shall be generally performed during normal construction business working hours, Monday through Friday.
 2. Coordinate schedule with NICC Construction Manager, or a designated building representative.
 3. Weekend Hours: Contractors shall coordinate with NICC Construction Manager.
 4. Early Morning and Early Evening Hours: Contractors shall coordinate with NICC Construction Manager or Owner's Representative.
 5. Should Contractors choose to perform work after normal business hours when the building is occupied, the Contractors shall:
 - a. Maintain access, building utilities, and services to allow full and free use of the facility during this time. All temporary conditions, re-routing of services, utilities and/or power are the Contractor's responsibility.
 - b. To the fullest extent possible provide for normal campus operations, and the safety of the campus occupants. Work in areas that occur during evenings and weekends shall be cleaned and available for use the following business day.
 - c. Coordinate schedule with the Owner's Representative or a designated building representative.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 1. Notify Architect not less than seven (7) days in advance of proposed utility interruptions.
 2. Do not proceed with utility interruptions without Architect's or Owner's permission.
- C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner facilities with Owner.
 1. Notify Owner not less than two (2) business days in advance of proposed disruptive operations.
 2. Obtain Owner's written permission before proceeding with disruptive operations.
 3. Use of radios is prohibited.

- D. On Project Site: NICC forbids having firearms on the premises and prohibits the use of illegal drugs, alcohol, and any kind of tobacco products.
 - 1. Tobacco products include, but are not limited to: Cigarettes, cigars, pipes, and various smokeless tobacco products including chew and snuff. This requirement extends to employees and visitors. This policy applies at all times. Persons failing to abide by this request shall be required to extinguish and/or dispose of tobacco product or leave the premises immediately. It shall be the responsibility of the contractors to enforce these policies.

1.11 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Division and Sections using the 49-division format and CSI/CSC's "Master Format" numbering system.
 - 1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

END OF SECTION 01 11 00

SECTION 01 22 00

UNIT PRICES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by one shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in one location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for unit prices.
 - 1. In the space indicated on the Bid Form, submit unit prices as required by this section and listed in the Unit Price Schedule. Only one value for each unit price will be allowed.
 - 2. A unit price is a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the quantities of Work required by the Contract Documents are increased or decreased.
 - 3. Unit prices include all necessary material, equipment, labor, overhead, profit and applicable taxes.
 - 4. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices.
- B. Unit Prices will not be used in the selection of the successful Bidder or determination of lowest responsive, responsible bid; however, they must be submitted and approved prior to execution of the Contract.
 - 1. The Owner reserves the right to reject a unit price he deems unsatisfactory and to require a resubmittal.
 - 2. The Owner reserves the right to reject the Contractor's measurement of quantities, and to have this Work measured by an independent surveyor.

PART 2 PRODUCTS – (Not Applicable).

PART 3 EXECUTION

3.01 UNIT PRICE SCHEDULE

- A. **Unit Price No. 1 (Contract #1): Overexcavation – Buildings**
 - 1. Cost per cubic yard for removal and disposal of unsuitable soils and replacement with lean clay or engineered fill as set forth in the Geotechnical Report. Refer to Section 00 31 32 – Geotechnical Report
- B. **Unit Price No. 2 (Contract #1): Overexcavation – Parking and Drives**
 - 1. Cost per cubic yard for the removal and disposal of unsuitable soils and replacement with lean clay or engineered fill as set forth in the Geotechnical Report. Refer to Section 00 31 32 – Geotechnical Report

- C. **Unit Price No. 3 (Contract #1): Stone Underlayment – Replacement and Compaction**
1. Cost per cubic yard for the replacement and compaction of stone underlayment at Parking and Drives where underlayment has rutted or settled during construction. Type and size of Stone Underlayment is to be as required on sheet C.04.
- D. **Unit Price No. 4 (Contract #3): PCC Paving**
1. Cost per SY (square yard) of PCC Paving and associated base materials as shown on Drawings. Unit price may be used to increase or decrease scope of PCC paving.
- E. **Unit Price No. 5 (Contract #4): HMA Paving**
1. Cost per SY (square yard) of HMA Paving and associated base materials as shown on Drawings. Unit price may be used to increase or decrease scope of HMA paving.

END OF SECTION 01 22 00

SECTION 01 23 00

ALTERNATES

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section describes the limits of the requested alternates to the Contract work. Refer to the Product/Execution Articles of the appropriate Specifications and the Drawings for information pertaining to the work of each alternate.
- B. Each proposal under an alternate shall include all incidental work and all adjustments necessary to accommodate the changes. All work shall meet the requirements of the Drawings, Specifications and appropriate details.
- C. Submit each alternate proposal as an individual stand-alone cost for the particular alternate, with the premise and presumption that no other alternates have been or will be accepted.
 - 1. Bidder **MUST** indicate whether the Alternate Bid submitted is an Add to the Base Bid amount or a Deduct from the Base Bid amount by circling the appropriate term on the Bid Form.
 - 2. Should the work of an alternate called for by the Bid Form not affect the cost of the work, state "No Change" in the space provided.
 - 3. If an alternate is left blank, the Owner reserves the right to reject the entire bid, or interpret the alternate as "No Change".
- D. Include taxes which are applicable to work involved in alternates as well as costs, if any, for increased coverage of bonds and insurance.
- E. Any, all, or none of the alternates may be accepted by Owner. At its sole discretion, the Owner may or may not use alternates in determining the lowest responsive, responsible bid.
 - 1. The Owner reserves the right to accept any of the alternates, in any combination, regardless of an implied order or priority, or its enumeration herein and in Section 00 41 13 - Bid Form.
- F. Owner may vary the scope of the work by authorizing alternates which will add to the work, deduct from the work or substitute materials, equipment or methods.
- G. Each Bidder shall examine the Drawings and Specifications to determine the extent to which their work is affected by bid alternates. Include in the space provided on the bid form the cost of any added or deducted work resulting from each alternate.
- H. Contractor is responsible for providing work if applicable to each alternate, whether or not an added or deducted cost is included on his bid form.

PART 2 EXECUTION

2.01 IMPLEMENTATION

- A. If the Owner elects to proceed on the basis of 1 or more of the alternates, make all modifications to the Work required in the furnishing and installation of the selected alternate or alternates subject to the approval of the Architect at no additional cost to the Owner except as established on the Bid Form.
- B. Coordinate pertinent related work and modify surrounding work as required to properly integrate the work under each alternate, and to provide the complete construction required by Contract Documents.
- C. If so stated in the Agreement or modifications thereto, provide alternate materials, equipment and/or construction as specified.

2.02 BASE BID WORK

- A. Base Bid - Phase 1 – Earthwork/ Site Utilities/ Site Work, Contract #1: includes all work shown or referenced as Phase 1 in the drawings and details, and in this Specification. Refer to Section 00 01 10 – Table of Contents and Section 00 11 13 – Advertisement for Bids.

- B. Base bid – Phase 2 – Contracts #2 thru #7 includes all work shown or referenced as Phase 2 in the drawings, details, and specifications.

2.03 ALTERNATES

A. Alternate No. 1 (Contract #3): Portland Cement Concrete (PCC) paving in lieu of Hot Mix Asphalt (HMA) paving.

1. 7” thick Portland Cement Concrete (PCC) over 10” thick crushed stone base. PCC shall be Class C, 4,500 psi mix, with “L” joints (coated rebar) at alternating panels. Panel dimension shall be maximum dimension of 11 feet. Curing compound required. Include integral curb and gutter.

END OF SECTION 01 23 00

SECTION 01 25 00

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section defines procedures to be followed to gain acceptance of products in the Work which are not listed in the individual specification sections. A two-step process is required.
- B. Requests for acceptance for bidding purposes of alternative manufacturers is encouraged except where specifically prohibited by this Project Manual.

1.02 PRODUCT OPTIONS NOT REQUIRING PRE-BID SUBMITTAL

- A. Where products are specified by reference standards, any product established by a material testing agency to meet these standards is acceptable.
- B. Where multiple manufacturers and associated models are specified, select any 1 named.
- C. Where manufacturer(s) alone are specified, select any manufacturer and the product recommended in writing by the manufacturer as most suited to the application shown on the Drawings and Specifications.
- D. Where the phrase "or equal" follows the name of a manufacturer, any product which meets the performance and appearance standards established by the specified manufacturer may be selected, subject to the Architect's acceptance. If the Architect/Engineer does not accept the substitution, the Contractor shall provide the Basis of Design product specified, at no additional cost to Owner.
- E. Where a manufacturer is listed in both a technical specification section and the Material Finish/Color Schedule, on Architectural Drawings and a color is provided.

1.03 PRODUCT SUBSTITUTIONS REQUIRING PRE-BID SUBMITTALS

- A. Step 1 - Manufacturers Acceptance
 - 1. Individual specification sections may be amended by the Architect during the bid period to include additional names of manufacturers determined to be capable of providing acceptable materials.
 - 2. To propose the names of specific manufacturers, submit, or arrange for suppliers to submit, written requests to Architect or appropriate Architect's Consultant. Requests received seven (7) days prior to bid date will be considered.
 - a. Provide sufficient review data. Include specified manufacturer's model numbers and proposed manufacturer's product literature, noting product numbers for proposed substitutions, and where appropriate, samples and data relating to construction details. If the product is not identical to specified product, submit letter stating proposed manufacturer will custom make products to meet specified product.
 - b. Architect's acceptance is based upon the determination that a manufacturer is capable of supplying acceptable materials. Approval is not assured or implied for a specific material, item of equipment, color or finish.
 - c. Official notification will be by addendum to the Contract Documents. However, in addition, if letters of request are delivered in duplicate with accompanying stamped self addressed envelopes, copies may be returned with Architect's decision in advance.
- B. Step 2 - Product Acceptance
 - 1. Upon award of a construction contract, accepted manufacturers may submit for review to the Architect through the General Contractor or Construction Manager, specific products, materials or equipment items as substitutes for those specified. Contractor to provide letter stating they will reimburse Architect to review substitutions.
 - 2. Architect will review substitute products for performance, appearance, color, finish, size and suitability for inclusion in the work. If a substitute product is not accepted, submit another product by the same or other accepted manufacturer or provide the specified product.
 - 3. Match specified colors and dimensions exactly, whether or not they are standard with the substitute product, unless a minor variation is accepted by the Architect.

4. If a substitute product is accepted, coordinate any necessary changes in other related work and pay for these changes. Pay cost of architectural or engineering services, if any, required to incorporate substitute products in the Work.

1.04 SUBSTITUTIONS BY CHANGE ORDER

- A. A substitution for a specified product may be permitted by "change order" at no additional cost to the Owner if product proposed is determined to be equivalent in performance and suitability, and if at least one of the following conditions apply:
 1. Owner is given a credit for the work.
 2. Product is of superior quality than product specified.
 3. Product color or finish selection is preferable.
 4. Products specified and upon which building is designed have been discontinued by manufacturer.
- B. Provide Architect, through Owner, reasonable compensation for product evaluation.

1.05 PRODUCT COLOR AND FINISH SELECTION

- A. Basis of Design:
 1. See Material Finish Color Schedule.
 2. Where product colors and finishes are not specifically listed in Material Finish Color Schedule or in particular product specifications, Architect shall select color from Manufacturer's full range of color options.
- B. Substitutions:
 1. Product substitutions shall offer the same color options as the Basis of Design. Products that do not offer the same color options will be rejected by Architect.

END OF SECTION 01 25 00

SAMPLE SUBSTITUTION REQUEST FORM

DATE: _____

TO: _____

ATTENTION: _____

PROJECT: _____

We submit for your consideration the following product as a substitution for the specified product:

Section No.	Paragraph	Specified Product
_____	_____	_____

Proposed Substitution: _____

Reason for Substitution: _____

Product Data:

Attach complete technical data for both the specified product and the proposed substitution. Include information on changes to Contract Documents that the proposed substitution will require for its proper installation.

Samples:

☐ Attached ☐ Will be furnished upon request

Does the substitution affect dimensions shown on Drawings?

☐ No ☐ Yes (explain) _____

Effects of proposed substitution on other Work:

Differences between proposed substitution and specified Product:

Manufacturer's warranties of the proposed substitution are:

☐ Same ☐ Different (explain) _____

Maintenance service and spare parts are available for proposed substitution from:

Previous installations where proposed substitution may be seen:

Project: _____	Project: _____
Owner: _____	Owner: _____
Architect: _____	Architect: _____
Date Installed: _____	Date Installed: _____

Cost savings to be realized by Owner, if proposed substitution is approved:

Change to Contract Time, if proposed substitution is approved:

☐ No Change ☐ Add _____ days ☐ Deduct _____ days

Submittal constitutes a representation that [Contractor] [Construction Manager] has read and agrees to the provisions of Section 01 25 00.

Submitted by [Contractor:] [Construction Manager:]

Signature

Firm

For Use by Architect:

Based on the information supplied by the [Contractor,] [Construction Manager,] the Architect has reviewed the proposed substitution on the basis of design concept of the Work and conformance with information given in Contract Documents.

☐ Approved ☐ Approved as Noted ☐ Rejected

Submit Additional Information: _____

By: _____ Date: _____

END OF SECTION 01 25 00

SECTION 01 26 63

CHANGES IN THE WORK

PART 1 CHANGE ORDER PROCEDURES

- A. Changes in the Project scope of work affecting the project cost can be made only through AIA Document G701 - Change Order.
 - 1. Change Orders will not be submitted to, or approved by, the Owner more often than once per calendar month, to coincide with the Owner's pre-established meeting times and procedures.
- B. The procedures for processing changes in the scope of Work are listed as follows:
 - 1. The Architect prepares one of the following documents to modify the scope of work.
 - a. Architect's Supplemental Instructions AIA Document G710 (ASI) which are used for presumed no cost changes.
 - b. Proposal Request AIA Document G709 (PR) to be used for proposed changes that need written approval on cost prior to proceeding.
 - c. Construction Change Directive AIA Document G714 (CCD) which is used when the work must proceed immediately, with time and material costs submitted as soon as possible for review by the Architect.
 - 2. The Contractor prepares the following for clarifications of the work:
 - a. Request(s) for Information (RFI) – on form developed by Contractor.
 - b. Change Order Request (COR) - on form developed by Contractor.
 - 1) COR's may be used, if acceptable to the Owner and the Architect, to expedite individual Project Changes, in order to facilitate the execution and timeliness of the Work. Submission of a COR, or a request thereof from the Owner or Architect, does not constitute acceptance or approval of any change in the Work.
 - 2) COR's will be tracked and compiled/enumerated in a G701 Change Order.
 - 3. The Contractor reviews and responds as follows:
 - a. Architect's Supplemental Instructions (ASI): This no cost change is to be carried out immediately, in accordance with the following:
 - 1) If this change affects cost, do not proceed with this change. Notify the Architect in writing within ten (10) days of receipt that an itemized (labor and material) quotation will be submitted within twenty-one (21) days of initial receipt of this ASI.
 - 2) If no cost is submitted within twenty-one (21) days, this ASI will be accepted at no additional cost.
 - b. Proposal Request (PR): Submit an itemized (labor and material) quotation for the proposed modifications to the contract documents as described herein within twenty-one (21) days of receipt. If no cost is submitted within twenty-one (21) days, this Proposal Request can be accepted at no additional cost. Written approval is required prior to proceeding with this change.
 - c. Construction Change Directive (CCD): Proceed immediately to carry out this change in the contract documents as described herein. If this revision affects cost, submit an itemized (labor and material) quotation within twenty-one (21) days of receipt. If a cost is not submitted within twenty-one (21) days this Change Directive will be accepted at no additional cost. Note that CCD requires signature of Architect, Contractor and Owner to become valid and approved.
 - 4. The Architect will review the Contractor's labor and material itemized quotation, and respond in writing whether it is acceptable or needs revision. When all pricing is accepted by the Architect and Owner, a Change Order will be processed. Change Orders will be processed at increments determined by the Architect throughout the construction schedule.
- C. See General Conditions and Supplementary Conditions of the Work for methods of determining cost or credit, mark-up and schedule on submitting claims.

END OF SECTION 01 26 63

SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Procedures for preparation and submittal of schedule of values and applications for payment.
- B. Related Requirements
 - 1. Division 00
 - 2. Section 00 67 00 - AIA Document G702/703 with Supplemental
 - 3. Section 01 22 00 - Unit Prices
 - 4. Section 01 23 00 - Alternates
 - 5. Section 01 26 63 - Changes in the Work
 - 6. Section 01 32 00 - Construction Scheduling
 - 7. Section 01 33 00 - Submittals
 - 8. Section 01 77 00 - Project Closeout

1.03 DEFINITIONS

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

1.04 SCHEDULE OF VALUES

- A. Schedule of Values Form: AIA Document G703, Continuation Sheets.
- B. Application Preparation of Schedule of Values: Provide initial cost of each line item. Include total cost and proportionate share of general overhead and profit for each item.
 - 1. Dollar value of the following, as a percentage of the Contract Sum to nearest 1/100%, adjusted to total 100%.
 - a. Labor.
 - b. Materials.
 - c. Equipment.
 - 2. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
- C. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values.
 - 1. Provide breakdown of major cost items in general conditions as separate line items. Include the following line items as part of contractor's normal breakdown.
 - a. Bonds, insurance.
 - b. Mobilization.
 - c. Demobilization.
 - d. Permits and fees.
 - e. Shop Drawings (by individual product or in total in General Conditions).
 - f. Record Documents.
 - g. Demonstration and Training.
 - h. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items or distributed as general overhead expense, at Contractor's option.

- i. Allowances: If applicable, provide a separate line item for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 - j. Provide at least 1 line item for each Specification Section.
 - 1) Provide multiple line items for principal subcontract amounts in excess of 5% of Contract Sum.
 - k. Provide separate line item for material and labor costs worked for each period of construction Work, as appropriate.
- D. Transmittal: Transmit using a transmittal form.
 - 1. Submit a draft Schedule of Values to Architect at earliest possible date for review and comment, but no later than ten (10) business days before the date scheduled for submittal of initial Applications for Payment.
 - 2. On an attached separate sheet, prepared on Contractor's letterhead, provide list of subcontractors.
 - 3. Architect will review Schedule of Values with Contractor and make marks to indicate corrections or modifications required.
- E. Update:
 - 1. Update Schedule of Values when:
 - a. Directed by Architect/Engineer.
 - b. Change of subcontractor or supplier occurs.
 - c. Change of product or equipment occurs.
 - d. Change in Project Scope is approved
 - 2. Send separate letter of notification to Architect/Engineer explaining reason for change to schedule.

1.05 APPLICATIONS FOR PAYMENT

- A. Application for Payment Form and Continuation Sheets: AIA Document G702 and AIA Document G703.
- B. Schedule for Application for Progress Payments: Schedule submittal time so documents are received in Architect's office by the 15th of each month. Architect to submit documents to Owner's Representative by the 20th of each month. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement. Owner will make payments promptly, in accordance with the Iowa Code.
- C. Preparation of Application for Payment and Continuation Sheets: Complete every entry on forms. Architect will return incomplete applications without action.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- D. Continuation Sheets: Include the following:
 - 1. Provide updated Schedule of Values.
 - 2. Change Orders (numbers) that affect value.
 - 3. Stored Materials: Provide a separate line item in the Continuation Sheets for each part of the Work for materials or equipment purchased or fabricated and stored, but not installed. Differentiate between items stored on-site and items stored off-site.
 - a. In the event the Contractor should desire payment on materials to be stored offsite, advance approval by Owner and appropriate documentation and affidavits required by the Owner including photographs of stored materials and insurance certificate(s) shall be provided for the Owner's consideration and approval, and all other assurances required by the Owner shall be met prior to the Owner's approval of payment for such materials.
 - 1) Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 - 2) Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 - 3) Provide summary documentation for stored materials indicating the following:
 - a) Materials previously stored and included in previous Applications for Payment.
 - b) Work completed for this Application utilizing previously stored materials.
 - c) Additional materials stored with this Application.
 - d) Total materials remaining stored, including materials with this Application.

4. Deduct five 5% for retainage on payments.
- E. Payments and Retention From Payments On Contracts: Refer to Iowa Code, Chapter 573 Labor And Material On Public Improvements.
- F. Lien Waivers: Do not apply to public projects. Refer to Master Builders of Iowa "Public Projects and Lien Waivers" and Iowa Code, Chapter 573.
- G. Transmittal: Submit each Application for Payment to Architect in accordance with Section 01 33 00 - Submittals.
 1. Transmit with a transmittal form listing attachments and recording appropriate information about application.

1.06 INITIAL APPLICATION FOR PAYMENT

- A. Initial Application for Payment: Do not submit initial Application for Payment until after the Board of Education approves the contract, bonds, and insurance and adopts a resolution approving the contract and bond and signs the contracts.
- B. Administrative actions and submittals that must precede first Application for Payment include the following:
 1. List of additional subcontractors not submitted at bid time.
 2. Certificates of insurance and insurance policies.
 3. Performance and payment bonds.
 4. Data needed to acquire Owner's insurance.
 5. Revised Schedule of Values. Architect will not review initial Application for Payment without approving the initial Schedule of Values.
 6. Contractor's construction schedule (preliminary if not final).
 7. Products list (preliminary if not final).
 8. Submittal schedule (preliminary if not final). Architect will not review initial Application for Payment without receiving submittal schedule.
 9. Copies of building permits.
 10. Initial progress report.
 11. Report of preconstruction conference.

1.07 SUBSTANTIAL COMPLETION APPLICATION FOR PAYMENT

- A. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100% completion of the Work claimed as substantially complete.
 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

1.08 FINAL COMPLETION APPLICATION FOR PAYMENT

- A. Final Application for Payment: Submit 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 (if applicable), 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 G707, "Consent of Surety to Final Payment."
 6. For the record and Owner's request, submit final lien waivers indicating no claims or evidence that claims have been settled.
 7. Final operation and maintenance manuals and Project record documents are on file.
 8. Executed final acceptance by the Owner.
- B. The Owner will hold release of final payment and retainage for thirty (30) business days after formal board approval of the final acceptance resolution.

1.09 SUBMITTAL PROCEDURES

- A. Submit Application for Payment per Section 01 33 00 – Submittals.

- B. Submit draft application for review and approval by the Architect/Engineer twenty (20) days prior to the date established for the progress payment, but not more often than once a month.
- C. Upon review and approval of the application for payment by the Architect/Engineer, the application will be forwarded to the Owner for authorizing the payment.
- D. Upon approval of the application by the Owner, the application will be submitted for payment.
- E. Payment will be made to the Contractor as specified in the Contract with the Owner, or as specified herein.

1.10 SUBSTANTIATING DATA

- A. When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide data with cover letter and submit per Section 01 33 00 – Submittals. Show application number and date, and line item by number and description.
- C. Include the following with the application:
 - 1. Partial release of liens from major subcontractors and vendors related to work covered by previous payment and from Contractor for current payment.
 - 2. Construction progress schedules, revised and current as specified in Section 01 32 00 – Construction Scheduling.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION 01 29 00

SECTION 01 31 19

PROJECT MEETINGS

PART 1 GENERAL

1.01 DESCRIPTION

- A. NICC Construction Manager to Schedule Pre-construction meeting, periodic progress meetings, and specially called meetings throughout the progress of the work.
 - 1. Notify Architect in advance.
 - 2. Prepare agenda for meetings.
 - 3. Make physical arrangements for meetings.
 - 4. Preside at meetings.
- B. Representatives of contractors, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. Architect may attend meetings to ascertain that Work is expedited consistent with Contract Documents and the construction schedules.

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00 – Submittals.
 - 1. Anticipated agenda for each meeting whether coordinated by the Owner, Architect, or Contractor. Meetings include pre-construction meeting, regular construction meetings, pre-installation meetings, substantial completion review and final completion review, and other meetings as required by the Work.
 - 2. Meeting minutes for each meeting whether coordinated by the Owner, Architect, or Contractor. Meetings include pre-construction meeting, regular construction meetings, pre-installation meetings, substantial completion walk-throughs, final completion walk-through, and other meetings as required by the Work.

1.03 PRE-BID MEETING

- A. A Recommended Pre-Bid Meeting will be conducted on January 24, 2022 starting at 1:00 pm Local Time at Project Site. Pre-Bid meeting will consist of site tour, project overview and question and answer session.
 - 1. Meet at the project site.
 - 2. Tour of site conducted by Architect/Owner: Starting at 1:00 pm and ending at 2:00 pm (if necessary).
 - 3. Project Overview and Question and Answer Session to follow.
- B. Bidders will familiarize themselves with the construction site to obtain first-hand knowledge of existing conditions. Extra compensation will not be given for conditions that can be determined by examining the documents and site.
- C. Further access to site coordinated by contacting Owner's Representative:
 - 1. Norm Racicot, NICC Construction Manager - (563) 202-0426

1.04 PRE-CONSTRUCTION MEETING

- A. Schedule initial Pre-Construction Meeting within ten (10) days after date of Notice to Proceed.
- B. Schedule and coordinate subsequent "Pre-Construction" and/or "Pre-Installation" meetings as required by project Specifications as appropriate to Construction activities. Coordinate time with Owner and Architect.
- C. Location: A central site, convenient for all parties, designated by NICC Project Manager.
- D. Attendance:
 - 1. Owner's representative
 - 2. Architect and his professional consultants
 - 3. Resident Project representative
 - 4. Each Contractor's superintendent
 - 5. suppliers
 - 6. Others as appropriate
- E. Suggested Agenda:
 - 1. Distribution and discussion of:

- a. List of subcontractors and suppliers
 - b. Projected construction schedules
2. Major equipment deliveries and priorities.
3. Project coordination and scheduling:
4. Procedures and processing of:
 - a. Field decisions
 - b. Proposal Requests/Supplemental Instructions
 - c. Submittals
 - d. Change orders
 - e. Applications for payment
5. Adequacy of distribution of Contract Documents.
6. Procedures for maintaining Record Documents.
7. Use of premises:
 - a. Work and storage areas
 - b. Owner's requirements
8. Temporary utilities.
9. Safety and first-aid procedures
10. Security procedures
11. Housekeeping procedures

1.05 PROGRESS MEETINGS

- A. Schedule regular periodic meetings on a monthly basis and as required by Owner.
- B. Hold regularly-scheduled meetings as required by progress of the work.
- C. Location of the meetings: The project field office of the Contractor.
- D. Attendance:
 1. Architect and his professional consultants may attend as needed.
 2. Subcontractors as appropriate to the agenda.
 3. Suppliers as appropriate to the agenda.
 4. Others
- E. Suggested Agenda:
 1. Review, approval of minutes of previous meeting.
 2. Review of work progress since previous meeting.
 3. Field observations, problems, conflicts.
 4. Problems which impede Construction Schedule.
 5. Review of off-site fabrication, delivery schedules.
 6. Corrective measures and procedures to regain projected schedule.
 7. Revisions to Construction Schedule.
 8. Plan progress, schedule, during succeeding work period.
 9. Coordination of schedules.
 10. Review submittal schedules; expedite as required.
 11. Maintenance of quality standards.
 12. Review proposed changes for:
 - a. Effect on Construction Schedule and on completion date.
 - b. Effect on other contracts of the Project.
 13. Other business

END OF SECTION 01 31 19

SECTION 01 32 00

CONSTRUCTION SCHEDULING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections apply to work specified in this section.
- B. Refer to Supplementary Conditions and Summary of the Work for information pertinent to work in occupied buildings.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction (CPM) Schedule.
 - 2. Shop Drawing Submittals Schedule
 - 3. CPM Reports

1.03 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor activity is an activity that must be completed before a given activity can be started.
- B. CPM: Critical Path Method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.
- E. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is for the exclusive use or benefit of the Contractor to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- F. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- G. Major Area: A story of construction, a separate building, or a similar significant construction element.
- H. Milestone: A key or critical point in time for reference or measurement.
- I. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.04 SUBMITTALS

- A. Submittals Schedule: Submit schedule per 01 33 00 - Submittals. Arrange information in the following format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval. (Assume 15 working day turnaround.)
 - 7. Identify submittals that effect critical path.

- B. Contractor's Construction (CPM) Schedule: Submit 2 printed copies of initial schedule large enough to show entire schedule for entire construction period.
- C. CPM Reports: Concurrent with CPM schedule, submit 3 printed copies of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, original duration, early start date, early finish date, late start date, late finish date, and total float.
 - 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.

1.05 QUALITY ASSURANCE

- A. Prescheduling Conference: Conduct conference at Project site to review methods and procedures related to the Contractor's Construction (CPM) Schedule, including, but not limited to, the following:
 - 1. Discuss constraints, including phasing, work stages, area separations, interim milestones and partial Owner occupancy.
 - 2. Review time required for review of submittals and resubmittals.
 - 3. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 4. Review time required for completion and startup procedures.
 - 5. Review and finalize list of construction activities to be included in schedule.
 - 6. Review submittal requirements and procedures.
 - 7. Review procedures for updating schedule.

1.06 COORDINATION

- A. Coordinate requirements in this Article with "Submittals Schedule" Article in Part 2. If a submittal review sequence policy governs, revise this Article to comply with requirements. See Evaluations for discussion on submittal review sequence policies.

PART 2 PRODUCTS

2.01 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates. Identify items that affect critical path.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using CPM (critical path method) format.
- B. Preliminary Network Diagram: Submit diagram within fourteen (14) days from the Notice to Proceed. Outline significant construction activities for the first ninety (90) days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's Construction Schedule using a CPM network analysis diagram.
 - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted prior to first pay request.
 - 2. Establish procedures for monitoring monthly and updating CPM schedule if work is not on schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 - 3. Use "one workday" as the unit of time. Activities should not be shorter than two (2) work days or longer than ten (10) work days for projects with a construction period over six (6) months and/or longer than five (5) work days for projects with a construction period under (6) months.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
 - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Purchase of materials.
 - c. Delivery.
 - d. Fabrication.

- e. Installation.
- 2. Processing: Process data to produce output data or a computer-drawn, logic network diagram. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.

PART 3 EXECUTION

3.01 CONSTRUCTION SCHEDULE

- A. Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule 1 week before each payment request submittal.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

SECTION 01 33 00

SUBMITTALS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Procedures for submitting product data, shop drawings, and other correspondence as required by the Work.
- B. Related Sections:
 - 1. Section 01 77 00 - Project Closeout
 - a. Including procedure for submitting Project Record Documents
 - 2. Section 01 78 23 - Operating, Maintenance and Warranty Data
 - 3. Section 01 78 39 - Project Record Documents

1.03 DESCRIPTION

- A. This Section defines procedures for the following submittals required by the Contract Documents.
- B. Provide submittals as noted in each Section, including but not necessarily limited to:
 - 1. Shop Drawings
 - 2. Product Data
 - 3. Sample of Warranty - sample shall replicate final form of warranty
 - 4. Meeting Agendas
 - 5. Meeting Minutes
- C. Allow fourteen (14) days for review of submittals to avoid delay of Work.
- D. Include with submittal preparation, field verifications of measurements, field construction criteria, verification of catalog numbers and similar data, and coordination of Work requirements and Contract Documents.
- E. Submit all color samples within forty-five (45) days of Contract award for Architect's use in color selections. The Architect will not start the color schedule until all samples are received.

1.04 ELECTRONIC SUBMITTAL PROCEDURES

- A. Summary:
 - 1. Electronic submittals including, but not limited to, all shop drawings, product data submittals, closeout documents, etc., shall be transmitted to Architect in electronic (*.pdf) format using a cloud based submittal processing software equal to Submittal Exchange by Textura Corporation, which is a website service designed specifically for transmitting submittals between construction team members.
 - a. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
 - b. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
 - 2. Contact Submittal Exchange customer service for initial layout of submittal interface. User interface shall be based on most recent project by Owner utilizing Submittal Exchange software, as applicable. Verify that Owner is familiar with Submittal Exchange format, user interface, and process.
 - 3. NICC Construction Manager is responsible thereafter for the addition, subtraction, or consolidation of submittals as they appear on the Submittal Exchange user interface, and shall be responsible for pursuing relevant information from all Subcontractors and to maintain the accuracy of submittals within each section on Submittal Exchange.
 - 4. NICC Construction Manager shall work with Submittal Exchange customer service representative to organize user interface as recommended by projects of similar size and scope. Unique logs shall be added or removed from the user interface at the request of the Architect.

5. Project manager working on behalf of the Architect shall be made a “Project Leader” and shall have full control over all functions of the software.
 6. Contractor shall be responsible for the final archiving procedures of all Project Data contained on the Submittal Exchange website.
- B. Procedures:
1. Submittal Preparation - Contractors may use any or all of the following options:
 - a. Subcontractors and Suppliers provide electronic (*.pdf) submittals to Contract #2 Contractor via the Submittal Exchange website.
 - b. Subcontractors and Suppliers provide paper submittals to Contractor #2 Contractor who electronically scans and converts to *.pdf format.
 - c. Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to *.pdf format.
 2. Subcontractor shall include as the front page of each submittal, a transmittal sheet with the following information:
 - a. company name
 - b. contact information
 - c. project manager
 - d. stamp of reviewer
 3. Subcontractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer/product, dimensions and coordination of information with other parts of the work.
 4. Where manufacturer’s product data lists more than 1 item, model, finish, size, thickness or accessory, Subcontractor shall identify item(s) to be reviewed by either highlighting, circling, placing a box around, or a check mark proximate to the item(s) being reviewed.
 5. Subcontractor shall transmit each submittal to NICC Construction Manager and Architect using the Submittal Exchange website, www.submittalexchange.com.
 6. Architect/Engineer review comments will be made available on the Submittal Exchange website for downloading. Contractor will receive email notice of completed review.
 7. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contract #2 Contractor.
 8. At project completion, 1 copy of Submittal Exchange project file provided to Owner and 3 copies to Architect. Each copy shall be on a separate flash drive and identified with Project Name and Architect’s Project Number.
- C. Costs:
1. Contract #2 Contractor shall include the full cost of Submittal Exchange project subscription in their bid. This cost shall be included in the Contract Amount.
 - a. Contact Submittal Exchange at 1-800-714-0024 to verify cost prior to bid.
 2. Subcontractors are encouraged to contact Submittal Exchange at 1-800-714-0024 for Training regarding use of website and PDF submittals.

PART 2 REQUIRED SUBMITTALS

2.01 SHOP DRAWINGS AND SAMPLES

- A. Submit shop drawings in accordance with Article 3 of the General Conditions and the following.
- B. Prepare clearly identified shop drawings or schedules to this specific project, containing only data applicable. Include with the shop drawings or schedules a letter of transmittal listing and dating the submitted drawings in sets.
- C. Subcontractor to review all submittals prior to submittal to Architect, and indicate such review with a stamp and signature. Review submittals for conformance to Drawings, Specifications, coordination with other trades and adjacent construction and verification of field dimensions. Failure of Contractor to adequately review submittals shall be cause for rejection.
- D. Prepare and furnish to Architect for review, all shop drawings and manufacturers catalog sheets showing illustrated cuts of items to be furnished, scale details, sizes, dimensions, performance characteristics, capacities, wiring diagrams, weights and arrangements.
 1. The Subcontractor will provide submittals in the appropriate quantities for:
 - a. Distribution to sub-contractors.

- b. Jobsite office.
 - c. Owner's maintenance manuals.
 - d. Architects and Architect's consultants, as required.
- 2. Provide each shop drawing with a clear space of approximately 20" square for stamps on the right hand side.
- E. The Architect will take one of the following actions on submittals:
 - 1. "Reviewed": Contractor shall proceed with ordering and/or fabrication.
 - 2. "Review Comments": Contractor shall proceed with ordering and/or fabrication after taking into account noted comments.
 - 3. "Rejected": Contractor shall provide a submittal that meets the intent of the specifications.
 - 4. "Revise and Resubmit": Contractor shall modify submittal to address comments and resubmit.
- F. If equipment other than that used in the design of this project is proposed to be used, the Contractor and/or supplier shall verify electrical differences, dimension variations and weight increases. The Contractor shall be responsible for any extra costs incurred as a result of equipment substitutions.
- G. Information submittals and submittals that are not required shall be for Architects' and Engineers' use and be available for the design team's review at the jobsite. Quantity of submittals will be the same for Architect as noted under shop drawings. These submittals will not be reviewed, stamped or returned to the Contractor.
- H. Unless otherwise specified, submit to the Architect's office samples of size, and nature representing typical qualities. Where required, submit a sufficient number of samples to demonstrate the complete range of variations of the material or quality. Written acceptance of the Architect is required prior to ordering any item for which samples are required.
- I. Submit samples to Architect's office, securely packaged, with the name of the Project clearly indicated on the package exterior. Each physical sample shall have a label or tag, firmly attached to the sample, bearing the following information: (a) Name of Project, (b) Name of Supplier, (c) Name of Subcontractor, and (d) Product information such as manufacturer's designation, finish, type, class, grade, etc. as is appropriate. The Architect will retain 1 copy of each sample.

2.02 LIST OF MATERIALS

- A. Within seven (7) days after the award of the Contract (Notice to Proceed or Letter of Intent), submit a complete list of all material, products, and equipment proposed to be used in construction to the Architect for acceptance. Do not order materials until the proposed listed materials, products and equipment to be used in construction are accepted by the Architect.
- B. Where 2 or more makes or kinds of items are named in the specifications (or additional names are called for in addenda), the Contractor shall state which particular make or kind of each item he proposes to provide. If the Contractor fails to state a preference, the Owner shall have the right to select any of the makes or kinds named without change in price.
- C. This list shall be arranged generally in order of specification sections. The items listed shall fully conform to project requirements and specifications. All materials are subject to the Architect's acceptance. After acceptance, changes or substitutions will not be permitted.
- D. Clearly identify or list the material, product or equipment by manufacturer and brand by listing the names for all items, including those where only one material or product is specified. Each and every material, product and equipment shall be specifically named, not listed "as specified".

2.03 LIST OF SUBCONTRACTORS

- A. Refer to the General Conditions.
- B. Propose use of sub-subcontractors who are established, reputable firms of recognized standing with a record of successful and satisfactory past performance. Include the following information: specification section, item of work, subcontractor or supplier, material/manufacturer (as specified will not be allowed), project manager, phone and facsimile numbers. List major sub-subcontractors for mechanical and electrical work. Use only those subcontractors (and sub-sub-contractors, when appropriate) who are acceptable to the Architect and Owner on the Work.

2.04 SCHEDULE OF VALUES

- A. Requirements

1. Submit separate Schedule of Values for each area of construction as outlined in the Construction Documents to Architect ten (10) days prior to first Application for Payment (AIA Form G702, G702a). Refer to Section 01 20 00 - Payment Procedures.
 2. Use Schedule of Values only as basis for Contractor's Application for Payment.
 3. Schedule of Values shall be broken down into Labor and Materials for each listed therein.
- B. Form of Submittal
1. Base format on Sections listed in Section 00 01 10 Table of Contents, as well as, the Mechanical and Electrical Table of Contents. Break down labor and material separately.
 2. Round off amounts to nearest 10 dollars.

2.05 PROGRESS SCHEDULE

- A. Refer to the General Conditions for submittal requirements.

2.06 REQUIRED SUBMITTALS

- A. The Technical Sections of this Specification identify required submittals for all portions of the Work. Contractors shall coordinate their submittals with those Technical Sections, and provide a Submittal List (via Submittal Exchange) for review by the Architect.

END OF SECTION 01 33 00

SECTION 01 45 16

QUALITY CONTROL

PART 1 GENERAL

1.01 SELECTION AND PAYMENT

- A. The Subcontractor shall select, hire and pay for the services of an independent testing laboratory(s) acceptable to the Owner and Architect to perform specified Source Quality Control and other tests and inspections called for in the Specifications.
- B. The Owner will select, hire, pay for services of an independent testing laboratory, to perform specified Field Quality Control and other inspections, test of materials and construction called for in the Specifications.
- C. The Owner will select, hire and pay for services of a special inspector to perform Special Inspections and Testing defined in Specification Section 01 45 33.

1.02 RESPONSIBILITY OF CONTRACTOR

- A. Be responsible for furnishing materials and construction in full conformance with Plans and Specifications.
- B. Pay for all tests, conducted by the testing laboratory that fail and also pay for all scheduled tests for which the pours are cancelled and a test field crew is on site before that particular pour is cancelled.

1.03 COOPERATION OF CONTRACTOR

- A. Each Contractor: Cooperate with the Laboratory, and:
 - 1. Make available, without cost, samples of all materials to be tested in accordance with applicable standard specifications.
 - 2. Furnish such nominal labor and working space as is necessary to obtain samples at the Project.
 - 3. Advise Laboratory of the identity of material sources and instruct the suppliers to allow test or inspections by the Laboratory.
 - 4. Notify Laboratory sufficiently in advance of operations to allow completion of initial tests or inspections by the Laboratory.

1.04 REJECTION OF MATERIALS/INSTALLATION

- A. Laboratory: Notify the Owner, Architect, Engineer, and Contractor or his authorized representative of any materials or installation which are not in full conformance with the specifications.

1.05 FILING OF REPORTS

- A. Laboratory: File a copy of the inspection report with the Architect, appropriate Architect's Consultant, Owner, and Building Official.
- B. Contractor: Upload test reports, as appropriate, to the electronic Project Management site - Submittal Exchange, or equal.

PART 2 PRODUCTS – Not Applicable.

PART 3 EXECUTION

3.01 GENERAL SCOPE OF TESTING, INSPECTION

- A. Require laboratory to conduct tests and inspections as directed by the Owner, Architect, or Engineer.
- B. Refer to individual specification sections for test requirements.

3.02 QUALIFICATION TESTING

- A. In addition to tests specified, if a product, material, or method of assembly that is of unknown or questionable quality to Architect, the Architect may require and order suitable tests to establish a basis for acceptance or rejection. Pay for these tests. "Standard" test reports or reports on "similar" material will not be accepted.

3.03 MISCELLANEOUS (REGULATORY) INSPECTIONS

- A. Should specifications, Architect's instructions, laws, ordinances or any public authority require any work to be inspected or approved, Contractor shall give timely notice of its readiness for inspection and a reasonable date fixed for such inspection. If any work should be covered up without approval or consent of approving agency, or Architect, it must be uncovered for examination at Contractor's expense.

END OF SECTION 01 45 16

SECTION 01 45 33

STRUCTURAL TESTING AND SPECIAL INSPECTION

PART 1 GENERAL

1.01 REQUIREMENTS

- A. Drawings and General Provisions of the Project, including General and Supplementary Conditions and Division 01 Specifications apply to this section.

1.02 INTENT AND CONDITIONS

- A. Intent
 - 1. Define and coordinate structural testing and special inspection services.
 - 2. Provide a greater level of confidence that the specified work is constructed in compliance with the contract documents and the intent of applicable codes including Sections 110 and 1704 of the International Building Code (IBC) adopted by the current State Building Code.
 - 3. Structural testing and special inspection services are intended to assist in determining probable compliance of the work with requirements specified. These services do not relieve the Contractor of responsibility for compliance with the requirements of the contract documents.
- B. Conditions
 - 1. If inspection of a fabricator's work is required, the Owner's representative may require testing and inspection of the work at the plant, before shipment. Owner reserve the right to reject material not complying with the Contract Documents.
 - 2. Refer to individual technical specification sections for specific qualifications, inspections, tests, frequency and standards required. Testing and inspection shall be performed in accordance with the referenced standard for the specific material or procedure unless other criteria are specified. In the absence of a referenced standard, tests shall be performed in accordance with generally accepted industry standards.
 - 3. Work shall be checked as it progresses. Failure to detect any defective work or materials shall not prevent later rejection if defective work or materials are discovered, nor shall it obligate Owner to accept such work.
 - 4. Structural testing, special inspection, and periodic inspections by the Building Official do not preclude the normal field involvement and site observations by Owner.
 - 5. Structural testing, special inspection, and periodic inspections by the Building Official do not relieve the Contractor of any responsibility to complete the work in accordance with the approved drawings and specifications.
 - 6. Testing agents and/or special inspectors may not waive or alter contract requirements, or approve or accept any portion of the work unless specifically authorized by Owner. They may not assume any duties of the Contractor, and they have no authority to stop or reject work.

1.03 DEFINITIONS

- A. Testing: Evaluation of systems, primarily requiring physical manipulation and analysis of materials, in accordance with approved standards.
- B. Inspection: Evaluation of systems, primarily requiring observation and judgment.
- C. Structural Special Inspections: Structural special inspections include inspections of structural items required by the latest adopted edition of the IBC, Chapter 17, and other items, which in the professional judgment of the Structural Engineer of Record, are critical to the integrity of the building structure and are indicated to be performed under the requirements of this section. They do not include special inspections for non-structural items such as fireproofing, EIFS, and smoke control systems.
- D. Structural Testing: Structural testing includes those tests of structural items required by the latest adopted edition of the IBC, or its referenced standards, and other tests, which in the professional judgment of the Structural Engineer of Record, are critical to the integrity of the building structure and are indicated to be performed under the requirements of this section.
- E. Architect of Record: The prime consultant in charge of overall design and coordination of the project.

- F. Structural Engineer of Record (SER): The licensed professional engineer in responsible charge of the structural design for the project.
- G. Licensed Structural Engineer: A professional engineer with education and experience in the design of structures similar to this project licensed to practice in the State in which the Project is located.
- H. Testing Agency (TA): The properly qualified firm performing testing services.
- I. Special Inspector (SI): A properly qualified individual or firm performing special inspections.
- J. Building Official: The officer or his duly authorized representative charged with the administration and enforcement of the building code for the project.

1.04 REFERENCES

- A. ASTM C1077-02 – Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
- B. ASTM C1093-95 - Practice for the Accreditation of Testing Agencies for Unit Masonry.
- C. ASTM D3740-01 - Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- D. ASTM E329-02 - Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
- E. ASTM E543-02 - Practice for Agencies Performing Nondestructive Testing.
- F. International Building Code (IBC) in force at time Plans and Specifications are submitted for plan review.
- G. Current State Building Code.

1.05 QUALIFICATIONS

- A. Testing Agency: An approved independent testing agency acceptable to the Owner and meeting the following:
 - 1. Authorized to operate in the State in which the project is located and experienced with the requirements and testing methods specified in the Contract Documents.
 - 2. Meet applicable requirements of references stated in paragraph 1.4.
 - 3. Have available testing equipment that is calibrated, at reasonable intervals, by devices of accuracy traceable to either the National Bureau of Standards, or to accepted values of natural physical constants.
 - 4. Provide individuals performing tests and taking samples with appropriate certifications for work performed.
- B. Special Inspector: Either an appropriately certified inspector or a civil/structural engineer performing under the direct supervision of a licensed structural engineer (as defined earlier in this section) and acceptable to the SER and Building Official. Unique special inspector requirements, for specific materials and systems, are noted in related technical specification sections.

1.06 RESPONSIBILITIES

- A. Special Inspectors:
 - 1. Inspect the work assigned for conformance with the building department approved plans, specifications, and applicable material and workmanship provisions of the code. Perform inspection in a timely manner to avoid delay of work.
 - 2. Bring nonconforming items to the immediate attention of the Contractor for correction. If not corrected within twenty-four (24) hours or if inspector will not be on site the following day, bring to the attention of the SER by the end of the business day. If uncorrected after a reasonable period of time, bring to the attention of the Building Official, and to the Owner. Notify SER immediately if non-conforming items are enclosed, embedded, or obscured prior to verification of correction.
 - 3. Submit inspection reports to the Building Official, Contractor, Owner, and other designated persons in accordance with the structural testing and special inspection schedule.
 - 4. Submit a final signed report stating whether the work requiring special inspection was, to the best of his/her knowledge, in conformance with the approved plans, specifications and the applicable workmanship provisions of the code.
 - 5. Sign the structural testing and special inspection schedule in conjunction with other responsible parties.
 - 6. Attend preconstruction meeting to review scope of special inspection.
- B. Testing Agency:
 - 1. Test the work assigned for conformance with the building department approved plans, specifications, and

- applicable material provisions of the documents. Perform tests in a timely manner to avoid delay of work.
2. Submit test reports to the Building Official, Contractor, Owner, and other designated persons in accordance with the structural testing and special inspection schedule.
 3. Sign the structural testing and special inspection schedule in conjunction with other responsible parties.
 4. Attend a preconstruction meeting to review scope of structural testing.
- C. Contractor:
1. Attend a preconstruction meeting to review scope of structural testing and special inspection.
 2. Post or make available the structural testing and special inspection schedule within its office at the job site. Also provide adequate notification to those parties designated on the schedule so they may properly prepare for and schedule their work.
 3. Provide special inspectors access to the approved plans and specifications at the job site.
 4. Review all reports issued by special inspectors.
 5. Retain, at the job site, all reports submitted by the special inspectors for review on the Building Official's request.
 6. Correct deficiencies identified in inspection or testing reports in a timely manner.
 7. Provide safe access to the work requiring inspection or testing.
 8. Provide labor and facilities to provide access to the work, to obtain, handle and deliver samples, to facilitate testing and inspection and for storage and curing of test samples.
 9. Verify conformance of the work with specified construction tolerances.
 10. Inspections by Building Official: Provide adequate notice for inspections performed by the building official, as required by the latest adopted edition of the IBC, Section 110, the Current State Building Code, and local ordinances.
 11. Sign the structural testing and special inspection schedule in conjunction with other responsible parties prior to commencing construction.
- D. Fabricator:
1. Submit a Certificate of Compliance to the Building Official, Special Inspector, and SER that the work was performed in accordance with the approved plans and specifications.
 2. Sign the structural testing and special inspection schedule in conjunction with other responsible parties prior to commencing construction.
- E. Owner:
1. Establish direct funding to provide for cost of structural testing and special inspection services.
 2. Provide special inspector with approved plans, specifications and approved shop drawings.
 3. Provide special inspectors and testing agencies with full access to the site at all times.
 4. Sign the Structural testing and special inspection schedule in conjunction with other responsible parties.

1.07 PAYMENT

- A. The Owner will employ and pay for services of the special inspectors and testing agency to perform required structural testing and special inspection for all initial testing.
- B. Unless noted otherwise, the Contractor shall provide and pay for all materials, samples, mock-ups, and assemblies required for testing and inspection and shall pay for shipping costs related to delivery of such items. Testing agency will pay for shipping costs of samples transported from site to lab.
- C. If items requiring testing or inspection are enclosed, embedded or obscured prior to testing or inspection or if such items are placed without tests or inspections, the Contractor shall pay for the costs of any exploratory work deemed necessary by the Architect/SER to verify compliance with the Contract Documents.
- D. Contractor shall pay for the costs of any retests or re-inspections caused by work that does not comply with the Contract Documents based on initial tests or inspections, or work that is later revised or replaced by the Contractor. This does not include revisions requested by the Owner.

1.08 INSPECTION NOTICE

- A. Provide a minimum of twenty-four (24) hours' notice for all items requiring testing or inspection. Items requiring testing and inspection services prior to or during placement shall not be placed until testing and inspection services are available. Items requiring testing and inspection services after placement shall not be enclosed or obscured until testing and inspection services are performed.

1.09 REPORTS

- A. Testing agency and special inspectors shall submit reports for structural testing and special inspection in a timely manner to the Contractor, Building Official, SER, and Architect of Record. Provide reports of daily activities to the SER and Contractor. Submit reports to the Contractor on a daily basis and to the SER on a daily or weekly basis. Provide summary reports to the Building Official and Owner on a monthly basis unless they request otherwise.
- B. Provide reports for ongoing work, containing the following information:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Firm name and address.
 - 4. Name and signature of tester or inspector.
 - 5. Date and time of sampling, test, or inspection.
 - 6. Identification of product and specification section.
 - 7. Location in project, including elevations, grid location and detail.
 - 8. Type of test or inspection.
 - 9. Whether test specimens, test results or observations indicate compliance with Contract Documents. Specifically state any discrepancies
 - 10. Types and locations of discrepancies found in work
 - 11. Work required performed to correct discrepancies and work performed to correct previously noted discrepancies. Discrepancies corrected during an inspection need not be reported
 - 12. Submit certified final special inspection report stating that, to the best of the special inspector's knowledge, the work requiring special inspection conformed to the Construction Documents.

1.10 FREQUENCY OF TESTING AND INSPECTION

- A. For detailed requirements, see individual technical specification sections and the structural testing and special inspection schedule.

1.11 PROTECTION AND REPAIR

- A. Upon completion of testing, sample-taking, or inspection, the Contractor shall repair damaged work and restore substrates and finishes to eliminate deficiencies, including deficiencies in the visual qualities of exposed surfaces, as judged solely by Owner. Protect work exposed by or for testing and/or inspection and protect repaired work. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for testing and/or inspection.

1.12 TESTS TO DEMONSTRATE QUALIFICATION

- A. Any tests required to qualify the Contractor or the workers for any phase of the work, shall be performed at no additional cost to the Owner.
- B. If the Contractor proposes a product material, method, or other system that has not been pre-qualified, the Owner may require applicable tests to establish a basis for acceptance or rejection. The Contractor shall pay for these tests.
- C. The Owner reserves the right to require certification or other proof that the system proposed is in compliance with specified tests, criteria or standards. A representative of an independent testing agency shall sign the certificate.

1.13 STRUCTURAL TESTING AND SPECIAL INSPECTION SCHEDULE

- A. The parties involved shall complete and sign the structural testing and special inspection schedule. Schedule to be complete at time of permit issuance.
- B. The completed schedule is an element of the construction documents and after permit issuance, becomes part of the building department approved plans and specifications.

STRUCTURAL TESTING AND SPECIAL INSPECTION SCHEDULE

Project Name:	NICC Plant Services	Project No.:	20017
Location		Permit No.:	

Specification		Type of Special Description (1)	Inspector (2)	Report Frequency	Assigned Firm (3)
Section	Article				
Div. 31	All as req'd	Earthwork	SI-T	Weekly	Contract #1
03 11 13		Formwork	SI-S	Per Visit	Contract #2
03 20 00		Reinforcement	SI-S	Per Visit	Contract #2
03 30 00		Concrete Tests	TA	Per Test	Contract #3
03 30 00		Concrete Placement	SI-S	Per Visit	Contract #3
04 20 00		Prism Tests	SI-T	Per Test	Contract #2
05 12 00		Structural Steel	SI-T	Per Area	NA
05 41 00		Cold Formed Welding	SI-T	Per Visit	NA
05 50 00		Stair and Railing Welding	SI-T	Per Visit	NA

- (1) Use descriptions per IBC Chapter 17.
- (2) Special Inspector - Technical, Special Inspector – Structural, Testing Agency.
- (3) Firm contracted to perform services.

ACKNOWLEDGMENTS

Each appropriate representative must sign below:

Owner: _____ Firm: _____ Date: _____

Contractor:_____ Firm:_____ Date:_____

Architect: _____ Firm: _____ Date: _____

SER: _____ Firm: _____ Date: _____

SI-S: _____ Firm: _____ Date: _____

TA: _____ Firm: _____ Date: _____

SI-T: _____ Firm: _____ Date: _____

F: _____ Firm: _____ Date: _____

Legend: SER = Structural Engineer of Record
TA = Testing Agent
SI-T = Special Inspector - Technical
SI-S = Special Inspector - Structural
F = Fabricator

Date: _____

END OF SECTION 01 45 33

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. Contract #2 Contractor, U.N.O.: Support facilities include, but are not limited to, the following:
 - 1. Temporary roads and paving (Contract #1 Contractor).
 - 2. Dewatering facilities and drains.
 - 3. Project identification and temporary signs.
 - 4. Housekeeping and waste disposal facilities.
 - 5. Field offices. (Contract #1 & Contract #2 during their respective construction activities)
 - 6. Storage sheds. (Contract #1 & Contract #2 during their respective construction activities)
 - 7. Construction aids and miscellaneous services and facilities.
- C. Contract #1, U.N.O: Security and protection facilities include, but are not limited to, the following:
 - 1. Environmental protection.
 - 2. Stormwater control.
 - 3. Tree and plant protection.
 - 4. Pest control.
 - 5. Site enclosure fence.
 - 6. Security enclosure and lockup. (Contract #2 Contractor during their respective construction activities)
 - 7. Barricades, warning signs, and lights.
 - 8. Temporary enclosures. (Contractor #2 Contractor)
- D. All Contractors: Safety requirements and protection of property.
 - 1. General safety procedures.
 - 2. Safe Access by Authorized Officials.
 - 3. Maintain emergency requirements.
 - 4. Temporary guards and rails.
- E. Related Sections include the following:
 - 1. Division 01 Section - Submittals for procedures for submitting copies of implementation and termination schedule and utility reports.
 - 2. Division 01 Section - Final Cleaning for progress and final cleaning requirements.

1.03 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
 - 1. Owner
 - 2. Architect.
 - 3. Testing agencies.
 - 4. Personnel of Authorities Having Jurisdiction (AHJ).
- B. Water Service: Use water from Owner's existing water system without metering and without payment of use charges. Confirm location of temporary facilities with Owner.
 - 1. Pay for pumps, pipe, hoses, and backflow preventers as required to distribute water.
- C. Electric Power Service: Use electric power from Owner's existing system. Each Subcontractor shall coordinate use and location of temporary facilities with Owner.

- D. Temporary Sanitary Facilities: **Contract #1 & Contract #2 Contractors** to provide temporary sanitary facilities for use throughout the duration of their respective construction activities; the Owner's sanitary facilities shall not be used for temporary purposes.
- E. Phone/Data Service: **Contractor #1 & Contractor #2 Contractors** to provide phone and data services as required to facilitate the Work during their respective construction activities.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General: Provide new materials or undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
- B. Chain-Link Fencing: Minimum 2", 0.148" thick, galvanized steel, chain-link fabric fencing; minimum 6' high with galvanized steel pipe posts; minimum 2-3/8" OD line posts and 2-7/8" OD corner and pull posts.
- C. Portable Chain-Link Fencing: Minimum 2" 9-gauge, galvanized steel, chain-link fabric fencing; minimum 6' high with galvanized steel pipe posts; minimum 2-3/8" OD line posts and 2-7/8" OD corner and pull posts, with 1-5/8" OD top and bottom rails. Provide concrete or galvanized steel bases for supporting posts.
- D. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- E. Water: Potable.
- F. Wood Walkways: 3/4" Plywood, framed with 2x__ joists (size as required to support span), with wood rails to contain occupants. Covered walkways, if used, shall be braced as required to resist anticipated structural loads.

2.02 EQUIPMENT

- A. General: **Contract #1 & #2 Contractors** provide equipment during their respective construction activities.
- B. Field Offices: Prefabricated with lockable entrances, insulated, weather-tight; heated and air conditioned. Provide stairs with handrails as required for accessibility.
- C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- D. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- E. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities that are no longer needed or are replaced by authorized use of completed permanent facilities.
- C. Storage Facilities:
 - 1. Offsite storage shall be provided by the Contractor to the extent required by the Work.
 - 2. Refer to drawings for full extent of onsite staging and storage areas.
 - 3. Contractor shall include all costs for all offsite storage as may be required in his bid; no additional compensation will be accepted for offsite storage due to project or site constraints.
 - 4. Refer to Section 01 29 00 - Payment Procedures for materials stored off-site.

3.02 SAFETY REQUIREMENTS AND PROTECTION OF PROPERTY

- A. All Contractor's Responsibility for Safety
 - 1. The Contractor shall do whatever work is necessary for safety and be solely and completely responsible for conditions of the jobsite, including safety of all persons, employees, and property during the Contract

- period. This requirement shall apply continuously and not be limited to normal working hours.
- B. Federal, State, and Local Safety Requirements
 - 1. Safety provisions shall conform to the Federal and State Departments of Labor Occupational Safety and Health Act (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these Contract Documents. Where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.
 - C. Safe Access by Authorized Officials
 - 1. All Contractor shall at all times provide proper facilities for safe access to the work by authorized officials.
 - D. Safety Equipment
 - 1. All Contractors, as part of their safety program, shall maintain at their office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the governing safety authorities, all articles necessary for giving first-aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of any person who may be injured on the jobsite.
 - 2. The performance of all work and all completed construction, particularly with respect to ladders, platforms, structure openings, scaffolding, shoring, lagging, machinery guards and the like, shall be in accordance with the applicable governing safety authorities.

3.03 TEMPORARY UTILITY INSTALLATION

- A. General: **Contract #1 & Contract #2 Contractors** respectively to engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
- B. Water Service: Install temporary water service and distribution piping in sizes and pressures adequate for construction. Coordinate with the Owner and/or public utility. Sterilize temporary water piping before use.
 - 1. Provide rubber hoses as necessary to serve Project site.
 - 2. Provide pumps if required due to low static pressure on-site. Equip pumps with surge and storage tanks and automatic controls to supply water uniformly at reasonable pressures.
 - 3. Provide backflow prevention devices to protect Owner's water system.
- C. Sanitary Facilities: **Contract #1 & #2 Contractors** respectively during their construction activities provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel as required by government jurisdictions.
- D. Electrical Power (**Contract #7 Contractor**): Field verify existing power and coordinate temporary service with the utility company. For scope of on-site temporary power and lighting, see Division 26.
 - 1. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations and to maintain schedule.
 - 2. Lighting: Provide temporary lighting if required, with local switching that provides adequate illumination for construction operations, observations, inspections, and to meet government regulations.
 - a. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- E. Telephone Service: **Contract #1 & #2 Contractors** provide temporary telephone service throughout construction their respective construction period for common-use facilities used by all personnel engaged in construction activities. Temporary telephone service shall be in the form of a cellular phone and Wi-Fi Hotspot, such that all members of Owner's Project team may gain access.
 - 1. Provide additional telephone lines for the following:

- a. For each field office and first-aid station.
- b. Provide a dedicated telephone line for each facsimile machine and computer with modem in each field office.
- c. Provide an answering machine or voice-mail service on superintendent's telephone.
- d. Provide a portable cellular telephone for superintendent's use in making and receiving telephone calls when away from field office.

3.04 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities, as may be required, for easy access. Coordinate with Owner.
 - 2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30' of building lines. Comply with NFPA 241.
 - 3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls, if required: Provide temporary traffic controls at junction of drives with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of AHJ.
- C. Project Identification and Temporary Signs, if required: Prepare Project identification in accordance with Section 01 00 00 - Temporary Conditions and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.
 - 1. Prepare temporary signs to provide directional information to construction personnel and visitors.
 - 2. Construct signs of exterior-type Grade B-B high-density concrete form overlay plywood in sizes and thicknesses indicated. Support on posts or framing of preservative-treated wood or steel.
- D. Waste Disposal Facilities: **Contract #2 Contractor** to provide waste-collection containers in sizes adequate to handle waste from construction operations. Separate waste components in clearly identified containers as called for in Section 01 74 19 Construction Waste Management and Disposal. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 01 Section for progress cleaning requirements.
 - 1. Provide separate containers, clearly labeled, for each type of waste material to be deposited.
 - 2. Develop a waste management plan for Work performed on Project per Section 01 74 19 Construction Waste Management and Disposal. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.
- E. Housekeeping
 - 1. All contractors are responsible for policing and not allowing debris to accumulate on-site or within the work areas. All contractors shall implement and provide the following cleaning services:
 - a. Debris shall be removed from the construction site and police exterior project site area on a daily basis at a minimum to clean-up any wind-blown debris or excess construction materials produce due to each contractor's construction activities and dispose of in construction dumpsters to maintain a clean project site.
 - b. Remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner's property.
- F. Common-Use Field Office: **Contract #1 and Contract #2 Contractors** to provide an insulated, weather-tight, air-conditioned field office for use as a common facility by all personnel engaged during their respective construction activities; of sufficient size to accommodate required office personnel and meetings of 15 persons at Project site. Keep office clean and orderly.
 - 1. Furnish and equip offices as follows:
 - a. Desk and four chairs, file cabinets in quantities to file shop drawings, supplemental instructions, proposal requests, and change orders, a plan table, a plan rack, and bookcase to store project manuals, detail books, and addenda.
 - b. Provide a room of not less than 240 sq. ft. for Project meetings. Furnish room with conference table, 12 folding chairs, and 4' square markerboard.

- G. Storage Sheds, if provided: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces on-site, as required by type.

3.05 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection (**Contract #1**): Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Stormwater Control (**Contract #1**): Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.
- C. Tree and Plant Protection (**Contract #1**): Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion. Do not store materials within the drip line of trees. Drip line of trees is defined as the area directly below the canopy of the tree.
- D. Pest Control, if required (**Contract #1**): Before deep foundation work has been completed, retain a local exterminator or pest-control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Engage this pest-control service to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- E. Site Enclosure Fence (**Contract #1**): Before construction operations begins, install chain-link enclosure fence with lockable entrance gates. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.
 - 1. Drive fence posts in existing soil of gravel and earth.
 - 2. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
 - 3. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner and Architect with 1 set of keys.
- F. Barricades, Warning Signs, and Lights (**Contract #1**): Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
 - 1. For safety barriers, sidewalk bridges, and similar uses, provide minimum ¾" thick exterior plywood and appropriate 2x___ framing for support.

3.06 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION 01 50 00

SECTION 01 55 00

VEHICULAR ACCESS AND PARKING

PART 1 GENERAL

1.01 SUMMARY

- A. **Contract #1 & Contract #2 Contractors** during their respective construction activities shall provide and maintain vehicular access to site and within site.
- B. The Contractors shall coordinate with the Owner's ongoing operations, including but not limited to Bus traffic, Passenger Vehicle traffic, Pedestrian traffic, and Student parking.

1.02 RELATED SECTIONS

- A. Specified elsewhere:
 - 1. Section 01 01 10 - Site Conditions
 - 2. Section 01 50 00 - Temporary Facilities and Controls

1.03 ROADS AND PARKING AREAS

- A. Construct roads, drives, walks and parking facilities to provide uninterrupted access to construction offices, mobilization, work, storage areas and other areas required for execution of the Contract.
 - 1. Location: Where shown on drawings. Consult Architect for desired deviations.
 - 2. Size of parking facilities: Adequate to provide for personnel needs of all contractors.
- B. Contractor is responsible for identifying, locating and managing parking for employees and subcontractors.
- C. Provide access for emergency vehicles. Maintain driveways a minimum of 15' wide between and around combustible materials in storage and mobilization areas.
- D. Keep fire hydrants and water control valves free from obstruction and accessible for use.

1.04 EXISTING PAVEMENTS

- A. Subject to approval of the Owner, existing on-site streets and driveways may be used for construction traffic.
- B. **Contract #1 Contractor** shall obtain all necessary permits and temporary easements for the public access road(s) to be used for construction hauling and construction access with the City, Township, Department of Transportation and/or any agency that maintains the road(s). The Contractor shall be responsible for any damage to the public roadways caused by construction traffic hauling to this project.
- C. The Contractor shall provide, install and maintain any warning signs (trucks entering highway, etc.) as required by the City, Township, County or Department of Transportation and/or any agency that maintains the roadway.
- D. The Contractor shall restore existing roadways which are damaged during the construction activities and as a result of construction activities to their original condition, at no expense to the Owner, and to the satisfaction of the Owner. The Contractor, Architect/Engineer and Owner shall inspect the condition of the existing roadways jointly at the pre-construction meeting in order to establish their condition prior to construction activities. The same parties shall inspect and agree to the satisfactory condition of the existing roadways following construction and prior to final acceptance.
- E. Except as shown, use of existing parking facilities for construction personnel or for contractor's vehicles or equipment will not be permitted.

PART 2 PRODUCTS - Not Applicable

PART 3 EXECUTION

3.01 CONSTRUCTION

- A. Construction methods for temporary facilities which will be removed when no longer needed are at Contractor's option, but shall provide adequate and appropriate results.

- B. Comply with respective specification sections for preparation and construction of work which will become part of permanent construction.

3.02 MAINTENANCE

- A. Maintain roads, walks and parking areas in a sound, clean condition. Repair or replace all portions damaged during construction work progress.

3.03 REMOVAL

- A. Completely remove temporary materials and construction when construction needs can be met by use of permanent installation or when directed by Architect/Engineer.
- B. Restore areas to original conditions at completion of work.

END OF SECTION 01 55 00

SECTION 01 56 39

TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by one shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in one location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.2 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.
 - 1. **Contract #1 Contractor** shall pay special attention to the drawings that describe trees and plants to be removed from site; all other trees and plants are intended to remain - protect as required.
- B. Related Requirements:
 - 1. Section 01 50 00 - "Temporary Facilities and Controls" for temporary site fencing.
 - 2. Section 31 10 00 - "Site Clearing" for removing existing trees and shrubs.

1.3 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by a diameter tape at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.
- B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated and with a minimum radius of 96 inches unless otherwise indicated.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.
- E. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
 - 1. Species and size of tree.
 - 2. Location on site plan. Include unique identifier for each.
 - 3. Reason for pruning.

4. Description of pruning to be performed.
5. Description of maintenance following pruning.

1.4 INFORMATIONAL SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 1. Use sufficiently detailed photographs or video recordings.
 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

1.5 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:
 1. Storage of construction materials, debris, or excavated material.
 2. Moving or parking vehicles or equipment.
 3. Foot traffic.
 4. Erection of sheds or structures.
 5. Impoundment of water.
 6. Excavation or other digging unless otherwise indicated.
 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements:
 1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi) and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.
 - a. Height: 48 inches
 - b. Color: High-visibility orange, nonfading.
- B. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes prepunched and reinforced; legibly printed with nonfading lettering and as follows:
 1. Size and Text: TREE PROTECTION ZONE. DO NOT DISTURB.
 2. Lettering: 3-inch high minimum, black characters on white background.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Flag each tree trunk at 54 inches (1372 mm) above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones, before materials or equipment are brought on the site and construction operations begin, in a manner that will prevent people from easily entering protected areas. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
 - 1. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Architect.
- B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Architect. Install one sign spaced approximately every 20 feet on protection-zone fencing, but no fewer than three signs with each facing a different direction.
- C. Maintain protection zones free of weeds and trash.
- D. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and remove when construction operations are complete and equipment has been removed from the site.
 - 1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.4 EXCAVATION

- A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Section 31 20 00 "Earth Moving" unless otherwise indicated.

- B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches (75 mm) back from new construction and as required for root pruning.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 ROOT PRUNING

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Cut Ends: Do not paint cut root ends.
 - 3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - 4. Cover exposed roots with burlap and water regularly.
 - 5. Backfill as soon as possible according to requirements in Section 31 20 00 "Earth Moving."
- B. Root Pruning at Edge of Protection Zone: Prune tree roots 12 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.
- C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.6 CROWN PRUNING

- A. Only prune branches that are affected by temporary and permanent construction.
 - 1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
 - 2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
 - 3. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
- B. Unless otherwise directed by arborist and acceptable to Architect, do not cut tree leaders.
- C. Cut branches with sharp pruning instruments; do not break or chop.
- D. Do not paint or apply sealants to wounds.
- E. Provide subsequent maintenance pruning during Contract period as recommended by arborist.

- F. Remove branches and dispose of off-site.

3.7 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
 - 1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- D. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

3.8 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 01 56 39

SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All references to current version Iowa DOT Specifications are specifically referring to Iowa Department of Transportation Standard Specifications for Road and Bridge Construction.
- B. Iowa Department of Natural Resources NPDES General Permit No. 2, Storm Water Discharge Associated with Construction Activities.

1.02 SUMMARY

- A. **(Contract #1 Contractor, U.N.O.)** Section Includes:
 - 1. Silt fence.
 - 2. Inlet protection.
 - 3. Compost filter tube.
 - 4. Concrete washout area.
 - 5. Construction site exit.
 - 6. Soil stabilization.
 - 7. Dust Control
- B. Related Sections:
 - 1. Division 01 Section - Temporary Facilities and Controls.
 - 2. Division 31 Section - Site Clearing.
 - 3. Division 31 Section - Earth Moving.
 - 4. Division 33 Section - Common Work Results for Utilities.

1.03 DEFINITIONS

- A. NPDES: National Pollutant Discharge Elimination System
- B. SWPPP: Stormwater Pollution Prevention Plan

1.04 QUALITY ASSURANCE

- A. Erosion Control Measures Preconstruction Conference (**Contract #1 Contractor**): Conduct conference at Project site.
 - 1. Review methods and procedures related to land disturbing activities, including but not limited to, the following:
 - a. Construction Exit installation, maintenance and use
 - b. Concrete Washout Area installation, maintenance and use
 - c. Perimeter Silt Fence/Compost Tube installation and maintenance
 - d. Inlet protection installation and maintenance
 - e. Soil/Topsoil Stockpiles – stabilization and perimeter controls
 - f. Soil Stabilization
 - 2. Require representatives of each entity performing work at the site to attend. Erosion Control issues are related to all disciplines.

1.05 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.01 SILT FENCE

- A. The fabric for silt filter fence shall be a woven fabric meeting the requirements of AASHTO M288.
- B. Posts are to be 6' minimum, steel, weighing at least 1.0 pounds per lineal foot, exclusive of the anchor plate. Painted posts are required.
- C. Fasteners shall be wire or plastic with a minimum tensile strength of 50 pounds.

2.02 COMPOST TUBE

- A. Tube Material:
 - 1. For slope and sediment control applications (typical silt fence replacement), use a continuous, tubular, knitted, mesh netting with 3/8" openings constructed of 5-mil thickness, photodegradable HDPE.
 - 2. For inlet protection, use a continuous tubular, knitted, mesh netting with 3/8" openings constructed of 500-denier polypropylene.
- B. Stakes:
 - 1. For securing tube to soil, use 1" x 2" (minimum) hardwood stakes or stakes of equivalent strength.
 - 2. For securing tube over pavement, hold tube in place by attaching to concrete masonry unit blocks with a minimum weight of 50 pounds. Secure using wire or plastic fasteners with a minimum tensile strength of 50 pounds.

2.03 CONCRETE WASHOUT AREAS

- A. Lining: Provide 10-mil poly sheeting to line the area. Overlap edges of the plastic a minimum of 2'.

2.04 CONSTRUCTION SITE EXIT

- A. Stone: shall meet the requirements of IA DOT roadway standards for Macadam stone Base, gradation number 14.

2.05 SOIL STABILIZATION

- A. Mulching:
 - 1. Meeting the requirements of IA DOT roadway standards for mulch, Iowa DOT specification section 4169.08 MULCH.
 - 2. Optional specification:
 - a. Naturally or cooked cellulose fiber processed from whole wood chips, or a combination of up to 70% recycled paper (by volume).

PART 3 - EXECUTION

3.01 SILT FENCES

- A. Installation:
 - 1. Install material along the contour of the ground, as specified in the contract documents, or as directed by the Engineer.
 - 2. Install silt fence with a mechanical soil slicing machine that creates a slit in the ground while simultaneously installing the fabric. The trenching method may be used when situations will not allow soil slicing, as determined by the Engineer.
 - 3. Construct a "J-hook" at each end of a continuous run of silt fence, by turning the end of the silt fence uphill, as necessary to prevent runoff from flowing around ends when water behind the fence ponds to a level even with the top of the fence.
 - 4. Insert 12" of fabric to a minimum depth of 6" (fabric may be folded below the ground line).
 - 5. Compact installation by driving along each side of the silt fence, or by other means, as necessary to adequately anchor the material in the ground, to prevent pullout and water flow under the fence.
 - 6. Drive steel posts into the ground alongside the silt fence, to a minimum depth of 20", unless otherwise

- specified by the Engineer.
- B. Maintenance: At the Contractor's expense, repair or replace non-functioning silt fence that allows water to flow under the fence, is torn, or is otherwise damaged.
 - C. Removal:
 - 1. Remove the silt fence upon final stabilization of the project area, or according to the staging indicated in the SWPPP.
 - 2. Remove and dispose of silt fence and posts.
 - 3. Remove sediment or spread to match finished grade; ensure proper drainage.
 - 4. Stabilize the area disturbed by removal operations.
 - D. Replacement:
 - 1. When accumulated sediment reaches a level $\frac{1}{2}$ the height of the fence, remove the silt fence as described above, and replace according to the installation instructions above.
 - 2. At the Engineer's option, the existing silt fence and accumulated sediment may be left in place, and a new silt fence installed up-slope from the existing silt fence.
 - 3. When permitted by the Engineer, the existing silt fence may be left in place and the accumulated sediment removed. Carefully inspect the existing silt fence for structural integrity and signs of undermining. Make any necessary repairs.

3.02 COMPOST TUBES

- A. Installation:
 - 1. Pneumatically fill mesh filter sock of size and length indicated in the contract documents, or as directed by the Engineer. Alternative methods of filling the sock may be allowed upon approval of the Engineer.
 - 2. Fill socks with filter material.
 - 3. Place the filter sock along the contour as specified in the contract documents, or as directed by the Engineer.
 - 4. Place additional filter material or soil from the site, on the upstream side of the sock, in the seam between the tube and the ground.
 - 5. Construct a "J-hook" at each end of a continuous run of filter sock, by turning the end of the sock uphill, as necessary to prevent runoff from flowing around the ends when water behind the sock ponds up to a level even with the top of the sock.
 - 6. Drive stakes into the ground at a maximum spacing of 10', and as required to secure the sock and prevent movement.
- B. Maintenance: Perform the following incidental work.
 - 1. Repair or replace non-functioning filter socks that allow water to flow under the sock, are torn, or are otherwise damaged.
 - 2. Remove filter material from damaged socks that are located along streambanks, around intakes, in ditches, or in other locations where the material may be carried to surface waters.
- C. Removal: Remove the filter sock upon completion of the project, after final stabilization is achieved, or as indicated in the SWPPP, if applicable.
 - 1. Upon completion of the project, completely remove socks and filter material that are located around intakes, in ditches, or in other locations where the filter material may be carried to surface waters if the sock degrades and/or tears.
 - 2. Slice the sock longitudinally. Remove and dispose of the filter sock material and stakes.
 - 3. Spread the filter material and accumulated sediment to match finished grade and to ensure proper drainage.
 - 4. If the site has been brought to finished grade and prepared for permanent seeding, spread and incorporate the filter material into the surface by tilling, or as required to break up any large particles and provide a finished surface suitable for permanent seeding.
- D. Replacement:
 - 1. When accumulated sediment reaches a level $\frac{1}{2}$ the height of the sock, or when the sock becomes clogged with sediment and no longer allows runoff to flow through, remove the sock as described above, and replace according to the installation instructions above.
 - 2. At the Engineer's option, the existing filter sock and accumulated sediment may be left in place, and a new filter sock installed up-slope from the existing filter sock.

3.03 CONCRETE WASHOUT AREAS

- A. Installation:
 - 1. Size area to accommodate concrete placement activities and maintenance schedule.
 - 2. Excavate area sufficient to accommodate a minimum of three (3) days of concrete deliveries and washouts.
- B. Maintenance: Perform the following incidental work.
 - 1. Repair or replace non-functioning area that allow water to overflow the top of the excavated area or seep under the plastic.
 - 2. Remove accumulated concrete, aggregate, and debris and dispose of off-site.
 - 3. Replace lining.
- C. Removal: Remove accumulated concrete, aggregate and lining. Properly dispose of off-site. Return area to grades depicted on plans.

3.04 CONSTRUCTION SITE EXIT

- A. Install a stabilized construction entrance at all locations where construction traffic leaving the site presents the potential for sediment track-out.
- B. Construct the entrance according to plans.
- C. Remove the accumulated sediment and install new stone, as required to prevent track-out.

3.05 SOIL STABILIZATION

- A. Straw or hay mulch will not be allowed.
- B. Compost:
 - 1. Loosen the ground surface to a minimum depth of 1”.
 - 2. Evenly spread compost to the specified depth, as specified in the contract documents, or as directed by the Engineer.
 - 3. Divert concentrated flows away from the slope.
 - 4. Do not operate heavy equipment over the compost blanket after placement, or throughout the required period of protection.
 - 5. Inspect the ground under the blanket at regular intervals for signs of erosion.

3.06 DUST CONTROL

- A. Water: Apply frequent light watering to ground surface, as required to control dust.

END OF SECTION 01 57 13

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Products.
 - 2. Transportation and handling.
 - 3. Storage and protection.
 - 4. Reuse of existing materials.
 - 5. Product options.
- B. Related Sections:
 - 1. Section 01 25 00 – Substitutions and Product Options
 - 2. Section 01 25 00 – Substitutions Sample Form
 - 3. Section 01 33 00 - Submittals
- C. Provide interchangeable components by the same manufacturer for identical items.
- D. Do not use products containing asbestos or other known hazardous materials.
- E. Do not reuse materials and equipment removed from existing construction in completed Work, except as specifically permitted or directed by the Contract Documents.

1.03 TRANSPORTATION AND HANDLING

- A. Coordinate delivery of Products to prevent conflict with Work and adverse conditions at site.
- B. Transport and handle Products in accordance with manufacturer's instructions.
- C. Promptly inspect shipments to ensure that Products comply with requirements of Contract Documents, are undamaged, and quantities are correct.
- D. Provide equipment and personnel to handle products by methods to prevent damage.

1.04 STORAGE AND PROTECTION

- A. Section 01 60 00 – Product Requirements: Product storage and handling provisions.
- B. Store and protect Products in accordance with manufacturer's instructions with manufacturer's seals and labels intact and legible.
- C. Store Products on site unless prior written approval to store off site has been obtained from Owner.
- D. Store Products subject to damage by elements in weathertight enclosures. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- E. Exterior Storage:
 - 1. Store fabricated Products above ground; prevent soiling and staining.
 - 2. Cover products subject to deterioration with impervious sheet coverings; provide ventilation to prevent condensation.
 - 3. Store loose granular materials in well drained area on solid surfaces; prevent mixing with foreign matter.
- F. Arrange storage areas to permit access for inspection. Periodically inspect stored products to verify that products are undamaged and in acceptable condition.

1.05 PRODUCT OPTIONS

- A. Products specified by reference standard only:
 - 1. Select any Product meeting the specified standard.

2. Submit Product Data to substantiate compliance of proposed Product with specified requirements.
- B. Products specified by naming two or more acceptable Products: Select any named Product.
- C. Products specified by stating that the Contract Documents are based on a Product by a single manufacturer followed by the statement "Equivalent products by the following manufacturers are acceptable":
 1. Select the specified Product or a Product by a named manufacturer having equivalent or superior characteristics to the specified Product and meeting the requirements of the Contract Documents.
 2. If the specified Product is not selected, submit Product Data to substantiate compliance of proposed Product with specified requirements.
 3. The specified Product establishes the required standard of quality.
- D. Products specified by naming 1 or more Products followed by "or approved substitute" or similar statement:
 1. Submit a substitution request under provisions of Section 01 25 00 for Products not listed.
 2. The specified Product establishes the required standard of quality.
- E. Products specified by naming one or more Products or manufacturers followed by the statement "Substitutions: Under provisions of Division 01":
 1. Submit a substitution request under provisions of Section 01 25 00 for Products not listed.
 2. The specified Product establishes the required standard of quality.
- F. Products specified by naming 1 Product followed by the statement "Substitutions: Not permitted": Substitutions will not be allowed.
- G. Products specified by required performance or attributes, without naming a manufacturer or Product:
 1. Select any Product meeting specified requirements.
 2. Submit Product Data to substantiate compliance of proposed Product with specified requirements.

PART 2 PRODUCTS - Not used

PART 3 PRODUCTS - Not used

END OF SECTION 01 60 00

SECTION 01 73 29

CUTTING AND PATCHING

PART 1: GENERAL

1.01 DESCRIPTION

- A. Execute cutting, fitting or patching of Work, required to:
 - 1. Make several parts fit properly.
 - 2. Uncover Work to provide for installation of ill-timed Work.
 - 3. Remove and replace defective Work.
 - 4. Remove and replace Work not conforming to requirements of Contract Documents.
 - 5. Install specified Work in existing construction.
 - 6. Provide finished surfaces (to match adjacent existing surfaces) to fill in voids caused by removal or replacement of materials.
- B. Pay for costs caused by ill-timed or defective Work, or Work not conforming to Contract Documents, including costs for additional services of Architect/Engineer.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Replacement of Work Removed: Comply with specifications for type of Work to be done.
- B. Placement of Work to fill Voids caused by Removal: Comply with latest industry standards for type of Work to be done.

PART 3: EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of Work, including elements subject to movement or damage during:
 - 1. Cutting and patching.
- B. After uncovering Work, inspect conditions affecting installation of new products.

3.02 PREPARATION PRIOR TO CUTTING

- A. Provide shoring, bracing and support as required to maintain structural integrity of Project.
- B. Provide protection for other portions of Project.
- C. Provide protection from elements.

3.03 PERFORMANCE

- A. Neatly cut or demolish along straight, true, square lines.
- B. Execute cutting and demolition by methods which will prevent damage to other Work, and will provide proper surfaces to receive installation of repairs and new Work.
- C. Restore Work which has been cut or removed; install new products to provide complete Work in accord with requirements of Contract Documents.
- D. Refinish entire surfaces as necessary to provide an even finish.
 - 1. Continuous Surfaces: To nearest intersections.
 - 2. Assembly: Entire refinishing.

END OF SECTION 01 73 29

SECTION 01 74 00

FINAL CLEANING

PART 1: GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Cleaning required for specified work is specified in sections pertaining to that work.
- B. Cleaning during construction and prior to substantial completion – Section 01 50 00 Temporary Facilities and Controls.

PART 2: PRODUCTS

2.01 CLEANING MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3: EXECUTION

3.01 FINAL CLEANING

- A. Employ experienced workers or professional cleaners for final cleaning.
- B. At completion of construction and just prior to acceptance or occupancy, conduct a final inspection of exposed interior and exterior surfaces.
- C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exterior surfaces.
- D. Repair, patch and touch up marred surfaces to match adjacent finishes.
- E. Broom clean paved surfaces; rake clean other surfaces of grounds.
- F. Maintain cleaning until the Building or portion thereof, is occupied by the Owner.

END OF SECTION 01 74 00

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 - 1. Salvaging non-hazardous demolition and construction waste.
 - 2. Recycling non-hazardous demolition and construction waste.
 - 3. Disposing of non-hazardous demolition and construction waste.
- B. Related Sections include the following:
 - 1. Section 01 50 00 - Temporary Facilities for environmental-protection measures during construction.
 - 2. Section 02 41 00 - Demolition

1.02 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to Authorities Having Jurisdiction (AHJ).
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.03 PERFORMANCE REQUIREMENTS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 75% by weight of total waste generated by the Work.
- B. Salvage/Recycle Requirements: Owner's goal is to salvage and recycle as much non-hazardous demolition and construction waste as possible including the following materials:
 - 1. Phase 1 Waste (**Contract #1**):
 - a. Asphaltic concrete paving.
 - b. Concrete.
 - c. Concrete reinforcing steel.
 - d. Site-clearing waste.
 - 2. Phase 2 Waste (**Contract #2**):
 - a. Masonry and CMU.
 - b. Lumber.
 - c. Wood sheet materials.
 - d. Wood trim.
 - e. Metals.
 - f. Roofing.
 - g. Insulation.
 - h. Carpet and pad.
 - i. Gypsum board.
 - j. Piping.
 - k. Electrical conduit.
 - l. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100% of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.

- 4) Plastic sheet and film.
- 5) Polystyrene packaging.
- 6) Wood crates.
- 7) Plastic pails.

1.04 SUBMITTALS

- A. Waste Management Plan: Submit plan per Section 01 33 00 Submittals within thirty (30) days of date established for the Notice to Proceed.
- B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of AHJ.
- B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section - Project Management and Coordination. Review methods and procedures related to waste management including, but not limited to, the following:
 1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 2. Review requirements for documenting quantities of each type of waste and its disposition.
 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 5. Review waste management requirements for each trade.

1.06 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 PRODUCTS - Not Applicable

PART 3 GENERAL

3.01 PLAN IMPLEMENTATION

- A. General: Implement waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with Division 01 Section - Temporary Facilities and Controls for operation, termination, and removal requirements.
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 - 1. Distribute waste management plan to everyone concerned within five (5) days of submittal return.
 - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - 2. Comply with Division 01 Section - Temporary Facilities and Controls for controlling dust and dirt, environmental protection, and noise control.

3.02 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until installation.
 - 4. Protect items from damage during transport and storage.
 - 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site.
- C. Salvaged Items for Owner Use:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area designated by Contracting Owner's Representative.
 - 5. Protect items from damage during transport and storage.

3.03 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
 - 1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from the weather.
 - 5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.04 RECYCLING DEMOLITION WASTE

- A. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.
- B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 - 1. Concrete is not for use as satisfactory soil for fill or subbase.

3.05 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - 2. Polystyrene Packaging: Separate and bag materials.
 - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees on-site or at landfill facility.
- C. Wood Materials:
 - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
 - a. Comply with requirements in Division 02 Section - Exterior Plants for use of clean sawdust as organic mulch.
- D. Gypsum Board: Stack large clean pieces of wood pallets and store in dry location.
 - 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.
 - a. Comply with requirements in Division 02 Section - Exterior Plants for use of clean ground gypsum board as inorganic soil amendment.

3.06 DISPOSAL OF WASTE

- A. General: 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 AHJ.
 - 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. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19

SECTION 01 77 00

PROJECT CLOSEOUT

PART 1 GENERAL

1.01 SUMMARY

- A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.
- B. Related requirements in other parts of the Project Manual
 - 1. Fiscal provisions, legal submittals, and additional administrative requirements: Conditions of the Contract.
- C. Related requirements specified in other sections
 - 1. Closeout Submittals Required: The respective sections of specifications.

1.02 SUBSTANTIAL COMPLETION

- A. Refer to the General Conditions of the Contract for Construction.
- B. When the Project is determined by the Architect to be sufficiently complete to permit utilization for the intended use, the Architect will issue a Certificate of Substantial Completion.
- C. To receive the Certificate of Substantial Completion, **Contract #1 and #2 Contractor** for their respective construction activities perform the following:
 - 1. Submit to the Architect a notice declaring that work is believed to be substantially complete.
 - 2. Submit a list of work items that remain to be completed or corrected and the date this work will be accomplished.
 - 3. Obtain Occupancy certificate when required from governing municipality.
- D. Architect will visit the project to evaluate the request for issuance of a Certificate of Substantial Completion.
 - 1. If the Architect concurs that the Project is substantially complete, the Architect will deliver a Certificate of Substantial Completion and a list of work items necessary for completion or correction prior to request for inspection for final completion.
 - 2. If the Architect determines that the work is not substantially complete, the Architect will deliver to the Contractor a written statement including reasons.
 - 3. Complete work on the items required by the Architect for achieving substantial completion and make additional written requests for issuance of a Certificate of Substantial Completion until the Architect determines that sufficient Work has been performed.

1.03 FINAL INSPECTION

- A. When the Work is considered complete, **Contractor #1 and #2 Contractor** for their respective construction activities submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been completed and inspected by the Contractor for compliance with Contract Documents and is ready for final inspection.
- B. Architect will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should Architect consider that the Work is incomplete or defective:
 - 1. Architect will notify the Contractor in writing, listing the incomplete or defective work.
 - 2. Take immediate steps to remedy the stated deficiencies, and send a second written certification to Architect that the Work is complete.
 - 3. Architect will reinspect the Work.
- D. When the Architect finds that the Work is acceptable under the Contract Documents, he will request preparation of Closeout Submittals.

1.04 REINSPECTION FEES

- A. Should Architect perform reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:
 - 1. Owner will compensate Architect for such additional services.
 - 2. Owner will deduct the amount of such compensation from the final payment.

1.05 CLOSEOUT DOCUMENTS SUBMITTED TO ARCHITECT

- A. When the Architect has determined that the Construction Work is acceptable under the Contract Documents and the Contract fully performed, prepare and submit final Application for Payment to the Architect together with the following:
 - 1. A letter recommending acceptance of the Project and indicating all punch list items are complete.
 - 2. Contractor's Affidavit of Payment of Debts and Claims, AIA Document G706, with bonds for any exceptions.
 - 3. Consent of surety to final payment on Consent of Surety Company to Final Payment, AIA Document G707.
 - 4. Contractor's Affidavit of Release of Liens, AIA Document G706A, or other Claims pursuant Iowa Code, Chapter 573.
 - 5. Material conformance letter
 - 6. Project Record Documents.
 - 7. Warranties and Bonds.
- B. Submit items A.1 through A.7 according to Section 01 33 00 - Submittals.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to Architect.
- B. Statement shall reflect all adjustments to the Contract Sum:
 - 1. The original Contract Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders
 - b. Allowances
 - c. Unit Prices
 - d. Deductions for uncorrected Work
 - e. Penalties and Bonuses
 - f. Deductions for liquidated damages
 - g. Deductions for reinspection payments
 - h. Deductions for costs incurred by Architect or Architect's Consultants if project is not closed out within sixty (60) days of Substantial Completion.
 - i. Other adjustments
 - 3. Total Contract Sum, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.
- C. Architect will prepare a final Change Order, reflecting approved adjustments to the Contract Sums which were not previously made by Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

- A. Submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

END OF SECTION 01 77 00

MATERIAL CONFORMANCE LETTER

Date: _____

To Whom It May Concern:

As a representative of _____
Contractor's Firm Name

I certify that to the best of my knowledge, no materials containing asbestos were specified and no materials containing asbestos were used in

Name of Project

Address of Project

Signature

Name

Title

Address

Notary:

SECTION 01 78 23

OPERATING, MAINTENANCE, AND WARRANTY DATA

1.01 GENERAL

- A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.
- B. Prepare operating, maintenance and warranty data as specified in this Section and as referenced in other pertinent section of Project Manual.
- C. Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.
- D. Related requirements specified in other sections:
 - 1. Shop drawings, product data and samples: Section 01 33 00.
 - 2. Project Closeout: Section 01 77 00.
 - 3. Project Record Documents: Section 01 78 39.

1.02 QUALITY ASSURANCE

- A. Preparation of data shall be done by personnel with the following qualifications:
 - 1. Trained and experienced in maintenance and operation of the described products.
 - 2. Completely familiar with requirements of this Section.
 - 3. Skilled as a technical writer to the extent required to communicate essential data.
 - 4. Skilled as a draftsman competent to prepare required drawings.

1.03 FORM OF SUBMITTALS

- A. Prepare data in the form of an instructional manual for use by the Owner's personnel. 1 hard copy and 1 electronic copy shall be submitted.
- B. Format shall conform to the following:
 - 1. Size: 8½" x 11".
 - 2. Paper: 20 pound minimum, white, for typed pages.
 - 3. Text: Manufacturer's printed data, or neatly typewritten.
 - 4. Drawings
 - a. Provide reinforced punched binder tab, bind in with text.
 - b. Fold larger drawings to the size of the text pages.
 - 5. Provide fly-leaf for each separate product, or each piece of operating equipment.
 - a. Provide typed description of product, and major component parts of equipment.
 - b. Provide indexed tabs.
 - 6. Cover: Identify each volume with typed or printed title "OPERATING, MAINTENANCE AND WARRANTY INSTRUCTIONS". List:
 - a. Title of Project
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in the manual.
 - 7. Electronic information shall be scanned PDF copy on a compact disk, ordered by specification section.
- C. Binders
 - 1. Commercial quality 3-ring binders with durable and cleanable plastic cover.
 - 2. Maximum ring size: 2".
 - 3. When multiple binders are used, correlate the data into related consistent groupings.

1.04 CONTENT OF MANUAL

- A. Arrange neatly typewritten table of contents for each volume, in the following systematic order.
 - 1. Contractor, name of responsible principal, address and telephone number.
 - 2. A list of each product required to be included, indexed to the content of volume.
 - 3. List, with each product, the name, address and telephone number of:
 - a. Contractor or installer.
 - b. Maintenance contractor, as appropriate.

- c. Identify the area of responsibility of each.
 - d. Local source of supply for parts and replacement.
 - e. Include warranty information as specified.
- 4. Identify each product by product name and other identifying symbols such as set in Contract Documents.
- B. Product Data
 - 1. Include only those sheets which are pertinent to the specific product.
 - 2. Annotate each sheet to:
 - a. Clearly identify the specific product or part installed.
- C. Additional requirements for maintenance data: see respective sections of the Project Manual.

1.05 SUBMITTAL SCHEDULE

- A. Submit 1 copy of completed data in final form within thirty (30) days of substantial completion. Copy will be returned with comments.
- B. Submit 2 copies of approved data in final form ten (10) days after comments are received.

END OF SECTION 01 78 23

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Fully cooperate with the Architect to accomplish the following.
- B. These requirements supplement the requirements set forth in the General Conditions.
- C. Maintain at each site 1 record copy, as applicable, of:
 - 1. Drawings and Details with addenda marked in.
 - 2. Specifications with addenda marked in.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Architect/Engineer Supplemental Instructions, Proposal Requests, or written instructions.
 - 6. Approved shop drawings, product data and samples.
 - 7. Field test records.

1.02 MAINTENANCE OF RECORD DOCUMENTS AND SAMPLES

- A. Store record documents and samples in Contractor's field office in files and racks. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with the Construction Specifications Institute MASTERFORMAT.
- C. Maintain record documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make record documents and samples available at all times for inspection by Architect or Owner.

1.03 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Continuously record information and changes.
- C. Drawings: Legibly mark to record actual construction.
 - 1. Depths of various elements of foundation in relation to finish first floor datum.
 - 2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by Field Order or by Change Order.
 - 6. Details not on original contract drawings.
- D. Specifications and Addenda - Legibly mark each Section to record:
 - 1. Manufacturer, trade name, catalog number, and Supplier of each Product and item of equipment actually installed.
 - 2. Changes made by Field Order or by Change Order.
- E. Shop Drawings – Label each set by corresponding specification section. At the completion of the project, provide the Owner with 1 complete paper set and 1 electronic set (as applicable), reviewed by Architect, organized by specification section in the following formats:
 - 1. Paper (various sizes) folded to 8 1/2" x 11" and boxed with project name and completion date clearly labeled on exterior.
 - 2. Scanned PDF copy on a compact disk, unless noted otherwise, ordered by specification section.

1.04 SUBMITTAL

- A. Deliver Record Documents to the Owner at Contract Closeout.
- B. Accompany submittal with transmittal letter in duplicate, containing:

1. Date
2. Project title
3. Title and number of each Record Document

END OF SECTION 01 78 39

SECTION 01 79 00

DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections apply to work specified in this section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. Recording of training sessions.
- B. Related Sections:
 - 1. Division 01-14 – Individual sections with training requirements.
 - 2. Divisions 21-25 – Mechanical sections with training requirements.
 - 3. Divisions 26-28 – Electrical sections with training requirements.

1.03 SUBMITTALS

- A. Instruction Program: Submit 2 copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. At completion of training, submit 1 complete training manual for Owner's use.
- B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.
- E. Demonstration and Training Videotape: Submit 1 copy at end of each training module.
 - 1. A video based digital record is required for all training sessions listed herein.

1.04 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section - Quality Control, experienced in operation and maintenance procedures and training.

1.05 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Owner.

PART 2 PRODUCTS

2.01 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project Record Documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 - 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
 - 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
 - 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
 - 7. Maintenance: Include the following:
 - a. Inspection procedures.

- b. Types of cleaning agents to be used and methods of cleaning.
- c. List of cleaning agents and methods of cleaning detrimental to product.
- d. Procedures for routine cleaning
- e. Procedures for preventive maintenance.
- f. Procedures for routine maintenance.
- g. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART 3 EXECUTION

3.01 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
- B. Set up instructional equipment at instruction location.

3.02 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training through Owner with at least seven (7) days' advance notice.
- D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.
- E. Demonstration and Training Recording: Record each training module separately on digital, window's compatible DVD media.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION 01 79 00

SECTION 02 01 10

EXISTING UTILITIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 NOTIFICATION

- A. The **Contractor or Subcontractor** performing excavation or other activities around public utilities shall notify public utility companies and municipalities as to which of their properties (such as pole lines, conduits, gas pipes, water pipes, sewers and tile lines) must be removed or relocated to complete the work. This notice shall note the locations to where their properties could be relocated. However, no warranty is made or implied that the utility owners will remove or relocate their properties prior to commencement of construction operations or in sufficient time or manner to prevent interference with the Contractor's operations.
- B. The Contractor or subcontractor performing excavation activities shall give notice to the owners of all known utilities at least forty-eight (48) hours before starting any operations affecting those properties. If during the course of his operations, the Contractor discovers utility property whose existence was not known, he shall immediately notify the owner thereof and the Engineer.
- C. Construction operations adjacent to utility property shall not be commenced until arrangements satisfactory to the utility owner have been made for the protection of said property and continuation of service. Should any of the Contractor's equipment come in contact with or damage utility property in any way, even though there may be no apparent evidence of breakage or harm, the Contractor shall promptly notify the proper authorities and cooperate with them in determining damage and restoring interrupted services as may be needed. Where contact is made with a utility, operations shall be suspended immediately, and the area vacated, until it has been determined by the utility owner that it is safe to resume operations.

1.03 COMPENSATION

- A. It is understood and agreed that the Bidder has considered in his bid the relative locations of existing utilities, as shown on the Plans and that no additional compensation will be allowed for any delays, inconveniences or damages sustained due to interference which may result from those utilities or the operations of moving them.
- B. If the Contractor is required to perform any special work or use special construction methods in prosecuting work adjacent to underground utility property whose existence was not indicated in the Contract, equitable compensation will be made for the additional costs incurred.
- C. The Contractor shall employ the local utility companies to relocate existing utilities which are affected by the proposed construction. No additional compensation will be provided for relocation of existing utilities, as shown on the Drawings.
- D. The Contractor is responsible to hire the services of a utility locator company to locate all privately owned utilities that may be disturbed by construction operations.

1.04 CARE AND RESPONSIBILITY

- A. The Contractor shall employ special equipment or construction methods (including hand labor, if necessary) to accomplish the work as planned adjacent to utility properties without damage thereto. At no time shall the Contractor interfere with any persons engaged in protecting or moving utility property or in the operation of the utility.

- B. The Contractor shall assume full responsibility for reimbursing the utility owners for any damages caused to utility properties whose existence and approximate locations were made known to him before the damage was done. Nothing in this Section shall make the Contractor liable for damage to utility property located below the ground surface, in the absence of negligence, if the owner of the utility, after reasonable notice from the Contractor, fails to advise the Contractor of its location and approximate depth below the ground surface.

PART 2 PRODUCTS - Not Applicable.

PART 3 EXECUTION - Not Applicable.

END OF SECTION 02 01 10

SECTION 02 41 00

DEMOLITION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section Includes:
 - 1. All materials, equipment, tools, labor and supervision necessary for the demolition and removal pavements, landscaping, utilities, appurtenances and other improvements, together with site clearance, all of which are required to be completed down to bare land, and dispose of unused materials as indicated in the Plans and as specified herein.
 - 2. Coordination with Owner: **Contract #1 Contractor** shall coordinate all demolition activities, sidewalk closures, storm sewers, sanitary sewer services, water services and appurtenances with the Owner.
 - 3. Coordination with Local Authorities Having Jurisdiction (AHJ). **Contractor #1 Contractor** shall obtain all required permits and shall be responsible for all permitting fees and for all related demolition fees charged by local AHJ and shall coordinate the removal of sanitary sewer services and water services with the local AHJ.
 - 4. Coordination with Utility Providers. **Contract #1 Contractor** shall coordinate all demolition activities relating to private utilities with private utility providers. Contractor shall obtain all required permits and shall be responsible for all permitting fees and for all related demolition fees charged by utility providers.

1.03 APPLICABLE REFERENCES

- A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
 - 1. American National Standards Institute (ANSI) Specifications and Standards: ANSI A10.6 - Safety Requirements for Demolition, Current Edition.
 - 2. Code of Federal Regulations (CFR), Title 29, Chapter XVII - Occupational Safety and Health Administration (OSHA), Department of Labor, Part 1926 Regulations, Current Edition.

1.04 RELATED SECTIONS

- A. Section 31 11 00 – Clearing and Grubbing
- B. Section 31 22 00 – Excavation, Fill, Grading and Granular Materials
- C. Section 31 25 00 – Erosion Control

1.05 PERMITS AND CERTIFICATES

- A. The **Contract #1 Contractor** shall give all notices required by, and comply with, all applicable laws, ordinances and codes of the local AHJ, state and federal governments. All disconnections and demolition shall comply with all applicable ordinances, and codes including all written waivers, whether inferred or hereinbefore specifically noted in connection with any of the work covered by said Construction Documents made necessary under the ordinance and regulations of the local AHJ.

- B. The Contractor shall be responsible for the completion and submittal of the “Demolition Permit Utility Approvals Form” from the Building Services Department prior to starting demolition and site clearance operations and pay the associated fee(s).
- C. The Contractor shall be responsible for obtaining the necessary permits from the local AHJ Engineering Department prior to starting any excavation operations associated with the demolition and site clearance project and pay the associated fee(s).
- D. The Contractor shall be responsible for the completion and submittal of the “Notification of Demolition Form” to the Iowa Department of Natural Resources and securing the necessary approvals to begin demolition operations.
- E. Submit detailed sequence of operation for demolition and removal work in accordance with Submittals - Division 01 of these Specifications to ensure minimum interruptions of Owner’s operations. Submit time line indicating removal and placement of proposed equipment.
- F. Submit detailed information as to layout, size, design, type and location for purposes of vehicular and pedestrian control. The Contractor shall furnish, erect, and maintain such signs as may be required by Safety Regulations or as necessary to safeguard life and property.

PART 2 PRODUCTS AND MATERIALS

NOT USED

PART 3 EXECUTION

3.01 GENERAL

- A. Conditions existing at time of inspection for bidding purposes will be maintained by the Owner to the extent practicable. Owner shall have the right to salvage any existing equipment and furnishings.
- B. The Contractor shall comply with the applicable laws and ordinances governing the disposal of materials, debris, rubbish and trash on or off the demolition area, and shall commit no trespass on any public or private property in any operation due to or connected with the demolition and site clearance project.
- C. Owner assumes no responsibility for subsurface conditions on site. Become familiar with subsurface conditions at the site. Owner assumes no responsibility for actual conditions of structures and appurtenances to be demolished. Become familiar with actual condition of structures and appurtenances.
- D. The Contractor is prohibited from using Explosives under any circumstances in any phase of the demolition and site clearance operation.
- E. The Contractor is prohibited from using any part of area or land or parcels outside of Demolition area, for his operations, for storage of material or equipment, or for disposal of waste or for any other purposes whatsoever. Disposition of rubble, salvaged and waste materials, debris and trash from within the Demolition area shall be strictly in accordance with these specifications. Public streets, alleys, or other thoroughfares anywhere in the local AHJ, used by the contractor in carrying out this Contract, shall at all times be kept free of litter attributable to him, and his trucks or other vehicles shall be so loaded and equipped as to prevent leakage, blowing or other escape of any portion of whatever is being hauled. Any cost incurred by Others in cleaning up such litter will be charged to the Contractor, and shall be deducted from funds due or to become due him under this Contract.
- F. The Contractor shall furnish and erect all temporary barricades, covers, and other temporary structures and night warning lights necessary for the proper and safe conduct of the work and shall remove all temporary structures upon the completion of work under this Contract, all without additional compensation. Temporary barricade removal shall be coordinated with building/site contractor’ barricade placement so that there is no lapse in protection of the public.

3.02 REMOVAL OF ITEMS

- A. All removals shall be coordinated with the Owner, and if necessary, the local AHJ and respective utilities as noted. See Plans & Contract Documents for salvageable items and/or materials and instructions for stockpiling and/or reuse.
 - 1. Storm Sewers. Contractor shall be responsible for all work and costs associated with removal of storm sewers, catch basins, and storm sewer manholes as shown on the Plans or required by the work. Abandonment, unless otherwise noted, shall include excavation and removal of all above and below grade appurtenances.

2. Contractor shall coordinate work with installation of new storm sewer and shall be responsible for providing uninterrupted storm sewer drainage during the duration of construction.
 3. Water Service Lines. Contractor shall be responsible for all work and costs associated with removal of service lines, valves, valve boxes, and appurtenances as shown on the Plans and as required by the local AHJ. The disconnection of water service lines shall be at the point of intersection of said lines with the water main. The local AHJ will make the actual disconnection or shut-off. All excavations shall be backfilled with backfill material in the presence of and to the satisfaction of the Owner or his representative. The Contractor shall replace any street pavement, alley pavement, or sidewalk to the satisfaction of the local AHJ.
 4. Sanitary Sewer Service. Contractor shall be responsible all work and costs associated with removal of sanitary sewer service and appurtenances as shown on the Plans. The Contractor shall make all disconnections of sewer lines at the point of intersection of said lines with the main sewer. The main sewer shall be capped with concrete, plugged or as directed by the Owner or its representative and backfilled with backfill material in the presence of and to the satisfaction of the Owner or its representative. The Contractor shall replace any street pavement, alley pavement, or sidewalk to the satisfaction of the local AHJ.
 5. Utility Poles and Overhead Wires. Contractor shall be responsible for all work and costs associated with removal of all utility poles remaining onsite. Contractor shall coordinate removal of all poles and overhead wiring with utility provides.
 6. Electric Manholes. Contractor shall remove electric manholes, if required, Contractor shall coordinate demolition with electrical utility provider.
 7. Natural Gas Main. Contractor shall coordinate removal of all natural gas mains onsite. Contractor shall be required to pay all fees associated with natural gas removal/abandonment. Contact natural gas utility provider, for fees and requirements.
 8. Electrical Service. Contractor shall be responsible for all work and costs associated with removal of all electrical service and main service lines onsite. Contact electrical utility provider for fees and requirements.
 9. Telecommunications. Contractor shall be responsible for all work and costs associated with the removal of all telecommunication facilities onsite as required.
 10. Tree and Shrub Removal. Contractor shall be responsible for all work and costs associated with removal of all remaining trees and shrubs including stumps to full depth and roots to the extent that they are encountered.
 11. Pavement and Driveways. Contractor shall be responsible for all work and costs associated with removal of all remaining asphalt and concrete pavement and driveways to full depth. Contractor shall coordinate all work with Owner.
 12. Curb and Gutter. Contractor shall be responsible for all work and costs associated with removal of all remaining curb and gutter to full depth. Contractor shall coordinate all work with Owner.
 13. Sidewalk. Contractor shall be responsible for all work and costs associated with removal of sidewalks to full depth as shown on the drawings. Contractor shall coordinate work with Owner. Contractor shall be responsible for providing all required temporary signage indicating closure of sidewalks as required by the Owner.
 14. Fence. Contractor shall be responsible for all work and costs associated with removal of fence, fence posts, gates, and concrete footings as required.
 15. Traffic Signs. Contractor shall be responsible for all work and costs associated with removal and replacement of all existing traffic signs, signposts, and footings. Contractor shall be responsible for providing new traffic signs indicating the same information as those that are removed.
- B. Refer to Contract Drawings for additional items to be removed.

3.03 SALVAGED MATERIALS

- A. Contractor to salvage and stockpile items listed on the Plans & Contract Documents.

3.04 SITE ACCESS

- A. The contractor shall coordinate with the Owner and the Local AHJ for allowable street route to and from the demolition project.

3.05 DISPOSAL OF DEMOLITION MATERIALS

- A. The Contractor shall be required to dispose of all solid waste demolition materials at the appropriate location. The Contractor will be responsible and incur all landfill solid waste disposal costs associated with the project. The Contractor shall be responsible and include in the lump sum bid proposal, the costs for labor and equipment to demolish and transport the solid waste materials and include all landfill disposal charges. The Contractor shall be responsible for providing offsite disposal for all materials classified as solid fill, salvageable or scrap. The Contractor shall be responsible and include in the lump sum bid proposal, the costs for labor and equipment to demolish, transport and any applicable disposal charges for solid fill, salvageable or scrap materials. The Owner will not incur any landfill disposal charges for solid fill, salvageable or scrap materials.
1. **SALVAGE OR SCRAP MATERIALS:** The Contractor shall be responsible for offsite disposal of any and all salvageable or scrap materials. The Owner will not incur any landfill disposal charges for salvageable or scrap materials. The Contractor may choose to dispose of salvageable or scrap materials at their discretion, but shall be responsible and incur any landfill disposal charges.
 2. **SOLID FILL MATERIAL DISPOSAL:** The Contractor shall be responsible for providing an offsite disposal area and transport all solid fill materials to the offsite disposal location. The Owner will not incur any landfill disposal charges for solid fill materials. The Contractor may choose to dispose of solid fill materials at their discretion, but shall be responsible and incur any landfill disposal charges.

3.06 POLLUTION CONTROLS

- A. Use water sprinkling, temporary enclosures and other suitable methods to limit dust and dirt rising and scattering in air to lowest level practical. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of the Work.
- B. Comply with governing regulations pertaining to environmental protection.

3.07 BACKFILL MATERIAL

- A. Completely fill below-grade areas and voids resulting from demolition. Use satisfactory soil materials consisting of stone, gravel, and sand, free from debris, trash, frozen materials, roots, and other organic matter. Prior to placement of fill materials, ensure that areas to be filled are free of standing water, trash, and debris. Place fill materials in horizontal layers not exceeding 8" in loose depth. Compact each layer at optimum moisture content of fill material to a density equal to original adjacent ground, unless subsequent excavation for new work is required.
- B. Backfill material shall be approved by the Owner prior to placement and, if suitable, may be material from within the project site. All fill material is to be provided by the Contractor at no expense to the Owner.
- C. Consolidation and compaction of the backfill material shall meet the requirements of Specification 31 22 00.
- D. Coordinate activities to permit access by other trades required for the work, enabling them to complete work which is assigned to them. Accomplish all work required by drawings, including work specifically noted plus additional work related to specific work noted.

3.08 SAFETY AND PROTECTION

- A. The Contractor shall not start demolition operations until all utility services have been disconnected, capped, inspected and found to be completed and no longer in service.
- B. The demolition and site clearance method(s) employed by the contractor must be such as to avoid hazards to person and property, and interference with the use of adjacent properties. Care must also be taken to prevent the spread of dust, flying particles and debris on roadways by incorporating best management practices or as directed by the Owner.
- C. When, in the opinion of the local AHJ or the Owner, demolition work would expose traffic and pedestrians to any hazards, the Contractor shall adhere to the regulations of Section 3303.7 Pedestrian Protection of the 1997 Uniform Building Code, or the most stringent code enforced at the time of construction.
- D. Make such explorations and probes as necessary to ascertain any required protection measures before proceeding with demolition and removal work. Provide protection for workmen, public, adjacent construction and occupants of existing building(s). Provide protection for adjacent private property. Promptly repair damages caused to adjacent facilities at no cost to Owner.

- E. Provide and maintain adequate catch platforms, warning lights, barricades, guards, weather protection, dust protection, fences, planking, bracing, shoring, piling, signs, and other items required for proper safety and protection.
- F. The Contractor shall, whenever necessary, barricade any open excavations until such openings are properly filled. The Contractor shall maintain whenever and wherever necessary sufficient warning devices to protect the public from damage and injury.
- G. Explosives shall not be used. Use no equipment or methods of operation which will cause damage to adjoining buildings either by direct contact or by transmission.

3.09 EXISTING UTILITY SERVICES

- A. Maintain existing utilities indicated to remain, keep in service and protect against damage during demolition operations.

3.10 TRAFFIC CONTROL

- A. All traffic control devices shall conform to the current Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways and the local AHJ requirements. Contractor to check traffic control devices daily and repair or replace damaged/deficient items immediately.
- B. The Contractor shall notify the appropriate Local AHJ staff, the Fire Department, and the Police/Sheriff Department at least forty-eight (48) hours prior to the closing of any streets. Warning signs and barricades shall be provided to adequately alert motorists of the closed streets.

3.11 RESTORATION

- A. The site shall be graded to drain and all debris, trash, rubbish and perishable matter shall be removed and deposited of after demolition operations are complete.
- B. Provide temporary erosion control measures until such time as permanent restoration no longer requires these measures, and as directed by the Engineer.

END OF SECTION 2 41 00

SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

1.3 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION:

- A. Pipe sleeves
- B. Embedded steel and miscellaneous items.

1.4 RELATED REQUIREMENTS

- A. Section 01 45 33 - Structural Testing and Special Inspection
- B. Section 03 20 00 - Concrete Reinforcing
- C. Section 03 30 00 - Cast-in-Place Concrete

1.5 REFERENCE STANDARDS

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; latest edition.
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute; latest edition.
- C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; latest edition.
- D. ACI 347 - Guide to Formwork for Concrete; American Concrete Institute; latest edition.

1.6 DESIGN REQUIREMENTS

- A. Design, engineer and construct formwork, shoring and bracing to conform to design and code requirements; resultant concrete to conform to required shape, line and dimension.

1.7 SUBMITTALS

- A. See Section 01 33 00 - Submittals, for submittal procedures.
- B. Product Data: Provide data on void form materials and installation requirements.
- C. Submit product data for form release agents, form materials, form ties, shelf angle inserts, dovetail anchor slots, flashing reglets, and waterstops.

1.8 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 347, ACI 301, and ACI 318.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver void forms and installation instructions in manufacturer's packaging.
- B. Store void forms off ground in ventilated and protected manner to prevent deterioration from moisture.

PART 2 - PRODUCTS

2.1 FORMWORK - GENERAL

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct to provide resultant concrete that conforms to design with respect to shape, lines, and dimensions.

- C. Comply with applicable State and local codes with respect to design, fabrication, erection, and removal of formwork.
- D. Comply with relevant portions of ACI 347, ACI 301, and ACI 318.

2.2 WOOD FORM MATERIALS

- A. Form Materials: At the discretion of the Contractor.

2.3 FORMWORK ACCESSORIES

- A. Form Ties: Removable type, galvanized metal, adjustable length, free of defects that could leave holes larger than 1 inch in concrete surface.
- B. Form Release Agent: Colorless mineral oil that will not stain concrete, absorb moisture, impair natural bonding of concrete finish coatings, or affect color characteristics of concrete finish coatings.
- C. Corners: Chamfered, wood strip type; 3/4x3/4 inch size; maximum possible lengths.
- D. Dovetail Anchor Slot: Galvanized steel, 22 gage thick, foam filled, release tape sealed slots, anchors for securing to concrete formwork. Match to tie manufacturer.
- E. Flashing Reglets: Galvanized steel, 22 gage thick, longest possible lengths, with alignment splines for joints, foam filled, release tape sealed slots, anchors for securing to concrete formwork.
- F. Waterstops: Preformed mineral colloid strips, 3/8 inch thick, moisture expanding. Provide Waterstop-RX manufactured by Colloid Environmental Technologies, Hydrotite manufactured by Greenstreak, or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Establish a bench mark in an accessible location and use as a reference point for various construction levels. Maintain in an undisturbed condition until final completion.
- B. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.2 EARTH FORMS

- A. Earth forms are not permitted.

3.3 ERECTION - FORMWORK

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- C. Hold inner and outer forms for vertical concrete together with combination steel ties and spreaders accepted by an Engineer, as required.
- D. Lay out all work and check general building lines and levels established. Coordinate layout and measurements and if discrepancies arise, report them to the Owner.
- E. Keep wood forms wet as necessary to prevent shrinkage.
- F. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- G. Align joints and make watertight. Keep form joints to a minimum.
- H. Obtain approval before framing openings in structural members that are not indicated on drawings.
- I. Provide chamfer strips on exposed external corners of columns and walls.
- J. Coordinate this section with other sections of work that require attachment of components to formwork.
- K. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from an Engineer, as required, before proceeding.
- L. Protect work at all times against the elements and other hazards. Cover and secure work.

3.4 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated

prior to placement of concrete.

3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items that will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.
- D. Build in recessed anchor slots for masonry veneer into concrete walls, columns, piers, beams, and spandrels deeper than 14 inches and wider than 16 inches. Position recessed anchor slots vertically, spaced at 16" on center.
- E. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.

3.6 FORM CLEANING

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
 - 1. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
 - 2. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

3.7 FORMWORK TOLERANCES

- A. Construct formwork to maintain tolerances required by ACI 117.
 - 1. Provide Class B surface for exposed concrete.
 - 2. Provide Class C surface for concealed concrete.
 - 3. Provide Class C or Class D surface for concealed pan and joist forms.
- B. Tolerances given in ACI 117 are not cumulative. Maximum tolerance for any formed surface, except footings, shall be one inch.

3.8 FIELD QUALITY CONTROL

- A. Structural Special Inspection
 - 1. Structural Special Inspection shall be performed by qualified parties as specified herein.
 - 2. Formwork for slabs on grade, strip footings without transverse reinforcement, and topping slabs does not require inspection. Additional exceptions may be noted on the structural drawings.
 - 3. Personnel Qualifications: Special Inspector – Structural I: ICBO certified concrete inspector or a graduate civil/structural engineer, or other personnel acceptable to the Structural Engineer of Record (SER), with the experience in the design of structural systems of this type. Inspections shall be performed under the direct supervision of a licensed structural engineer, as defined in Section 01 4533. The licensed engineer shall review and approve all inspection reports.
 - 4. The Owner will provide the following inspections:
 - a. Verify formwork for all concrete, except as noted above, will result in member size, location, and configuration as described on the contract documents, only as it affects the structural integrity of the concrete elements to be placed. Verify removal of shoring conforms to this section. Qualifications: Structural I.

3.9 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Forms for sides of beams, columns, walls, and footings shall remain in place for a minimum of 24 hours.
- C. Form Removal for Horizontal Members (Non-Post-Tensioned):
 - 1. Do not remove horizontal member soffit forms until one of the following has been met:
 - a. At least one third of cylinders field cured according to ASTM C31 reach 100% of the specified 28-day strength.
 - 1) Prepare at least six cylinders from the final 100 cubic yards, or portions thereof, plus at least three cylinders for each 2 hours of placing time or each additional 100 cubic yards of concrete placed, whichever provides the greater number of cylinders.

- 2) Coordinate number of cylinders, testing dates, and all associated costs with the Owner's testing laboratory
- 2. Provide reshores if members must support any superimposed loads. Place reshores the same day forms are removed. Do not remove reshores until concrete has reached its specified strength.
 - a. Apply no construction loads to members being reshored during reshoring operations.
- D. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- E. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

END OF SECTION 03 10 00

SECTION 03 20 00

CONCRETE REINFORCING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SECTION INCLUDES

- A. Reinforcing steel for cast-in-place concrete.
- B. Supports and accessories for steel reinforcement.

1.03 RELATED REQUIREMENTS

- A. Section 01 45 33 - Structural Testing and Special Inspection
- B. Section 03 10 00 - Concrete Forming and Accessories
- C. Section 03 30 00 - Cast-in-Place Concrete

1.04 REFERENCE STANDARDS

- A. ACI 117 - Standard Specification for Tolerances for Concrete Construction and Materials; latest edition.
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; latest edition.
- C. ACI 315 - Details and Detailing of Concrete Reinforcement; latest edition.
- D. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; latest edition.
- E. ASTM A 82/A 82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; latest edition.
- F. ASTM A 185/A 185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; latest edition.
- G. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; latest edition.
- H. CRSI (DA4) - Manual of Standard Practice; Concrete Reinforcing Steel Institute; latest edition.
- I. CRSI (P1) - Placing Reinforcing Bars; Concrete Reinforcing Steel Institute; latest edition.

1.05 SUBMITTALS

- A. See Section 01 33 00 - Submittals, for submittal procedures.
- B. Shop Drawings: Follow recommended practices of ACI 315. Include size, length, bar schedules, shapes of bent bars, spacing of bars, methods of supporting reinforcing, and location and length of splices. Provide details as necessary to show final position of reinforcement in elements.
 - 1. Include shop drawings for masonry reinforcing
- C. Product Data: Submit mechanical splices, adhesive for rebar anchorage.

1.06 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver all reinforcement to the Project site bundled, tagged, and marked.
- B. Store all reinforcing steel bars, ties, wire fabric, etc., on the site in a manner that will permit access for proper inspection and identification.
- C. Do not exceed design capacity of existing construction or formwork.
- D. Store reinforcing to avoid contact with mud, grease, or other materials that would affect bond.

PART 2 PRODUCTS

2.01 REINFORCEMENT

- A. Reinforcing Steel: ASTM A 615/A 615M Grade 60 (420).
 - 1. Deformed billet-steel bars.
 - 2. Unfinished.
- B. Reinforcement Accessories:
 - 1. Chairs, Bolsters, Bar Supports, Spacers: CRSI MSP-1 Chapter 3. Sized and shaped for adequate support of reinforcement during concrete placement.
 - a. Class 1 for all surfaces exposed to weather.
 - b. Class 1 or 2 for interior surfaces exposed to view.
 - c. Class 3 for surfaces not exposed to view.
 - 2. Mechanical couplers: Develop 125% of yield strength, ICBO approved. Dayton/Richmond: Barlock Coupler System, Erico: Lenton Couplers, or approved equal.

2.02 DETAILING

- A. Detail reinforcing steel in accordance with ACI 315 and ACI 318.
- B. Splice reinforcing where indicated on drawings. Specifically note proposed splices not shown on the drawings on the shop drawings and highlight for reviewer's acceptance.
- C. Provide bar supports and other accessories sufficient to maintain reinforcing within specified placing tolerances. Consider requirements of CRSI MSP-1 to be a minimum.
- D. Provide bar supports for all reinforcing, including footings, slabs on grade, grade beams, caissons, and slab temperature reinforcing.
- E. Consider normal construction activities while detailing number and type of bar supports.
- F. Provide side form spacers and spreader bars for all walls, for beams deeper than 30", and for footings with two or more layers of reinforcing.
- G. Detail reinforcing to accommodate forming, fabricating, and placing tolerances and maintain a minimum cover as specified.

2.03 FABRICATION

- A. Fabricate concrete reinforcing in accordance with ACI 318 and ACI 301.
- B. Fabricate within tolerances given in ACI 117.
- C. Welding of reinforcement is not permitted.

PART 3 EXECUTION

3.01 PREPARATION - PLAIN BARS

- A. Clean all reinforcement before placing. Remove oil, mill scale, pitting, mud, loose rust, strong alkali or organic matter.
- B. Remove all excessive rust with wire brush or by sandblasting.
- C. Reinforcement with rust and/or mill scale shall be acceptable if a hand-brushed test specimen meets the applicable ASTM requirements for dimension, weight, and height of deformations.

3.02 PLACEMENT

- A. Place reinforcing in accordance with approved shop drawings, support and secure reinforcement against displacement. Do not deviate from required position. Place within maximum tolerances given in ACI 117.
- B. Splice reinforcing where indicated on drawings.
- C. Install mechanical connectors in accordance with connection manufacturer's recommendations.
- D. All bars must be placed before concrete is poured.
- E. Provide templates for all column dowels.
- F. Do not bend bars embedded in hardened or partially hardened concrete without approval from the Architect/Engineer. If bending is permitted, conform to procedures of ACI 301.
- G. Support footing and slab on grade reinforcing. Do not lift or "step in" during placement of concrete. Use precast concrete, block, brick, or wire supports with earth bearing bases.
- H. Do not displace or damage vapor barrier.
- I. Reinforcing shall have the minimum concrete cover as given on the drawings.

3.03 FIELD QUALITY CONTROL

- A. Structural Special Inspection
 - 1. Structural Special Inspection shall be performed by qualified parties as specified herein.
 - 2. Concrete reinforcing in slabs-on-grade, footings without transverse reinforcement, topping slabs, and other locations as noted on the structural drawings does not require inspection. Special Inspector need not be present during entire reinforcing installation, but must observe all required reinforcing prior to concrete placement.
 - 3. Personnel Qualifications:
 - a. Special Inspector - Structural I: ICBO certified concrete inspector or a graduate civil/structural engineer, or other personnel acceptable to the structural Engineer of Record (SER), with experience in the design of structural systems of this type. Inspections shall be performed under the direct supervision of a licensed structural engineer, as defined in Section 01 45 33. The licensed engineer shall review and approve all inspection reports.
 - 4. The Owner will provide the following inspections:
 - a. Inspect reinforcing in all cast in place concrete. Qualifications: Structural I. Verify the following:
 - 1) Reinforcing bar grade.
 - 2) Reinforcing bars are free of oil, dirt, excessive rust, and damage.
 - 3) Reinforcing bars are adequately tied, chaired, and supported to prevent displacement during concrete placement.
 - 4) Proper chair and tie wire materials are used.
 - 5) Proper clear distances between bars and to surfaces of concrete.
 - 6) Reinforcing bar size and placement.
 - 7) Bar laps for proper length and stagger.
 - 8) Bar bends for minimum diameter, slope and length.
 - 9) Mechanical splices are placed in accordance with the plans, specifications and reviewed shop drawings.

END OF SECTION 03 20 00

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SECTION INCLUDES

- A. Section Includes: Providing all items, articles and materials listed, mentioned, or scheduled on the Drawings or herein, including all labor, materials, equipment, and incidentals necessary and required for the installation of all cast-in-place concrete indicated on the Drawings or specified herein.
 - 1. Concrete footings
 - 2. Concrete foundation walls
 - 3. Concrete slabs-on-grade
 - 4. Joint devices associated with concrete work.
 - 5. Miscellaneous concrete elements, including equipment pads, light pole bases, flagpole bases, thrust blocks, and manholes
 - 6. Concrete curing
 - 7. Perimeter insulation over non-waterproofed concrete foundation walls as shown on drawings

1.03 RELATED REQUIREMENTS

- A. Section 01 45 33 – Structural Testing and Special Inspection
- B. Section 03 10 00 – Concrete Forming and Accessories: Forms and accessories for formwork.
- C. Section 03 20 00 – Concrete Reinforcing.
- D. Section 13 34 18 – Post Frame Building Systems

1.04 REFERENCE STANDARDS

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; latest edition.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; latest edition.
- C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; latest edition.
- D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; latest edition.
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; latest edition.
- F. ACI 305R - Hot Weather Concreting; American Concrete Institute International; latest edition.
- G. ACI 306R - Cold Weather Concreting; American Concrete Institute International; latest edition.
- H. ACI 306.1 - Standard Specification for Cold Weather Concreting, American Concrete Institute; latest edition.
- I. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; latest edition.
- J. ACI 308.1 - Standard Specification for Curing Concrete, American Concrete Institute; latest edition.
- K. ACI 309R - Guide for Consolidation of Concrete, American Concrete Institute; latest edition.
- L. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; latest edition.

- M. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; latest edition.
- N. ASTM C 31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field; latest edition.
- O. ASTM C 33 - Standard Specification for Concrete Aggregates; latest edition.
- P. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; latest edition.
- Q. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; latest edition.
- R. ASTM C 136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregate; latest edition.
- S. ASTM C 143/C 143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; latest edition.
- T. ASTM C 150 - Standard Specification for Portland Cement; latest edition.
- U. ASTM C 157 - Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete; latest edition.
- V. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete; latest edition.
- W. ASTM C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method; latest edition.
- X. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; latest edition.
- Y. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; latest edition.
- Z. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; latest edition.
- AA. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; latest edition.
- BB. ASTM C 1107/C 1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink); latest edition.
- CC. ASTM C 1260 - Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method); latest edition.
- DD. ASTM C 1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete; latest edition.
- EE. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types); latest edition.
- FF. National Ready Mixed Concrete Association (NRMCA) - Quality Control Manual; latest edition.

1.05 SUBMITTALS

- A. See Section 01 33 00 - Submittals, for submittal procedures.
- B. Concrete mix designs for each mix used. On request, include field test data used to determine required average strength (if that method was used) and field test or trial mix data used to document required average compressive strength.
- C. Product data for admixtures, curing materials and compounds, joint fillers, vapor retarders, non-shrink grout, and slab construction joint devices
- D. Aggregate tests.
- E. Batch plant inspection records.
- F. Cold weather concreting procedures.
- G. Drawings showing construction and control joints, including joints at slab-on-grade and vertical walls.
- H. Certification of admixture conformance to chloride ion requirements.
- I. Field quality control test results.

1.06 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

1.07 MATERIAL DELIVERY, HANDLING, AND STORAGE

- A. Materials shall be delivered in the Manufacturer's undamaged, unopened containers. Each container shall be clearly marked with the product name, manufacturer's name, batch number, component designation, and ratio of component mixtures.

- B. Provide equipment and personnel to handle the materials by methods that prevent damage.
- C. Promptly inspect shipments to assure that materials comply with requirements, quantities are correct, and materials are undamaged.
- D. Store materials in accordance with the Manufacturer's instructions, with seals and label intact and legible. Maintain temperatures within the Manufacturer's recommended ranges.
- E. Furnish delivery tickets with each load of concrete delivered to the Project. Information on each ticket shall be as required by ASTM C94 and shall also include: type of concrete (mix number), weights of all ingredients, maximum aggregate size, type, brand, and amount of admixture, total water in the batch, maximum amount of water that can be added at the site without exceeding design mix proportions, and amount of water added at site and initials of person adding water. Retain tickets until substantial completion unless directed otherwise.

1.08 PROJECT CONDITIONS

- A. Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials and products used.

1.09 NATIONAL VOLATILE ORGANIC COMPOUND (VOC) EMISSION STANDARDS

- A. All products shall comply with the E.P.A. rulings establishing national VOC emission standards for architectural coatings as listed in the Federal Register: September 11, 1998 (Volume 63, Number 176), [Rules and Regulations] [Page 48848-48887].
- B. All products shall not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, as in effect on January 1, 2004.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Comply with requirements of Section 03 10 00.

2.02 REINFORCEMENT

- A. Comply with requirements of Section 03 20 00.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C 150, Type I - Normal Portland type.
- B. Fine and Coarse Aggregates: ASTM C 33.
 - 1. Provide maximum size specified in mix design schedule.
 - 2. Alkali Silicate Reactivity: Expansion of fine aggregate tested per ASTM C1260 shall not exceed 0.15%.
If fly ash or other pozzolans are used to reduce shrinkage to meet this requirement, expansion of fine aggregate tested per ASTM C1260 without fly ash or other pozzolans shall not exceed 0.25%.
- C. Fly Ash: ASTM C 618, Class C or F.
- D. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120.
- E. Water: Clean and not detrimental to concrete.

2.04 CHEMICAL ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1% by weight of cement.
- B. Air Entrainment Admixture: ASTM C 260.
- C. High Range Water Reducing Admixture: ASTM C 494/C 494M Type F.
- D. Accelerating Admixture: ASTM C 494/C 494M Type C.
- E. Water Reducing Admixture: ASTM C 494/C 494M Type A.
- F. Prohibited Admixtures: Calcium chloride, thiocyanates or admixtures containing more than .05% chloride ions.
- G. Do not use accelerating or retarding admixtures without written approval of the Architect.

2.05 ACCESSORY MATERIALS

- A. Under slab Vapor Barrier: See Section 13 34 18 – Post Frame Building Systems
- B. Non-Shrink Grout: ASTM C 1107 Grade B; Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
 - 1. Conformance to ASTM C1107 shall occur with a minimum temperature range of 45° F to 90° F, a fluid consistency, and a minimum thirty (30) minute working time.
- C. Curing Materials
 - 1. All curing agents and sealers shall have no adverse effect on finishes, traffic topping, or other sealers. Coordinate with the appropriate finish manufacturer and receive written confirmation before applying.
 - 2. Moisture-Retaining Cover: ASTM C 171; regular curing paper, white curing paper, white polyethylene film at temperatures above 60° F, black polyethylene film at temperatures below 80° F, clear polyethylene, or white burlap-polyethylene sheet at temperatures above 60° F.
 - 3. Liquid Curing Compound (Strippable, dissipating): ASTM C 309, Type 1, clear or translucent. VOC compliant, 350 g/l. Acceptable products include Kure-N-Seal, Sonneborn Division of BASF; Sealtight Seal Cure-309, W.R. Meadows, Inc.; Eucocure, Euclid Chemical Co.; or equal.
 - 4. Curing and Sealing Compound: ASTM C1315, Type 1, Class A, VOC compliant, 25% minimum solids.
 - 5. Exterior Concrete Curing Compound: Wax base, membrane forming curing compound, ASTM C309, Type II, white pigmented.
 - 6. Evaporation Retarder: BASF MasterKure ER 50 or approved equal.
- D. Non-Slip Abrasive: Sintered aluminum oxide, graded to pass a No. 12 sieve but retained on a No. 24 sieve, 75% minimum aluminum oxide content.
- E. Self-leveling Cement based Underlayment: Sonneborn: Sonoflow; Thoro: Underlayment – self-leveling; Ardex: K-15; L&M Construction Chemicals: Levelex Euclid Chemical Company: Flo-Top or Super Flo-Top.
- F. Floor and/or Traffic Deck Insulation: See Section 07 2100 - Insulation.
- G. Waterstop Mastic: 30 oz. caulking cartridge of bentonite/chemical mixture. Waterstop Plus: Intercontinental Construction Equipment (763-784-8406), distributed by Brock White (www.brockwhite.com).
- H. Perimeter Insulation: See Section 13 34 18 – Post Frame Building Systems.
- I. Control Joints: See Section 03 10 00 - Concrete Forming and Accessories

2.06 CONCRETE MIX DESIGN REQUIREMENTS

- A. Submit concrete mix design for each type of concrete at least fourteen (14) days prior to the proposed start of placement. Mix designs must be reviewed prior to pouring concrete. Review is for conformance with specification requirements only. Contractor is responsible for performance.
- B. Concrete shall conform to the requirements of ASTM C94 (Option A) unless other requirements of this project specification are more stringent.
- C. Provide concrete with workability such that it will fill the forms, without voids or honeycombs, when properly vibrated, without permitting materials to separate or excess water to collect on the surface.
- D. Self-consolidating concrete may be used at Contractor's option where desired and shall be used where required for architectural finish or where necessary to achieve proper consolidation in locations or reinforcing congestion. Modify standard mixes as appropriate to achieve self-consolidating properties.
- E. Slump at point of discharge: 5" max. for concrete without superplasticizer and 9" max. for concrete with superplasticizer.
- F. Flow for self-consolidating concrete: 20"-30"
- G. Proportioning Normal Weight Concrete: ACI 301. Establish proportions based on the standard practices contained in ACI 211.1.
- H. Determine required average strength as required by ACI 301.
- I. Concrete Strength: Document that mixes produce required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
- J. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- K. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

2.07 CONCRETE MIX DESIGN SCHEDULE

- A. Normal Weight Concrete: Footings, walls not exposed to view and rectangular piers integral with those walls
 - 1. Minimum Compressive Strength, when tested in accordance with ASTM C 39/C 39M at twenty-eight (28) days: 3,000 psi.
- B. Normal Weight Concrete: Exterior Concrete.
 - 1. Exterior concrete includes: exterior aprons and stoop slabs, exterior sidewalks, slabs at overhead doors and loading docks, exterior walls, piers, and columns, and other similar conditions.
 - 2. Minimum Compressive Strength, when tested in accordance with ASTM C 39/C 39M at twenty-eight (28) days: 4,000 psi.
- C. Normal Weight Concrete: Slabs on grade
 - 1. Minimum Compressive Strength, when tested in accordance with ASTM C 39/C 39M at twenty-eight (28) days: 4,000 psi.

2.08 SOURCE QUALITY CONTROL

- A. Provide an independent testing laboratory to perform the following:
 - 1. At the beginning of the concrete operations for the project and for each 1,000 yards of concrete delivered to the project, test the fine and coarse aggregate gradation in accordance with ASTM C136 for conformance with this specification.
 - 2. Submit test results to the Architect.
- B. Submit records showing that, within the previous year, the batch plant has been certified as meeting the requirements of the National Concrete Ready Mix Association or the inspection checklist in ACI 311.4R and conforms to:
 - 1. Control, handling, and material storage requirements of Chapter 2 of ACI 304.
 - 2. Measurement requirements of Chapter 3 of ACI 304 and that batching equipment is in good condition.
 - 3. Batching tolerance requirements of Table 3.1.2 of ACI 304.
 - 4. Inspection performed by a qualified independent inspector.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

- A. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.
- B. Do not embed pipes other than non-aluminum electrical conduit or snow melting pipes in any structural concrete.
 - 1. Any pipes embedded in concrete, even those meeting the guidelines given herein, are subject to acceptance by Architect. Remove any unacceptable pipes.
 - 2. Outside diameter of pipes placed in slabs and walls shall not exceed 25% of the thickness of the slab or wall and shall be placed in groups of not more than 3. Space pipes within a group at not less than 4 diameters clear. Space groups of pipes at not less than 48 diameters clear.
 - 3. Maximum total dimension or area of pipes and their fittings embedded in concrete beams and columns shall not exceed, at any location, 15% of least section dimension or 4% of the gross cross sectional area.
- C. Where new concrete is to be bonded to existing or previously placed concrete, clean existing surface to remove dust, dirt, grease, oil, curing compounds, and other items that would be detrimental to bonding. Saturate existing surface with clean water [eight (8) hours minimum], remove excess water, and slush with a neat cement grout immediately before placing new concrete.
- D. Protect existing concrete work to be exposed to view and other finished materials from damage and staining resulting from concreting operations. Cover sills, ledges and other surfaces with protective coverings as necessary to protect the work.
- E. Slab-on-grade:
 - 1. Verify subgrade compaction tests have been performed and are accepted.

2. Verify subgrade is level and within acceptable tolerances.
 3. Verify subgrade is substantially dry with no freestanding water, muddy spots, or soft spots and is free from snow or ice.
 4. Verify completion of all underfloor mechanical and electrical work.
 5. Provide 3" minimum cover bottom and 3" minimum cover sides at electrical conduits and other embedded items.
- F. Vapor Barrier Placement
1. Install in accordance with ASTM E1643 and manufacturer's written instructions.
 - a. Place with longest dimension parallel with the direction of the concrete pour.
 - b. Lap over footings and seal to foundation walls with vapor-proofing mastic.
 - c. Overlap joints 6" minimum and seal with manufacturer's tape.
 - d. Seal all penetrations including, but not limited to, pipes, conduits, columns, and piers with pipe boots in accordance with manufacturer's written instructions. No unsealed penetrations will be permitted.
 - e. Repair damaged areas by applying patches of vapor barrier, overlapping damaged area 6" and sealing on all four sides with tape.

3.03 JOINTS

- A. Provide slab-on-grade construction and control joints at 10' on center, maximum, each direction, unless noted otherwise.
 1. Cut joints as soon as concrete has hardened sufficiently to prevent aggregate dislodgement. Use a "Soft Cut" saw to cut to a depth of 1 1/4" immediately after final finishing. Use a conventional saw to cut to a depth of one-fourth the slab thickness or as shown on the drawings. Complete sawing within twelve (12) hours of placement.
- B. Provide vertical construction and control joints in walls at 30' on center, maximum, unless noted otherwise.
- C. Horizontal joints in walls and columns shall be at underside of slabs, beams and girders and at top of footings. At least twenty-four (24) hours shall elapse between placing concrete in a wall or column and placing concrete in an area supported by the wall or column.
- D. Reinforcing shall be continuous across construction joints. Provide dowels where detailed or requested. Joints in walls shall be keyed with longitudinal keys at least 1 1/2" deep unless detailed otherwise.

3.04 CONCRETE MIXING

- A. Transit Mixers: Comply with ASTM C 94/C 94M.
- B. Use cooled or heated water in accordance with ACI 306 and 305.
- C. Air-entraining and chemical admixtures, if approved, shall be charged into mixer as a solution and dispensed by an automatic dispenser or similar metering device. Powdered admixtures shall be weighted or measured by volume as recommended by the manufacturer. Superplasticizer may be added at the job site to maintain slump.
- D. 2 or more admixtures may be used in same concrete, provided such admixtures are added separately during batching sequence. Admixtures used in combination shall retain full efficiency and have no deleterious effect on concrete or on properties of each other.
- E. Ready mixed concrete shall be transported to the site in watertight agitator or mixer trucks loaded not in excess of rated capacities. Schedule and dispatch trucks from the batching point so that they shall arrive at the site of the work just before the concrete is required to avoid excessive mixing of concrete while waiting.
- F. Discharge at the site shall begin within one (1) hour after charging. Concrete may be used as long as it is of such slump that it can be placed and properly consolidated without the addition of water to the batch (other than water added prior to the start of discharge as given below). If elapsed time since batching exceeds ninety (90) minutes, or if drum has revolved more than 300 revolutions since batching, test air content, slump, and temperature for conformance to this specification prior to placing. In no case shall the time between batching and complete discharge exceed one hundred twenty (120) minutes. Do not permit retempering of concrete. Discard concrete that has obtained its initial set.
- G. Do not add water after the initial introduction of the mixing water for the batch, except at the start of discharge, subject to the conditions below. In this case, the producer may add water in an amount not exceeding that allowed to achieve the design water/cement ratio. The drum blades shall then be turned an additional 30 revolutions minimum at mixing speed. Water shall not be added to the batch at any later time. Reject concrete if water is added and these conditions are not met.

1. The measured slump of the concrete is less than that specified in the mix design.
 2. No more than sixty (60) minutes have elapsed from the time of batching.
 3. The ready-mix plant is notified and approves.
 4. Truck tickets indicate maximum amount of water to be added.
 5. Water is added in a manner to control volume.
 6. Special Inspector is notified, if concrete placement requires inspection.
- H. Maximum concrete temperature delivered to Project site shall be 85° F.
- I. To use materials other than those accepted originally, or if the materials from the source originally accepted change in characteristics, make additional tests with proposed new materials that will verify production of concrete meeting with the stated requirements without causing objectionable change in the color or appearance of the structure. Pay the testing agency for these additional tests. Do not use concrete made from such different materials until the Architect has given his approval.
- J. If, during the progress of the work, it is impossible to secure concrete of the required workability and strength with the materials being furnished by the Vendor, the Architect may order such changes in the proportions or materials, or both, as may be necessary to secure the desired properties, subject to the stated requirements. Make any changes so ordered without extra compensation.

3.05 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301. Follow recommended practice of ACI 304R.
- B. Place concrete for floor slabs following recommended practices of ACI 302.1R.
- C. Do not place in rain, sleet, or snow unless exposed concrete surface is protected from moisture.
- D. Ensure reinforcement, inserts, and embedded parts will not be disturbed during concrete placement.
- E. Repair under slab vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas minimum 6" and seal watertight.
- F. Separate slab-on-grade from vertical surfaces with joint filler.
- G. Install joint devices in accordance with manufacturer's instructions.
- H. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- I. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- J. Place concrete continuously between predetermined expansion, control, and construction joints.
- K. Do not interrupt successive placement; do not permit cold joints to occur.
- L. If, for any reason, the concrete pour is delayed for more than forty-five (45) minutes, bulkhead pour at last acceptable construction joint. Immediately remove excess concrete and clean all forms and in situ concrete surfaces.
- M. Do not permit concrete to drop more than 4' from its point of release to mixers, hoppers, or conveyances. Use tremies, chutes, or pumps as necessary to place columns and walls.
- N. Deposit concrete in wall forms in layers not greater than 24" in depth. Consolidate each layer before the succeeding layer is placed.
- O. Place concrete as near as possible to its final position to prevent segregation. Do not use vibrators to transport concrete.
- P. Immediately remove concrete spilled on existing surfaces.
- Q. Exercise care in placing concrete over waterproof membranes to avoid damaging the membrane. Report damage immediately, and do not proceed until the damage is repaired.
- R. Place slab-on-grade according to submitted, approved joint location plan.
- S. Concrete at tops of forms: Strike concrete at top of wall, footing, and pier forms. Smooth and float to texture comparable to adjacent formed surfaces.

3.06 CONSOLIDATION

- A. Consolidation of concrete shall conform to ACI 301, unless modified herein.
- B. Follow recommended practices of ACI 309, unless modified herein.
- C. Consolidate concrete using internal vibrators.
- D. Maintain a spare vibrator at the Project Site during all placing operations.

3.07 SELF-LEVELING CEMENT BASED UNDERLAYMENT

- A. Clean surface of oil, grease, dirt, dust, curing compounds, and laitance to sound concrete and according to manufacturer's written instructions. Apply primer as recommended by manufacturer.
- B. Mix in accordance with manufacturer's instructions. Add aggregate if required due to underlayment thickness.
- C. Pour over substrate and spread per manufacturer's instructions.
- D. Protect from foot traffic until underlayment is fully cured.

3.08 CONCRETE FINISHING

- A. Concrete Finish Schedule
 - 1. Concealed walls, columns, beams, and slabs: As-cast rough form finish.
 - 2. Exposed interior concrete floors and floors: Troweled finish.
 - 3. Exterior platforms, aprons, ramps, loading docks, and garage slabs: smooth finish
- B. Formed Surfaces
 - 1. Repair surface defects, immediately after removing formwork.
 - 2. Provide finishes per ACI 301 as scheduled and to the following tolerances.
 - 3. Rough Form Finish: Rub down or chip off fins or other raised areas 1/2" or more in height. Rough form finish per ACI 301. Class C surface per ACI 117.
 - 4. Smooth Form Finish: Rub down or chip off and smooth fins or other raised areas 1/8" or more in height. Smooth form finish per ACI 301. Class B surface per ACI 117.
- C. Unformed Surfaces
 - 1. Provide finishes per ACI 301 as scheduled herein or noted on Drawings and to the following tolerances.
 - a. Troweled Finish: Moderately flat tolerance per ACI 117. Slope slab to floor drains.
 - b. Flat Troweled Finish: Flat tolerance per ACI 117
 - c. Scratched Finish: Conventional tolerance per ACI 117.
 - d. Broom Finish: Moderately flat tolerance per ACI 117.
 - e. Floated Finish: Conventional tolerance per ACI 117.
 - f. Non-Slip Finish: Broom finish or a troweled finish with a "dry shake" abrasive application, wet abrasive prior to installation, and apply at a rate not less than 25 pounds per 100 square feet. Moderately flat tolerance.
 - 2. Provide finishes per ACI 301 as scheduled and to the following tolerances (F Numbers) per ACI 117 and measured according to ASTM E1155.
 - a. Troweled Finish: Moderately flat tolerance.
 - 1) F(F): Specified Overall Value of 25; Minimum Localized Value of 15.
 - 2) F(L): Specified Overall Value of 20; Minimum Localized Value of 12.
 - b. Flat Troweled Finish: Flat tolerance
 - 1) F(F): Specified Overall Value of 35; Minimum Localized Value of 21.
 - 2) F(L): Specified Overall Value of 25; Minimum Localized Value of 15.
 - c. Scratched Finish: Conventional tolerance.
 - 1) F(F): Specified Overall Value of 20; Minimum Localized Value of 12.
 - 2) F(L): Specified Overall Value of 15; Minimum Localized Value of 10.
 - d. Broom Finish: Moderately flat tolerance.
 - 1) F(F): Specified Overall Value of 25; Minimum Localized Value of 15.
 - 2) F(L): Specified Overall Value of 20; Minimum Localized Value of 12.
 - e. Floated Finish: Conventional tolerance.
 - 1) F(F): Specified Overall Value of 20; Minimum Localized Value of 12.
 - 2) F(L): Specified Overall Value of 15; Minimum Localized Value of 10.
 - f. Non-Slip Finish: Broom finish or a troweled finish with a "dry shake" abrasive application, wet abrasive prior to installation, and apply at a rate not less than 25 pounds per 100 square feet. Moderately flat tolerance.
 - 1) F(F): Specified Overall Value of 25; Minimum Localized Value of 15.
 - 2) F(L): Specified Overall Value of 20; Minimum Localized Value of 12.
 - 3. Clean exposed concrete to remove laitance, efflorescence and stains.

3.09 CONCRETE WALL FINISHES

- A. Complete screeding and darbying of top of walls before excess moisture or bleeding water is present on the surface.
- B. Do not begin subsequent finishing operations until surface water has disappeared.
- C. Refer to Concrete Schedule, included in this specification section, for finish type at each location, defined as follows:
 - 1. Rough Form Finish: (Type W1)
 - a. No form facing materials specified.
 - b. Patch tie holes and defects.
 - c. Chip off fins 1/4" or more in height.

3.10 CONCRETE SLAB FINISHING

- A. Complete screeding and darbying slabs before excess moisture or bleeding water is present on the surface.
- B. Do not begin subsequent finishing operations until surface water has disappeared and the concrete will sustain foot pressure with only approximately 1/4" indentation.
- C. Refer to Concrete Schedule, included in this specification section, for finish type at each location, defined as follows:
 - 1. Smooth Float Finish: (Type S1)
 - a. Consolidate concrete with a power-driven disc-type float or a combination floating-troweling machine with metal float shoes attached.
 - b. Machines which have a water attachment for wetting the concrete during the finishing operation are prohibited.
 - c. Check and level surface plane to a tolerance not exceeding 1/4" in 10' when tested with a 10' straightedge. Cut down high spots and fill low spots; immediately after re-leveling, refloat surface to a uniform, smooth, granular texture.
 - d. Where slab drainage is indicated, take care to maintain accurate slopes for drainage.
 - 2. Steel Troweled Finish: (Type S2)
 - a. Produce a Smooth Float Finish.
 - b. After float finishing, steel trowel surface as specified in Concrete Schedule to increase the compaction of fines and to provide maximum density and wear resistance.
 - c. Steel Troweled Finish: Screed and bull float or darby. Give preliminary float finish, true, even, and free from depressions; float surface with hand or machine floats; compact surface with not less than 2 thorough and complete steel troweling operations.
 - d. Tolerance on finished steel troweled floors in no instance shall exceed 1/8" in 10'-0" on surface; where floor drains occur, slope floors to drains.
 - e. Buffing: After concrete floors have been properly cured, buff thoroughly to remove soluble salt incrustation or other foreign substances.

3.11 CURING AND PROTECTION

- A. Comply with requirements of ACI 308.1 as amended by this section. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature above 55° F for the period necessary for hydration of cement and hardening of concrete as follows:
 - 1. Normal concrete: Not less than seven (7) days.
- C. Curing may be terminated earlier than the minimum time above if at least 1 of the following conditions is met:
 - 1. At least 4 field cylinders for each pour, prepared and cured according to ASTM C31 alongside the concrete they represent, reach 70% of the specified twenty-eight (28) day strength.
 - 2. The concrete temperature is maintained above 50°F and laboratory cylinders reach 85% of the specified twenty-eight (28) day strength.
- D. Formed Surfaces: Cure by moist curing with forms in place for full curing period. If forms are removed during the curing period, by 1 of the methods specified for unformed surfaces.
 - 1. Keep steel forms heated by the sun and all wood forms wet during the curing period.
- E. Unformed Surfaces: Apply curing materials as soon as finishing operations are complete and the concrete's sufficiently hard to be undamaged by the curing process.

1. Waterproof paper or polyethylene film: Use appropriate color of film based on ambient temperature. Sprinkle concrete with water as necessary during application of covering. Lap edges and ends at least 6", and seal laps. Weight down covering to prevent movement. Patch holes and tears that occur during the curing period.
2. Curing Compounds: Apply strictly according to the manufacturer's instructions using low pressure spray equipment.
 - a. Maximum 300 square feet per gallon for curing and sealing compound.
 - b. Maximum 200 square feet per gallon for strippable curing compound.
3. Use the following methods:
 - a. Interior floors exposed in the finished work. Do not use curing compound or use strippable curing compound where specialty concrete stain and sealants will be applied.
 - 1) Shop Bay #1, Shop Bay #2, Tool Crib:
 - a) Apply Salt Protection Sealer to concrete surface. CreteDefender P2 or equal.
 - b) Prepare concrete surface as recommended by product manufacturer to allow sealer to penetrate the concrete for maximum protection from salt and water damage.
 - 2) Office, Work Room, Rest Room, Closet:
 - a) Apply decorative stain to concrete surface. Prosoco, Consolideck, GemTone Stain, or equal. Color: "Concrete Gray"
 - b) Prepare concrete surface as recommended by product manufacturer to allow stain to penetrate into concrete.
 - c) Seal stained concrete with Prosoco, Consolideck LS or as recommended by the concrete stain manufacturer. Apply sealer as recommended by manufacturer to obtain the desired color and sheen.
 - b. Exterior concrete: Cure using exterior concrete curing compound.
 - c. All other unformed surfaces: Cure using a strippable curing compound, by wet curing methods, or by covering with waterproof paper or polyethylene film.
 - 1) Remove strippable curing compound prior to installation of cementitious or adhered finishes.
4. Protect concrete from excessive changes in temperature during the curing period and at the termination of the curing process. Changes in the temperature of the concrete shall be as uniform as possible and shall not exceed 5° F in any one (1) hour or 50° F in any twenty-four (24) hour period.

3.12 HOT WEATHER CONCRETING

- A. Apply recommended practices of ACI 305R when temperature and humidity will affect placing and finishing or may cause plastic shrinkage cracking.
- B. Wet or fog forms and reinforcing immediately prior to placement to bring temperature to ambient conditions.
- C. The following additional requirements apply when the temperature exceeds 70° F.
 1. Provide concrete meeting the following temperature requirements:
 - a. Wind Speed 0-10 mph: Maximum Concrete Temperature 80° F.
 - b. Wind Speed 10-15 mph: Maximum Concrete Temperature 75° F.
 - c. Wind Speed 15-20 mph: Maximum Concrete Temperature 70° F.
 - d. Wind Speed 20-25 mph: Maximum Concrete Temperature 65° F.
 2. Do not place concrete if the relative humidity is less than 30%
 3. Do not place concrete without windbreaks if the wind speed at the slab elevation is greater than 25 mph.
 4. Maintain surface moisture during the period between placement and final finishing by using fog sprayers, evaporation reducing materials, or shade (individually or in combination).

3.13 COLD WEATHER CONCRETING

- A. Concrete placed during cold weather shall conform to the requirements of ACI 306.1.
- B. Cold weather is defined as three (3) or more successive days when the average daily outdoor temperature is less than 40° F.
- C. All surfaces, including subgrade and reinforcing shall be above 35° F prior to placing concrete. Surfaces shall not be more than 10° warmer than the minimum concrete temperatures required by ACI 306.1.
- D. Maintain cold weather protection for the following duration but not less than the duration specified in "Curing and Protection" above:

1. Maintain protection for a minimum of forty-eight (48) hours after placement of concrete.
 2. Maintain protection for columns and supported slabs until at least 4 field cylinders, prepared and cured in accordance with ASTM C31, reach 85% of the specified twenty-eight (28) day strength, or, laboratory cured cylinders reach the specified twenty-eight (28) day strength.
- E. Submit detailed procedures for cold weather concreting for engineer's information only.
- F. Follow recommended practices of ACI 306R. Subject to other requirements of this section, a non-chloride accelerator may be used to normalize initial set and for early strength gain.

3.14 PERIMETER INSULATION

- A. Install over non-waterproofed/waterproofed foundation wall – see waterproofing specifications for additional information.
- B. Install on face of wall for heated and/or tempered areas, as shown on Drawings.
- C. Secure to substrate with manufacturer-recommended adhesive until backfill is placed.
- D. If insulation is to remain uncovered for more than thirty (30) days, protect from UV exposure with opaque covering.

3.15 FIELD QUALITY CONTROL

- A. Provide free access to concrete operations at project site and cooperate with appointed firm.
- B. Structural Testing and Special Inspection
1. Structural Testing and Special Inspection shall be performed by qualified parties as specified herein, and in accordance with the provisions of Section 01 45 33.
 2. Personnel Qualifications
 - a. Testing Technician: Technical I - ACI Certified Concrete Field Testing Technician, Grade I, employed by a testing laboratory with C.C.R.L. certification at the National Bureau of Standards, under the direct supervision of a licensed civil/structural engineer. The licensed engineer shall review and approve all reports.
 - b. Special Inspector – Structural I: ICBO Certified Concrete Inspector, ACI Concrete Construction Inspector, or a graduate civil/structural engineer, or other personnel acceptable to the Structural Engineer of Record (SER), with experience in the design of structural systems of this type. Inspections shall be performed under the direct supervision of a licensed structural engineer, as defined in Section 01 45 33. The licensed engineer shall review and approve all inspection reports.
 3. The Owner will provide the following tests and inspections:
 - a. Tests for cast in place concrete. Qualifications: Technical I.
 - 1) Compression test specimens: ASTM C31. 1 set of 4 standard cylinders of concrete for each compressive strength test. Mold and store cylinders for laboratory cured specimens.
 - 2) Compressive strength tests: ASTM C39. 1 set of 4 cylinders for each day's pour between 1 and 25 cubic yards. If a day's pour exceeds 25 cubic yards, 1 set of 4 cylinders for each additional 50 cubic yards, or fraction thereof. 1 specimen tested at seven (7) days for information, 2 at twenty-eight (28) days for acceptance, and 1 specimen retained in reserve for later testing if required. (When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct at least 5 strength tests from randomly selected batches. If fewer than 5 batches are used, conduct 1 test from each batch.)
 - 3) Slump: ASTM C143. 1 test at point of discharge for each set of compression test specimens; additional tests when concrete consistency appears to have changed.
 - 4) Air entrainment: ASTM C231. Test the first batch of air entrained concrete and 1 additional test for each set of compression test specimens.
 - 5) Concrete temperature: Test hourly when air temperature is below 40°F or above 80°F and each time a set of compression test specimens is made.
 - b. Concrete mix verification. Qualifications: Technical I. Verify the following:
 - 1) Mixer truck trip ticket conforms to approved mix design.
 - 2) Total water added to mix on site does not exceed that allowed by concrete mix design.
 - 3) Concrete quality is indicative of adequate mixing time, consistency, and relevant time limits.
 - c. Observe preparation for and placement of all concrete, excluding slab-on-grade, strip footings without transverse reinforcement, and unbonded topping slabs. Additional exclusions may be noted on the

structural drawings. Special Inspector must be present during entire concrete pour. Qualifications: Structural I. Verify the following:

- 1) Acceptable general condition of concrete base prior to placement.
 - 2) Concrete conveyance and depositing avoids segregation and contamination.
 - 3) Concrete is properly consolidated.
 - 4) Reinforcement remains at proper location.
- d. Observe protection and curing methods for all concrete, excluding slab-on-grade, strip footings without transverse reinforcement, and unbonded topping slabs. Additional exclusions may be noted on the structural drawings. Observations to be made periodically during the curing period. Qualifications: Structural I. Verify the following:
- 1) Specified curing procedures are followed.
 - 2) Specified hot and cold weather procedures are followed.
- e. Observe all bolts installed in concrete. Qualifications: Structural I. Verify the following:
- 1) Specified size, type, spacing, configuration, embedment, and quantity.
 - 2) Proper concrete placement and consolidation around all bolts.
- C. Contractor Requirements:
1. Provide services of an independent laboratory to perform the following:
 - a. Make and test additional cylinders to determine time for form removal.
 - b. Make and test additional cylinders to determine termination of curing procedures.
 - c. Make and test additional cylinders to determine termination of cold weather practices.
 2. Provide the services of a qualified technical representative to instruct the construction team in proper batching, mixing, placement, and finishing of fiber reinforced concrete.

3.16 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within twenty-four (24) hours of test.
- B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- C. Acceptance criteria for concrete strength tests shall be as outlined in section 5.6 of ACI 318. If concrete does not meet acceptance criteria, investigation generally following the provisions of section 5.6.5 of ACI 318 will be used at the discretion of the Structural Engineer of Record. Contractor shall reimburse Owner for all costs associated with this investigation. If, in the judgment of the Structural Engineer of Record, the structural adequacy cannot be shown by this investigation, the Contractor shall remove and replace the concrete in question.
- D. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- E. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.17 CLEAN-UP

- A. Perform concrete washout only in designated area as required by either Division 31 section Erosion Control or the project NPDES permit.

END OF SECTION 03 30 00

SECTION 05 05 19

POST-INSTALLED ANCHORS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by one shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in one location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. Requirements pertaining to post-installed anchors for materials and equipment. This section pertains to Divisions 3, 4, 5, and 6 of these specifications that require post-installed anchors, unless specified otherwise.
- B. Related work specified in other sections:
 - 1. Division 1 – General Requirements
 - 2. Division 3 – Concrete
 - 3. Division 4 – Masonry
 - 4. Division 5 – Metals
 - 5. Division 6 - Wood, Plastics, and Composites

1.03 REFERENCES

- A. ACI 355.2 - Standard for Evaluating the Performance of Post-Installed Mechanical Anchors in Concrete; Current Edition.
- B. ASTM A 36 - Standard Specification for Carbon Structural Steel; Current Edition.
- C. ASTM A 193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
- D. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength; Current Edition.
- E. ASTM A 510 - Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel; Current Edition.
- F. ASTM A 615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; Current Edition.
- G. ASTM A 706/A 706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement; Current Edition.

- H. ASTM B 633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; Current Edition.
- I. ASTM B 695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel; Current Edition.
- J. ASTM C 881 - Standard Specification Epoxy-Resin-Based Bonding Systems for Concrete; Current Edition.
- K. ASTM F 593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs; Current Edition.
- L. ASTM F 1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength; Current Edition.
- M. Federal Specifications A-A-1922A, A-A01923A and A-A-55614 for Expansion and Shield-Type Anchors
- N. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements; Current Edition.
- O. Acceptance Criteria for Adhesive Anchors in Masonry Elements; Current Edition.
- P. ICC-ES AC70 - Acceptance Criteria for Fasteners Power-Driven into Concrete, Steel and Masonry Elements; Current Edition.
- Q. ICC-ES AC106 - Acceptance Criteria for Pre drilled Fasteners (Screw Anchors) in Concrete or Masonry Elements; Current Edition.
- R. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements; Current Edition.
- S. ICC-ES AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements; Current Edition.

1.04 QUALITY ASSURANCE

- A. Post-Installed anchors and related materials shall be listed by one or more of the following agencies, as applicable:
- B. ICC Evaluation Service
- C. Underwriters Laboratories (UL) and/or Factory Mutual (FM)

1.05 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 - Submittals.
- B. Product Data: Submit data for proprietary materials, manufacturer's specifications (including finishes and/or materials), Material Safety Data Sheets (MSDS) and installation procedures.
- C. Test Reports: ICC-ES listings.

1.06 SUBSTITUTIONS

- A. Only manufacturers with an ICC-ES listing will be considered for substitution requests.

- B. Structural contract drawings include a basis-of-design post-installed anchor. The contractor shall submit for Engineer-of-Record's review, calculations that are prepared & sealed by a registered Professional Engineer demonstrating that the substituted product is capable of achieving the pertinent equivalent performance values of the specified product using the appropriate design procedure and/or standard(s) as required by the Building Code. In addition, the calculations shall specify the diameter and embedment depth of the substituted product.
- C. Any increase in material costs for such submittal shall be the responsibility of the contractor.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to job site in manufacturer's or distributor's packaging undamaged, complete with installation instructions.
- B. Protect and handle materials in accordance with manufacturer's recommendations to prevent damage or deterioration.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Expansion Anchors
 - 1. Concrete Wedge Anchors (expansion bolt):
 - a. Carbon steel, ASTM B 633, Class SC1, Type I or III.
 - b. Stainless steel anchors (where noted): ASTM F 593, Type 303, 304 or 316.
 - c. Tested and qualified for performance in cracked and uncracked concrete in accordance with ACI 355.2 and ICC-ES AC193 for all mandatory tests.
 - d. Acceptable products include (or as indicated on the drawings):
 - 1) Simpson Strong-Tie: Strong-Bolt (ICC-ES ESR-1771).
 - 2) Hilti: Kwik Bolt TZ (ICC-ES ESR-1917).
 - 3) Powers Fasteners: Power-Stud+SD2 (ICC-ES ESR-2502).
 - 4) ITW Red Head: Trubolt+ (ICC-ES ESR-2427)
- B. Adhesive Anchors
 - 1. Adhesive anchors consist of an insert and an adhesive.
 - 2. Inserts
 - a. Threaded Rod Inserts: Provide preparation or configuration as recommended by manufacturer.
 - 1) Interior Exposure: ASTM A 307, ASTM A 36, ASTM A 193 Grade B7, or ASTM F 1554.
 - b. Reinforcing Bar Inserts: ASTM A 615 or ASTM A 706. Provide preparation or configuration as recommended by manufacturer.
 - 3. Adhesives for Concrete:
 - a. Tested and qualified for use in cracked and uncracked concrete in accordance with ICC-ES AC308 for all mandatory and optional seismic tests including creep tests.
 - b. Epoxy: ASTM C 881 Type IV, Grade 3, Class B and C.
 - 1) Acceptable products include (or as indicated on the drawings):
 - a) Simpson Strong-Tie: SET XP (ICC-ES ESR-2508).
 - b) Hilti: RE-500-SD (ICC-ES ESR-2322).
 - c) Powers Fasteners: PE1000+ (ICC-ES ESR-2583).
 - c. Epoxy: ASTM C 881 Type IV, Grade 3, Class B and C.
 - 1) Acceptable products include (or as indicated on the drawings):
 - a) Simpson Strong-Tie: SET Epoxy-Tie High-Strength Adhesive (ICC-ES ESR-1772).
 - b) Powers Fasteners: Power-Fast+ Epoxy Adhesive, Standard Set Formulation (ICC-ES ESR-1531).
 - c) Hilti: RE-500.

- C. Concrete Screw Anchors
 - 1. Concrete Screw Anchors:
 - a. Carbon steel heat-treated or hardened.
 - b. Zinc-plated in accordance with ASTM B 633, Class SC1, Type I or equivalent coating.
 - c. Tested per ICC-ES AC193 for all mandatory tests.
 - d. Acceptable products include (or as indicated on the drawings):
 - 1) Simpson Strong-Tie: Titen HD (ICC-ES ESR-2713).
 - 2) Powers Fasteners: Wedge-Bolt+ (ICC-ES ESR-2526).
- D. Power Driven Fasteners
 - 1. Drive pin and threaded stud types, as applicable for each condition.
 - 2. Manufactured from ASTM A 510, Grade 1060 to 1070 or AISI 1060 to 1070 steel
 - 3. Rockwell "C" Hardness of 49-56.
 - 4. Mechanically galvanized or zinc-plated finish.
 - 5. Minimum diameter 0.145"
 - 6. Smooth shank for concrete and masonry, knurled shank for steel.
 - 7. Evaluation report issued by ICC-ES required.
 - 8. Tested in accordance with ICC-ES AC70.
 - 9. Acceptable products include (or as indicated on the drawings):
 - a. Simpson Strong-Tie: Power Driven Fasteners (ICC-ES ESR-2138).
 - b. Hilti: Low Velocity Power-Driven Fasteners (ICC-ES ESR-1663).
 - c. ITW Ramset: Ramset Power-Driven Fasteners (ICC-ES ESR-1799).

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install anchors in strict accordance with manufacturer's printed instructions and, where required, requirements of ICC-ES evaluation reports.
- B. Conform to manufacturer's requirements for, but not limited to, hole drilling methods, hole size, hole cleaning, substrate and adhesive temperatures, moisture presence in holes, and required edge distance and spacing.
- C. Use special tools when recommended by manufacturer for installation of anchors unless otherwise permitted specifically by the Engineer or Architect of Record.
- D. Drill holes in concrete, in accordance with the manufacturer's recommendations.

3.02 FIELD QUALITY CONTROL

- A. Manufacturer shall, on request, provide the services of a field representative to demonstrate to and train installers in proper installation techniques.
- B. Structural Testing and Special Inspection
 - 1. Structural Special Inspection shall be performed by qualified parties as specified herein, and in accordance with the provision of Section 01 45 33.
 - 2. Special Inspection, periodic or continuous, of post-installed anchors shall be provided as specified herein, but not less than as required by ICC-ES evaluation reports.
 - 3. Definitions: ASNT - American Society for Non-Destructive Testing
 - 4. Personnel Qualifications
 - a. Special Inspector Technical I: ASNT Level I, employed by a testing agency and supervised by an ASNT Level III with a minimum of 10-year experience.
 - b. Special Inspector Technical II: ASNT Level II, employed by a testing agency and supervised by an ASNT Level III with a minimum of 10- year experience.

- c. Special Inspector – Structural I: Graduate civil/structural engineer, or other personnel acceptable to the SER, with experience in design of structural systems of the project type. Inspections shall be performed under the direct supervision of a licensed structural engineer, as defined in Section 01 4533. The licensed engineer shall review and approve all inspection reports.
- 5. The Owner will provide the following tests and inspections:
 - a. Continuous special inspection during installation to verify materials delivered to site comply with contract documents, bolt type and dimensions, concrete type and compressive strength, pre-drilled hole dimensions and cleaning, embedment, spacing, edge distances, slab thickness, tightening torque, and any other items requiring inspection by product's ICC approval report. Qualifications: Technical II or Structural I.

END OF SECTION 05 05 19

SECTION 05 40 00

COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by one shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in one location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. Formed steel stud framing at interior bulkheads.
 - 2. Formed steel stud framing at store front spandrel units.
 - 3. Blocking at accessories.
- B. Related work specified in other sections:
 - 1. Section 06 10 00 - Rough Framing
 - 2. Section 09 21 16 - Gypsum wallboard

1.03 REFERENCE STANDARDS

- A. AISI General-2004 - Standard for Cold-formed Steel Framing - General Provisions; American Iron and Steel Institute; 2004.
- B. AISI Header-2004 - Standard for Cold-formed Steel Framing - Header Design; American Iron and Steel Institute; 2004.
- C. AISI Lateral-2004 - Standard for Cold-formed Steel Framing - Lateral Design; American Iron and Steel Institute; 2004.
- D. AISI NASPEC-2001 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2001 with 2004 supplement.
- E. AISI WSD-2004 - Standard for Cold-formed Steel Framing - Wall Stud Design; American Iron and Steel Institute; 2004.
- F. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- G. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007.
- H. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2001.

- I. ASTM C 955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases; 2007.
- J. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2008.
- K. AWS D1.3 - Structural Welding Code - Sheet Steel; American Welding Society; 2007.
- L. International Building Code (IBC); latest edition.
- M. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.04 SYSTEM DESCRIPTION

- A. Design Requirements:
 - 1. Use member size and thickness nomenclature from Steel Framing Alliance.
 - 2. Design system components to comply with AISI Specification.
 - 3. Follow the provisions of AISI General standards.
 - 4. Size components to withstand design loads as follows:
 - a. Vertical Assembly: Design for wind loads as outlined in the International Building Code. Wind speed: 90 mph, Exposure B, Importance Factor 1.0.
 - b. Horizontal Assembly: Loads as shown on the drawings.
 - 5. Vertical Assembly Requirements
 - a. Vertical assemblies include headers, sills, jamb studs, and their connections as necessary.
 - b. Exterior studs do not carry the weight of the brick face.
 - 1) For lintels carrying brick, follow design criteria specified below for horizontal assemblies.
 - c. Horizontal Deflection: Design to permit maximum deflection of 1/600 of span. Determine deflections based on stud properties only.
 - d. Vertical Deflection: Design non-axial load bearing framing to accommodate primary structure deflection of not less than 3/4 in.
 - e. Design wall system, including connections to primary structure, to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
 - f. Follow the provisions of AISI Header, AISI Lateral, and AISI WSD standards.
 - g. Provide bridging to meet design requirements. Do not use gypsum sheathing or gypsum wallboard as lateral bracing.
 - 6. Horizontal Assembly Requirements:
 - a. Follow the provisions of AISI Header and AISI Lateral standards.
 - b. Include web stiffeners, bracing, blocking, and bridging as needed to meet specification requirements.
 - c. Design connections and details as needed to provide a complete installation.
 - d. Vertical Deflection: Design to permit maximum deflection of 1/600 of span. Determine deflections based on joist/beam properties only.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on standard framing members; describe materials and finish, product criteria, limitations.
- C. Product Data: Provide manufacturer's data on factory-made framing connectors, showing compliance with requirements. Provide fastener data including load capacities based ICC Evaluation Reports.

- D. Shop Drawings: Indicate loading, typical and special component details, framed openings, welds, type and location of fasteners, connection of system to primary structure, anchorage, and accessories or items required for related work.
 - 1. Describe method for securing studs to tracks and for all framing connections.
 - 2. Provide calculations certified by an engineer licensed in the state in which the project is located for all framing, connections between cold-formed members, and connections to primary structure.
- E. Engineer preparing calculations shall submit a certified letter stating that the shop drawings as submitted have been reviewed and conform to the requirements of the design calculations.
- F. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.
- G. Certifications:
 - a. Provide certification that the framing members, including galvanizing, conform to ASTM A653.
 - b. Submit welder qualification certificates to the Special Inspector.

1.06 QUALITY ASSURANCE

- A. Designer Qualifications: Design framing system under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State in which the Project is located.
- B. Calculate structural properties of framing members in accordance with requirements of AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
- C. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, and with minimum three years of experience.
- D. Installer Qualifications: Company specializing in performing the work of this section with minimum three years of documented experience.
 - 1. Use only welders qualified in accordance with AWS D1.1 and Section 6 of AWS D1.3 for welding sheet steel.

1.07 PROJECT CONDITIONS

- A. Verify that field measurements are as indicated on shop drawings and correspond to those indicated on the drawings.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, unload, store and erect components in a manner to protect them from damage, including the galvanized surface.
- B. Deliver material to be fabricated on site in manufacturer's unopened containers or bundles. Identify each container or bundle with the brand, type, and grade of material
- C. Store in a dry ventilated space or protect with suitable waterproof covering. Keep all materials off of the ground.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Framing, Connectors, and Accessories:
 - 1. ClarkDietrich Building Systems: www.clarkdietrich.com
 - 2. MarinoWare: www.marinoware.com.
 - 3. The Steel Network, Inc: www.SteelNetwork.com.

4. Telling Industries, LLC: www.tellingindustries.com.
5. NUCONSTEEL, a Nucor Company: www.nuconsteel.com.

2.02 FRAMING SYSTEM

- A. Provide primary and secondary framing members, bridging, bracing, plates, gussets, clips, fittings, reinforcement, and fastenings as required to provide a complete framing system.
- B. Design Criteria: Provide completed framing system having the following characteristics:
 1. Design: Calculate structural characteristics of cold-formed steel framing members according to AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
 2. Structural Performance: Design, engineer, fabricate, and erect to withstand specified design loads for project conditions within required limits.
 3. Able to tolerate movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
 4. Able to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

2.03 FRAMING MATERIALS

- A. Studs, Track, and Channel Joists: ASTM C 955; studs formed to channel, "C", or "Sigma" shape with punched web; U-shaped track in matching nominal width and compatible height. Headers and horizontal framing within wall to be unpunched.
 1. Gage and depth: As required to meet specified performance levels.
 2. Galvanized in accordance with ASTM A 653/A 653M G90/Z275 coating.

2.04 ACCESSORIES

- A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined for conditions encountered; finish to match framing components.
- B. Plates, Gussets, Clips: Formed Sheet Steel, thickness determined for conditions encountered; finish to match framing components.
- C. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.05 FASTENERS

- A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot dip galvanized per ASTM A 153/A 153M.
- B. Use cadmium plated screws with neoprene washers for anchoring brick veneer anchors to cold formed steel backup.
- C. Post-installed anchors: See Section 05 05 19
- D. Anchorage Devices: Power actuated and drilled expansion bolts.
- E. Welding: In conformance with AWS D1.1 and AWS D1.3.

2.06 SHOP FABRICATED ASSEMBLIES

- A. Shop fabricate metal framing as desired.
- B. Fabricate assemblies of framed sections of sizes and profiles required; with framing members fitted, reinforced, and braced to suit design requirements.

- C. Fit and assemble in largest practical sections for delivery to site, ready for installation. Brace against racking.
- D. Lift prefabricated panels in such a manner to prevent local distortion in any member.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 INSTALLATION OF STUDS

- A. Install components in accordance with manufacturers' instructions and ASTM C 1007 requirements.
- B. Align floor and ceiling tracks; locate to wall layout. Secure in place with fasteners at maximum 24 inches on center not more than 6" from end. Attach abutting pieces at track butt joints to a common structural element.
- C. Place studs at 16 inches on center; not more than 2 inches from abutting walls and at each side of openings. Connect studs to tracks using fastener method.
- D. Construct corners using minimum of three studs. Install a minimum of double studs at wall openings, door and window jambs. Provide additional studs as required by design.
- E. Do not splice horizontal members at the heads or sills of openings.
- F. Install load bearing studs full length in one piece. Splicing of studs is not permitted.
- G. Position studs plumb, square, and true to line and seat in track with the studs positioned against the inside web of the track prior to attachment of stud to track.
- H. Frame both sides of expansion joints with separate studs. Do not bridge joints with components of the stud system.
- I. Install intermediate studs above and below openings to align with wall stud spacing.
- J. Provide deflection allowance in stud track, directly below horizontal building framing at non-load bearing framing.
- K. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.
- L. Remove dirt and other foreign members from all members.

3.03 INSTALLATION OF JOISTS AND PURLINS

- A. Install framing components in accordance with manufacturer's instructions.
- B. Make provisions for erection stresses. Provide temporary alignment and bracing.
- C. Place joists at 24 inches o.c.; not more than 2 inches from abutting walls. Connect joists to supports using fastener or welding method.
- D. Set floor joists parallel and level, with lateral bracing and bridging.
- E. Locate joist end bearing directly over load bearing studs or provide load distributing member to top of stud track.

- F. Provide web stiffeners at reaction points wherever indicated on the drawings, required by the supplier's design, or shown on the shop drawings.
- G. Provide an additional joist under parallel partitions when the partition length exceeds one-half the joist span and around all floor and roof openings that interrupt one or more spanning members. Provide additional joists are required to meet performance requirements.
- H. Provide end blocking where joists ends are not otherwise restrained from rotation.
- I. Touch-up field welds and damaged galvanized surfaces with primer in accordance with ASTM A780.
- J. Provide all required blocking whether indicated in drawings or reasonably implied by scope of work to be performed.

3.04 FIELD QUALITY CONTROL

- A. Structural Testing and Special Inspection
 - 1. Structural Special Inspection shall be performed by qualified parties as specified herein, and in accordance with the provision of Section 01 4533.
 - 2. Definitions:
 - a. ASNT - American Society for Non-Destructive Testing
 - b. CAWI - American Welding Society Certified Associate Weld Inspector
 - c. CWI - American Welding Society Certified Weld Inspector
 - 3. Personnel Qualifications
 - a. Special Inspector Technical I: CAWI or ASNT Level I, employed by a testing agency and supervised by a CWI or ASNT Level III with a minimum of 10 years experience.
 - b. Special Inspector Technical II: CAWI with minimum 3 years experience or ASNT Level II, employed by a testing agency and supervised by a CWI or ASNT Level III with a minimum of 10 years experience.
 - c. Individuals performing welding inspection must be AWS certified.
 - 4. The Owner will provide the following tests and inspections:
 - a. Welding Procedures and Preparation: Qualifications: Technical II. Verify the following:
 - 1) Verify materials delivered to site comply with contract documents and approved shop drawings.
 - 2) Qualifications of all welders as AWS certified.
 - 3) Proposed welding procedures and materials.
 - 4) At the beginning of field erection, perform daily observation of welding procedures until satisfied that proper procedures are being used and adequate welds are obtained.
 - b. Welding: Visually inspect 100% of all fillet and flare bevel welds, for size, length, and quality, per AWS D1.3 and D1.1. Qualifications: Technical II.

END OF SECTION 05 40 00

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section Includes:
 - 1. Structural dimension lumber framing.
 - 2. Non-structural dimension lumber framing.
 - 3. Rough opening framing for doors, windows, and roof openings.
 - 4. Sheathing.
 - 5. Preservative treated wood materials.
 - 6. Miscellaneous framing and sheathing.
 - 7. Concealed wood blocking, nailers, and supports.
- B. Related work specified in other sections:
 - 1. Section 06 20 00 - Finish Carpentry

1.03 REFERENCES

- A. American Lumber Standards Committee (ALSC):
 - 1. Softwood Lumber Standards.
- B. American National Standards Institute (ANSI):
 - 1. ANSI A135.4 - Basic Hardboard.
 - 2. ANSI A208.1 - Wood Particleboard and Flakeboard: Types, Grades, and Uses.
- C. American Plywood Association (APA).
- D. American Wood-Preservers' Association (AWPA):
 - 1. AWPA C1 - All Timber Products - Preservative Treatment by Pressure Process.
- E. National Forest Products Association (NFPA).
- F. National Institute of Standards and Technology (NIST):
 - 1. NIST PS 20 - American Softwood Lumber Standard.
- G. Southern Pine Inspection Bureau (SPIB):
 - 1. SPIB - Standard Grading Rules for Southern Pine Lumber.
- H. Western Wood Products Association (WWPA):
 - 1. WWPA G5 - Western Lumber Grading Rules.

1.04 QUALITY ASSURANCE

- A. All lumber and plywood shall bear a grading stamp exposed to view.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 – Product Requirements: Product storage and handling provisions.

1.06 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
 - 1. Product Data: Manufacturer's specifications and installation instructions for each product specified.

PART 2 PRODUCTS

2.01 LUMBER MATERIALS

- A. Lumber Grading Rules: SPIB and WWP.
- B. Lumber Framing: 19% maximum moisture content.
 - 1. 2x4s: SPF Standard Grade or better, Fb = 550 psi (unless specified on drawings).
 - 2. 2x6s: SPF Stud Grade or better, Fb = 675 psi (unless specified on drawings).
 - 3. 2x8s and 2x10s: Douglas Fir No. 2 or better, Fb = 825 psi (unless specified on drawings).
 - 4. 2x12s: DF No. 2 or better, Fb = 825 psi. (unless specified on drawings).
- C. Blocking: Spruce-Pine-Fir or Douglas Fir No. 2 or better, 19% maximum moisture content.
- D. Pressure Treated Lumber: Southern Pine No. 2 or better, preservative treated with CCA or ACQ to a retention level of 0.40 lbs/cu. ft. minimum conforming to the approved standards of the American Wood Preserver's Association. Each piece shall be treated in accordance with AWWPA standards and certified by an approved inspection agency.

2.02 SHEATHING MATERIALS

- A. Pressure Treated Plywood: APA Rated Sheathing, Grade C-D, Exterior, unsanded, Group 2, pressure treated with CCA or ACQ same as lumber. See drawings for locations.

2.03 ACCESSORIES

- A. Masonry Screws: Tap-cons.
- B. Aluminum screws.
- C. Aluminum ring shank nails.
- D. Self-drilling and tapping screws.
- E. Galvanized ring shank nails.
- F. Metal Connectors: Hot dipped galvanized steel, sized to suit framing conditions, manufactured by Simpson, Kant Sag.
- G. Nails.
- H. Wood to Metal Screws: Hilti Self-Drilling screws, #3 point, #10 fastener diameter.
- I. Sill Gasket: Closed cell polythene foam in continuous rolls. Gasket shall be as wide as wall plate.
- J. H clips.
- K. Plate Steel: A36, prime painted.

PART 3 EXECUTION

3.01 FRAMING

- A. Set structural members level and plumb, in correct position.
- B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- C. Place horizontal members crown side up.
- D. Construct load bearing framing and curb members full length without splices.
- E. Set members level and plumb, in correct position.
- F. Fasten members in place. Anchor lumber together with nails. Anchor lumber to concrete as detailed. Anchor lumber to metal deck with self-drilling and tapping screws. Anchor lumber to existing lumber with galvanized ring shank nails. Anchor plywood to lumber with nails.
- G. Provide pressure treated lumber at all locations in contact with concrete or masonry.
- H. Provide headers for all openings.
- I. Place sill gasket directly on cementitious foundation and concrete masonry units. Puncture gasket clean and fit tight to protruding foundation anchor bolts.

3.02 WALL SHEATHING

- A. Install sheathing in accordance with reference guidelines.

3.03 NAILERS

- A. Fasten wood nailers to concrete. Use 1 screw at 24" on center for 2x4's. Use 2 screws at 24" on center for 2x6's, 2x8's, and plywood on top of concrete walls. Fasten to metal with self-drilling, self-tapping wood to metal screws.

3.04 TOLERANCES

- A. Framing Members: $\frac{1}{4}$ " from true position, maximum.
- B. Surface Flatness of Floors: $\frac{1}{4}$ " in 10', maximum.

END OF SECTION 06 10 00

SECTION 06 17 53

SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 0 and 1 Specification Sections, apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by one shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in one location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.2 SECTION INCLUDES

- A. Shop fabricated wood trusses for roof framing.
- B. Bridging, bracing, and anchorage.
- C. Connectors.

1.3 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry

1.4 REFERENCES

- A. American Society for Testing and Materials (ASTM) International:
 - 1. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - 2. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. International Code Council:
 - 1. IBC - International Building Code, Current Edition.
- C. National Forest Products Association (NFPA).
- D. National Institute of Standards and Technology (NIST):
 - 1. NIST PS 20 - American Softwood Lumber Standard.
- E. Southern Pine Inspection Bureau (SPIB):
 - 1. SPIB - Standard Grading Rules for Southern Pine Lumber.
- F. Truss Plate Institute (TPI):
 - 1. ANSI/TPI 1 - National Design Standard for Metal Plate Connected Wood Truss Construction.
 - 2. TPI BWT-76 - Bracing Wood Trusses - Commentary and Recommendations.
 - 3. TPI DSB-89 - Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses.
 - 4. TPI HET-80 - Handling and Erecting Wood Trusses - Commentary and Recommendations.

5. TPI HIB-91 - Commentary and Recommendations for Handling, Installing and Bracing Metal Plate Connected Wood Trusses.
 6. TPI PCT-80 - Design Specifications for Metal Plate Connected Parallel Chord Wood Trusses.
 7. TPI QST-88 - Quality Standard for Metal Plate Connected Wood Trusses.
 8. TPI 85 - Design Specifications for Metal Plate Connected Wood Trusses.
- G. Western Wood Products Association (WWPA):
1. WWPA G5 - Western Lumber Grading Rules.

1.5 SYSTEM DESCRIPTION

- A. Trusses shall be designed in accordance with “National Design Specifications for Stress-Grade Lumber and its Fastenings” (NDS) by National Forest Products Association and “Design Specifications for Metal Plate Connected Wood Trusses” by Truss Plate Institute (TPI), latest editions.

1.6 SUBMITTALS

- A. Section 01 30 00 - Submittals: Submittal provisions
- B. Shop Drawings: Indicate sizes and spacing of trusses, web and chord sizes, loads and truss cambers, and framed openings. Submit design calculations.
- C. Product Data: Submit truss configurations and bridging and bracing.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
1. Lumber Grading Agency: Certified by NIST PS 20
- B. Truss Design, Fabrication, and Installation: In accordance with ANSI/TPI 1 and TPI HIB-91.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
- B. Design trusses under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Illinois.

1.9 REGULATORY REQUIREMENTS

- A. Conform to current, Current International Building Codes and ASCE 7-10 for loads, seismic zoning, and other governing load criteria.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 – Product Requirements: Product storage and handling provisions.
- B. Handle and storage of trusses in accordance with manufacturer’s instructions and the Truss Plate Institute (TPI HET-80 and TPI HIB-91) recommended practices.
- C. Store trusses in a vertical position on a flat surface, raised 4 to 6 inches off the supporting surfaces, supports spaced 8 to 10 feet on center. Cover the trusses to protect from the weather elements but allow air to flow through the trusses.

1.11 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All lumber used for truss members shall be in accordance with the published values of a recognized rules writing agency and shall bear the grade stamp of that agency.
- B. Connector plates shall be manufactured of not less than 20 gauge steel and shall meet or exceed ASTM A653 and shall be galvanized according to ASTM A653.
- C. Trusses shall be fabricated using nominal 2x3 or larger lumber, oriented either horizontally. Truss members shall be connected with galvanized steel truss plates, minimum No. 20 gauge (MSG), with 5/16 inch or longer teeth projecting perpendicular to the plane of the plate. Truss bottom chord splices shall be connected with galvanized steel truss plates, minimum No. 16 MSG, with 5/16-inch or longer teeth projecting perpendicular to the plane of the plate. Additionally, truss plates shall have a current National Evaluation Service, inc. (NES) evaluation report.

2.2 FABRICATION

- A. Fabrication shall be in accordance with Truss Plate Institution recommended practices.
- B. Fabricate chord extensions as indicated on drawings.

2.3 CONNECTOR

- A. As noted on drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that supports and openings are ready to receive trusses.

3.2 PREPARATION

- A. Coordinate placement of bearing items.

3.3 ERECTION

- A. Erect trusses in accordance with manufacturer's instructions and the Truss Plate Institution (TPI HET-80 and TPI HIB-91) recommended practices.
- B. Set members level and plumb, in correct position.
- C. Make provisions for erection loads and for sufficient temporary bracing to maintain structure plumb, and in alignment until completion of erection and installation of permanent bracing.
- D. Do not field cut or alter structural members without approval of an Engineer.
- E. Trusses shall not be cut, added onto, or altered in any way without the consent of an Engineer.
- F. Install metal connectors at locations indicated on drawings.
- G. Brace trusses as required by manufacturer and as noted on the drawings.

H. All trusses shall be toe-nailed with two (2) 16d nails to each interior wall the truss crosses.

3.4 TOLERANCES

A. Section 01 45 16 - Quality Control: Tolerances.

B. Framing Members: 1/2 inch maximum, from true position.

END OF SECTION 06 17 53

SECTION 06 20 00

FINISH CARPENTRY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section Includes:
 - 1. Finish carpentry includes carpentry work, which is exposed to view, is non-structural, and which is not specified as part of other sections.
 - 2. Types of finish carpentry work in this section include:
 - a. Interior running and standing trim
- B. Related work specified in other sections:
 - 1. Section 06 10 00 - Rough Carpentry
 - 2. Section 09 90 00 - Painting

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 - Submittals.
 - 1. Product Data: Manufacturer's specifications and installation instructions for each product specified.
- B. Provide samples of finish carpentry materials for approval

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

1.05 DEFINITIONS

- A. VG - Stands for "vertical grain" and refers to materials where grain runs parallel to each other and for full length of board.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Interior Handrails & Guardrails: **(By Owner)**
 - 1. General: Use shapes indicated on drawings
 - 2. Material: Pine, unless noted otherwise or as shown on the drawings. Use pieces made of solid lumber stock
 - 3. Finish: Transparent Finish (Clear)
 - 4. Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless noted otherwise

- B. Vinyl Base (CPCI):
 - 1. Mannington Burke, or equal. 1/8" x 4" Solid Vinyl, coved. Install base at all gypsum board finished walls.
 - 2. Color to be chosen by Owner from manufacturer's standard colors.
 - 3. Install using adhesives recommended by manufacturer.
- C. Solid Surface Applications (CPCI): Exterior Window Sills
 - 1. Dupont Company, Corian, or equal.
 - 2. Thickness: 1/2"
 - 3. Finish: uniform matt finish; gloss range 5-20.
 - 4. Color: Chosen by Owner from manufacturer's standard colors

2.02 INTERIOR STANDING AND RUNNING TRIM

- A. Interior Trim (CPCI): Windows and Door Trim.
 - 1. Interior Trim: Clear VG, unless noted otherwise.
 - 2. Misc. Interior Trim: Clear VG

2.03 MISCELLANEOUS MATERIALS

- A. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
- B. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use.
- C. Use wood glue that has a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Multipurpose Construction Adhesive: Formulation complying with ASTM D 3498 that is recommended for indicated use by adhesive manufacturer.
- E. Use adhesive that has a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 EXECUTION

3.01 INSTALLATION

- A. Condition finish interior carpentry in installation areas for seventy-two (72) hours before installing at a minimum temperature of 60° and maximum humidity of 55%.
- B. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Scribe and cut to fit adjoining work. Refinish and seal cuts.
- C. Install standing and running trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related trim. Cope at returns and miter at corners.
- D. Anchor finish carpentry work to framing, or blocking. Secure countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nail for exposed nailings, countersunk and filled flush with finished surface, and matching final finish where transparent is indicated.

END OF SECTION 06 20 00

SECTION 06 41 16

PLASTIC LAMINATE CASEWORK (PROVIDED BY OWNER)

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Work includes:
 - 1. Furnish and install casework, countertops and supports, and other items indicated on Drawings, including hardware and accessories.
 - 2. Material Allowance.
- B. Related work specified in other sections:
 - 1. Division 22 – Plumbing General Provisions
 - 2. Division 26 – Electrical General Provisions

1.03 REFERENCES

- A. Current edition of the Quality Standards of the Architectural Woodwork Institute (AWI) apply, and are by reference a part of this Specification.

1.04 SUBMITTALS

- A. Submit shop drawings for review and approval.
- B. Casework: Elevations and locations of each assembly. Indicate dimensions, thicknesses, surfacing materials, drawers, doors and door swings, sections of typical and special cases. Indicate core materials, edge treatments and construction.
- C. Work Surfaces: Plans and locations of each work surface. Indicate dimensions. Indicate locations and sizes of all openings including those for sinks. Indicate provisions for securing work surfaces to cases, windowsills.
- D. Submit manufacturer's product data for stock items.

1.05 PRODUCT HANDLING, STORAGE AND DELIVERY

- A. Deliver, store and handle work to prevent damage, staining and disfigurement. Do not store woodwork in wet or damp areas. Jobsite storage areas shall be enclosed, dry, and ventilated.

1.06 WARRANTY

- A. All materials to be guaranteed for a period of five (5) years from manufacturer's defects and workmanship. Submit in accordance to Section 01 78 23.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Manufacturers shall be a QCP Certified Woodworking Firm under AWI Quality Certification Program.
- B. Casework manufactured by L.S.I. Corporation of America is specified. Casework by T.M.I. Systems Design

Corporation, Stevens Industries, Vanguard, Calmar, Grandview Manufacturing, and Case Systems are acceptable with minor deviations from these specifications with the exception of:

1. Lamination System: Doors, finished end panels, and other decorative exterior laminate surfaces shall be composed of minimum $\frac{3}{4}$ " (19.1 mm) core, laminated exterior with .028" high pressure plastic laminate, and interior with .020" high pressure cabinet liner. Lamination with hybrid P.V.A. Type III water resistant adhesives meeting VOC requirements according to 40 CFR 59, Subpart D (EPA Method 24). Total thickness 13/16" (20.6 mm). All products shall be Urea Formaldehyde free.
2. Structural Cabinet Body: Cabinet backs shall be minimum $\frac{1}{2}$ " (9.5 mm) thick, inset from rear of body, fully housed 4 sides, and back-shimmed. Provide $\frac{3}{4}$ " (19.1 mm) thick stiffeners glued and fastened to back/body as specified herein. Back perimeter and stiffeners to be fully seated with hot melt adhesive or a minimum $\frac{3}{4}$ " (19.1 mm) thick core back, inset, doweled, and glued into cabinet sides, top, and bottom may be substituted for $\frac{1}{2}$ " inset back with $\frac{3}{4}$ " stiffeners. All products shall be Urea Formaldehyde free.
3. Interior Structure: All cabinets with doors over 36" (914 mm) wide shall be furnished with a mechanically fastened, yet removable, vertical divider to reduce horizontal member/shelf deflection.
4. Heavy Components: Wall cabinet tops and bottoms, standard shelving shall be minimum $\frac{3}{4}$ " (25.4 mm) thick. Shelves in open cabinets, regardless of width, shall be 1" (25.4 mm) thick unless noted otherwise.
5. Structural Drawer Body: Drawer body material including drawer bottom shall be $\frac{1}{2}$ " core material. Drawer bottom shall be recessed, captured all 4 sides and glued or onset, glued, and mechanically fastened.
6. Drawer Suspension: Drawer slides shall be self-closing design, epoxy power coated, with positive instop, outstop, and out-keeper. Dynamic (operational) load rating to be minimum 100 lbs. (45 kg). Minimum 150 lbs. (68 kg) static load rating.
7. Structural Cabinet Support: Cabinet sub-base shall be of a separate and continuous ladder-type platform design leveled and floor mounted prior to cabinet's body placement. Material to be exterior grade plywood, provided that it meets the requirements set forth herein. No cabinet sides-to-floor will be allowed.

2.02 MATERIALS

A. Lumber and Plywood:

1. Plywood for cabinet bases: $\frac{3}{4}$ " water resistant A-C interior fir plywood with glue meeting VOC requirements according to 40 CFR 59, Subpart D (EPA Method 24).
2. Cabinet Body Core:
 - a. Shall be a bio fiber composition with non-Urea Formaldehyde binders or shall be particle board, minimum 47 lb. density, of balanced 3-ply construction with moisture content not to exceed 8%, and meeting VOC requirements according to 40 CFR 59, Subpart D (EPA Method 24).
 - b. Core material shall conform to ANSI A208.1-1999, Grade M3 and meeting VOC requirements according to 40 CFR 59, Subpart D (EPA Method 24).
3. Hardboard: Tempered hardboard, smooth both sides, minimum $\frac{1}{4}$ " thick. Meet requirements of Commercial Standard CS-251 and Federal Specifications LLL-B-00810 and meeting VOC requirements according to 40 CFR 59, Subpart D (EPA Method 24)
4. Plywood for sub-base: Preservative treated exterior grade plywood, $\frac{3}{4}$ " thick, and meeting VOC requirements according to 40 CFR 59, Subpart D (EPA Method 24). All products shall be Urea Formaldehyde free.
5. Solid hardwood: Species as indicated in drawings, conforming to AWI Section 100, premium grade, for all exposed and semi-exposed surfaces, and meeting VOC requirements according to 40 CFR 59, Subpart D (EPA Method 24). All products shall be Urea Formaldehyde free.
6. Hardwood veneer plywood: Species as indicated on drawings, on plywood or particle board conforming to AWI Section 200, premium grade, and meeting VOC requirements according to 40 CFR 59, Subpart D (EPA Method 24). All products shall be Urea Formaldehyde free.

B. Plastic Laminate:

1. Plastic laminate manufacturers listed below are approved under the following conditions:
 - a. A manufacturer listed in both the specification and the Material Finish/Color Schedule, on Architectural Drawings is not required to submit a pre-bid approval.
 - b. Manufacturers listed in this specification, but not in the Material Finish/Color Schedule, on Architectural Drawings shall submit color samples for pre-bid approval by addendum. Refer to Section 01 25 01.
 - c. When no colors are listed in the Material Finish/Color Schedule on Architectural Drawings, any manufacturer listed in this specification are not required to submit a pre-bid approval.

2. Products by Wilsonart, Formica, Westinghouse, Pionite and Nevamar are acceptable. Architect reserves the right to select from any of the above manufacturers if a specific color is not noted in the material finish/color schedule.
 3. Exposed vertical cabinet surfaces, wall cabinet bottoms, toe-kicks, open shelving and other open-interior storage surfaces: High pressure plastic laminate, 0.028" thick, meeting NEMA LD3-2000 VGL standards including thickness.
 4. High-pressure cabinet liner: .020" in thickness, meeting NEMA LD3-2000 CLS standards. Use to balance decorative high-pressure external laminates.
 5. Semi-exposed cabinet interiors behind doors and drawers, except open storage shelves, and underside of wall cabinets: Melamine resin impregnated sheet, minimum 110 grams/sq. meter, permanently bonded to substrate, meeting NEMA LD3-2000 VGL standards and NEMA LD3-2000 CLS standards. Balance with same melamine at other semi-exposed locations and at concealed locations.
 6. Color: See Material Schedule, on Architectural Drawings.
- C. Edging:
1. Countertops, backsplashes and shelving: Plastic laminate self-edge, color and grade to match horizontal surface.
 2. Cabinet body and shelf/shelving edges: Flat edge .020" PVC, color matched to drawer/door face.
 3. Cabinet doors and drawers: 3mm thick solid, high impact color thru, acid resistant PVC applied with hot melt adhesive, trimmed and buffed. Color: See Material Finish/Color Schedule, on Architectural Drawings.
- D. Hardware:
1. Hinges
 - a. 6-way-adjustable, heavy-duty institutional European-style, concealed hinges in either 120° or 170° as appropriate.
 - b. Provide lifetime warranty on hinges.
 - c. 1 pair per door to 48" height. 1 ½ pound pair over 48" in height. Hinge to accommodate 13/16" thick laminated door, and allow 270° swing.
 - d. Finish to be dull chrome or stainless steel for fixed cabinetry.
 2. Pulls: Wire-design Pull 4" in brushed chrome or brushed nickel.
 3. Catches: LH-340 5 lb. magnetic catch for base and wall cabinets, where required. Provide 2 7-lb. pulls at each tall cabinet door, where required.
 4. Adjustable Shelf Supports: To be LH-353 with locking device to prevent accidental shelf slide-off. Load rating to be minimum of 300 lbs. each support without failure in accordance with ANSI A161.1-1980 and NEMA LD3-1991. Cabinet interior sides shall be flush, without shelf system permanent projection.
 5. Locks: To be disc tumbler lock keyed alike by room and master keyed. Brushed chrome finish.
 - a. Hinged doors and drawers, National Lock No. M4-7054.
 6. Bumpers: Provide clear rubber bumpers at top and bottom of each door on non-hinge side of all cabinet doors. Bumpers shall be mounted to back side of door so that bumper in close position closes against frame of cabinet box.
 7. Grommets: Provide black grommets at locations required by application or as indicated on drawings.

2.03 FABRICATION

- A. Casework Construction:
1. Cabinet Sub-base: To be separate and continuous (no cabinet body sides-to-floor) plywood with concealed fastening to cabinet bottom. Ladder-type construction, of front, back and intermediates, to form a secure and level platform to which cabinets attach.
 2. Cabinet Top and Bottom – Wall and Base:
 - a. Base cabinet bottoms to be thermofused melamine on core, both sides ¾" thick.
 - b. Solid sub-top to be ¾" thermofused melamine on core, all base cabinets.
 - c. Wall cabinet bottoms and tops to be ¾" thick. At cabinets with doors over 36" (914 mm), bottoms and tops shall be mechanically joined by a fixed divider.
 - d. Exterior exposed wall cabinet bottoms to be melamine laminate bottom, plastic laminate top. Assembly devices to be concealed on bottom side of wall cabinets.
 - e. Hang Rail: ¾" thick x width of cabinet glued to backside, unless ¾" back is utilized.
 3. Cabinet Ends:
 - a. Manufacturer's standard colored thermofused melamine laminated both sides ¾" thick. Holes drilled for adjustable shelves 1¼" on center.

- b. Exposed exterior cabinet ends to be laminated with plastic laminate, balanced with cabinet liner.
- 4. Fixed and Adjustable Shelves:
 - a. Thermofused melamine laminated core one side. Tops of shelves to be high-pressure plastic laminate, 0.030" thick. (Vertical Surface, Type 335). Leading exposed edge of shelves to be .020" PVC edged.
 - b. Thickness: ¾" standard shelving. 1" shelving on all open cabinets.
- 5. Cabinet Backs:
 - a. Standard cabinet back to be ½" thick, thermofused melamine for use on all cabinets with or without doors. Cabinet back shall be fully bound (dadoed) into sides, top, and bottom, recessed 7/8" (22.2 mm) from cabinet rear. Rear, unexposed side of back shall be toe-nailed to cabinet body with 16-gauge twin-pin coated mechanical fasteners and sealed with continuous bead of hot melt adhesive or a minimum ¾" (19.1 mm) thick core back, inset, doweled, and glued into cabinet sides, top, and bottom may be substituted for ½" inset back with ¾" stiffeners.
 - b. Exposed exterior backs to be ¾" core faced with high-pressure plastic laminate.
- 6. Doors and Drawer Fronts:
 - a. Plastic laminate hinged and sliding doors and drawer fronts to be 13/16" thick. Core material to be ¾" thick, bonded on exterior with high-pressure laminate and with high-pressure cabinet liner on interior face. Drawer fronts and hinged doors are to overlay the cabinet body. Maintain a maximum 1/8" reveal between pairs of doors, between door and drawer front, or between multiple drawer fronts within the cabinet.
 - b. Exposed edges are to be 3mm PVC.
- B. Workmanship:
 - 1. Plastic laminate surface/backer to core under controlled conditions, by approved and regulated laminating methods to assure a premium lamination. Natural-setting hybrid P.V.A. type water-resistant adhesives that cure through chemical reaction containing no health or environmentally hazardous ingredients are required. Methods requiring heat are not allowed; "contact" methods of laminating are not allowed.
 - 2. Cabinet parts shall be accurately machined and bored for premium quality grade joinery construction utilizing automatic machinery to insure consistent sizing of modular components.
 - 3. End panels shall be doweled to receive bottom and top. Back panel shall be fully housed into cabinet sides, top and bottom to insure rigidity and a fully closed cabinet.
 - 4. ¾" thick hang rails shall be applied to backside of all wall base and tall cabinets for extra rigidity and to facilitate installation.
 - 5. Rear of cabinet back, and underside of drawer bottom joints to receive a continuous bead of hot melt adhesive to add to unit body strength and develop moisture seal.
 - 6. All cases shall be square, plumb, and true.
 - 7. All work to conform to AWI Standard "custom" grades unless a greater quality is specified or detailed.

PART 3 EXECUTION

3.01 COORDINATION

- A. Coordinate work of this Section with related work of other sections as necessary to obtain proper installation of all items.
- B. Verify site dimensions of cabinet locations in building prior to fabrication.

3.02 INSTALLATION

- A. Storage and Protection: Casework shall be protected in transit. Store under cover in a ventilated building not exposed to extreme temperature and humidity changes. Do not store or install casework in building until concrete, masonry, and plasterwork is dry.
- B. Workmen: Install casework under the supervision of the manufacturer's representative with factory-trained mechanics authorized by manufacturer.
- C. Workmanship:
 - 1. Erect casework straight, level, and plumb and securely anchor in place. Scribe and closely fit to adjacent work. Cut and fit work around pipes, ducts, etc.
 - 2. Install Resilient Base at all base cabinet toe-kicks and end panels. Coordinate with Section 09 65 00.
 - 3. Install all items complete and adjust all moving parts to operate smoothly.
 - 4. Leave surface clean and free from defects at time of final acceptance.

- D. Clean up: Remove all cartons, debris, sawdust, scraps, etc. and leave spaces clean and all casework ready for Owner's use.

END OF SECTION 06 41 16

SECTION 06 83 16

FIBERGLASS REINFORCED PANELING (FRP)

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section Includes: Fiberglass reinforced plastic (FRP) paneling for wall surfaces, including trim accessories.
- B. Related Sections: Section(s) related to this section include:
 - 1. Section 06 10 00 – Rough Carpentry
 - 2. Section 06 20 00 – Finish Carpentry
 - 3. Division 22 – Plumbing General Provisions

1.03 REFERENCES

- A. General: Standards listed by reference form a part of this specification section. Standards listed are identified by issuing authority, abbreviation, designation number, title or other designation. Standards subsequently referenced in this Section are referred to by issuing authority abbreviation and standard designation.
- B. ASTM International:
 - 1. ASTM D2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
 - 2. ASTM D5319 – Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.
 - 3. ASTM D5420 - Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
 - 4. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meetings: Conduct preinstallation meeting to clarify Project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.05 ACTION SUBMITTALS

- A. Product Technical Data: For each type of product required.
- B. Shop Drawings: Showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures. Indicate location and dimension of joints and fastener attachment.
- C. Samples: Selection and verification samples for finishes, colors and textures. Submit 2 samples of each type of panel, trim and fastener.
- D. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.
- E. Manufacturer's Instructions: Manufacturer's Installation Guide for FRP #6876.
- F. Qualifications Statements: For manufacturer and installer.

1.06 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For installed products including maintenance methods and precautions

- against cleaning materials and methods detrimental to finishes and performance.
- B. Warranty: Warranty documents required in this section.

1.07 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
1. Provider of advanced installer training.
 - B. Meets USDA/FSIS requirements.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Package sheets on skids or pallets for shipment to project site.
- B. Storage and Handling: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store panels in a dry indoor location at Project site. Remove any foreign matter from face of panel by using a soft bristle brush, avoiding abrasive action.

1.09 PROJECT CONDITIONS

- A. Ambient Conditions:
1. Do not begin installation until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.
 2. During installation, and within forty-eight (48) hours prior to installation, maintain ambient temperature and relative humidity within limits required by type of panel adhesive used and recommendation of panel adhesive manufacturer.

1.10 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace FRP panels that fail within specified warranty period.
1. Failures shall include, but not be limited to substantial defects in material and workmanship, rotting, rusting, corrosion, development of structural surface cracks, or requiring painting or refinishing.
 2. Warranty Period: Two (2) years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 FIBERGLASS REINFORCED PLASTIC (FRP) PANELS

- A. General: Class C, Wall, Embossed Fiberglass reinforced plastic panels complying with ASTM D5319.
- B. Manufacturers:
1. Basis of Design: Crane Composites.
 2. Substitution Limitations: All other manufacturers: Submit substitution request in accordance with Section 01 25 00 - Substitution and Product Options.
- C. Materials:
1. **FRP-1**
 - a. Color: Crane Composites, Glassboard, Color: (85) White.
 - b. Surface Finish: Pebbled embossed texture.
 - c. Nominal Thickness: 0.12" (3.0 mm).
 - d. Wall Panel Size: Largest possible panel size to reduce number of seams.
 - e. Surface Protection: Manufacturer's proprietary molecularly-bonded surface protection film for fiberglass reinforced plastic (FRP) panels.
 2. Performance Criteria:
 3. Scratch Resistance: ASTM D2583, Barcol Hardness of 60.
 4. Abrasion Resistance: Taber Abrasion Test using CS-17 abrasive wheels with 1000 g weight. Panels shall exhibit weight loss after 25 cycles of no more than 0.038%.
 5. Impact Strength: ASTM D5420, 30 in-lb (3.4 J) showing no visible damage on finish side.

2.02 ACCESSORIES

- A. Moldings, Trim and Caps: One-piece extruded polypropylene or PVC, configured to cover panel edges and corners.
 - 1. Color: As selected by Architect from manufacturer's full product range.
- B. Panel Adhesive: As recommended by panel manufacturer for the required substrates.
 - 1. Adhesive shall have a VOC content of 50g/L or less.
- C. Panel Sealant: As recommended by panel manufacturer.
 - 1. Sealant shall have a VOC content of 250g/L or less.

2.03 SOURCE QUALITY CONTROL

- A. Obtain fiberglass reinforced panels, moldings and other accessories from a single manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. General: Comply with manufacturer's product data, including product technical bulletins, and installation instructions in product catalogs and product packaging.
- B. Verify that substrates previously installed under other sections are acceptable for product installation in accordance with FRP manufacturer's instructions.
 - 1. Examine substrate surfaces to determine that corners are plumb and straight, that surfaces are smooth, sound and uniform, that nails or screw fasteners are countersunk, and that joints and cracks are filled flush and smooth with adjoining surfaces.
 - 2. Do not begin panel installation until substrate surfaces are in satisfactory condition.

3.02 PREPARATION

- A. Clean substrates to remove substances that could impair bond of adhesive, including oil, grease, dirt, dust or other contamination.
- B. Condition panels by unpacking and placing in installation space no less than twenty-four (24) hours before installation.
- C. Lay out paneling before beginning installation. Locate panel joints to provide equal panel widths at ends of walls and so that trimmed panels at corners are not less than 12" (300 mm) wide.

3.03 INSTALLATION

- A. General: Comply with panel manufacturer's Installation Guide #6876.
- B. Cut and drill panels with carbide tipped saw blades or drill bits, or cut with snips.
- C. Install panels with manufacturer's recommended gap for panel field and corner joints.
 - 1. Pre-drill fastener holes in panels, 1/8" (3.2 mm) greater in diameter than fastener.
 - 2. Install panels in a full spread of adhesive. For trowel type and application of adhesive, follow adhesive manufacturer's recommendations.
- D. Install trim accessories with adhesive and nails or staples. Do not fasten through panels.
- E. Sealant:
 - 1. Fill grooves in trim accessories with sealant before installing panels and bed inside corner trim in a bead of sealant.
 - 2. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths.

3.04 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas.
- B. Repair or replace any installed products that have been damaged.
- C. Clean installed panels in accordance with manufacturer's instructions prior to Owner's acceptance.
- D. Remove and lawfully dispose of construction debris from project site.

3.05 PROTECTION

- A. Protect installed product and finish surfaces from damage during construction.

END OF SECTION 06 83 16

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. Sheet metal coping, flashing, counterflashing and prefinished metals as shown on Drawings or reasonably inferred by construction type.
 - 2. Sheet metal gutters, downspouts, and related prefinished metals.
 - 3. Prior to installation of finished materials, all flexible flashings shall be observed by the Owner. The Owner shall be given a minimum of seventy-two (72) hours' notice prior to the desired observation time. Any finish materials (i.e., brick, insulation, metal, etc.) installed without observation by the Owner shall be removed and replaced at the Contractor's expense.
- B. Related work specified elsewhere:
 - 1. Section 06 10 00 – Wood blocking, nailers
 - 2. Section 07 65 00 – Flexible flashing
 - 3. Division 08 – Aluminum flashing at windows

1.03 QUALITY ASSURANCE

- A. Referenced Standards: Recommended practices as set forth by the Sheet Metal and Air Conditioning Contractors Association, Inc. (SMACNA) in the "Architectural Sheet Metal Manual" are by reference made a part of this work.
- B. Perform Work in a manner that will maintain warranties on associated work specified in other sections.

1.04 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
 - 1. Shop Drawings: Indicating joint treatment, fastening methods, thickness and finish of materials.
 - 2. Samples: Actual metal samples of each color indicated.
 - 3. Warranty on fluorocarbon coating.

PART 2 PRODUCTS

2.01 GENERAL

- A. Provide all accessories and other items essential to completeness of installation, whether or not indicated or specified. All such items, unless otherwise indicated, specified: Of same kind of material as item to which applied. Nails, screws, bolts: Of types best suited for purpose intended, of composition that is compatible with metal to which it will contact.
- B. Type, locations of various kinds, gauges, thickness, finish of Sheet Metal to be used is specified hereinafter, however, where sheet metal is indicated and kind, type of metal is not definitely specified, noted, provide 24-gauge prefinished galvanized steel.

2.02 MATERIALS

- A. Sheet Metal (Exposed): Materials manufactured by Metal Roof and Wall Panel manufacturer is specified. Other manufacturers meeting specified requirements are acceptable, subject to approval of color and warranty.
 - 1. Material: Minimum 24-gauge G-90 galvanized steel prefinished with Kynar 500 or Hylar 5000 fluorocarbon coating.
 - 2. Color: Owner to select from manufacturer standard colors.
 - 3. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within twenty (20) year warranty period.
 - a. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - 1) Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - 2) Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - 3) Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 4. Provide factory applied protective film. Do not remove until after fabrication and installation is complete.
- B. Sheet Metal (Concealed): Minimum 22-gauge G-90 hot dipped galvanized steel.
- C. Flexible Flashings: Conform to the requirements of Section 07 65 00

2.03 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
 - 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal with factory-applied coating.
 - b. Blind Fasteners: Stainless-steel rivets suitable for metal being fastened.
 - 2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300 stainless steel.
- C. Solder:
 - 1. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50% tin and 50% lead or Grade Sn60, 60% tin and 40% lead.
 - 2. For Zinc: ASTM B 32, 40% tin and 60% lead with low antimony, as recommended by the manufacturer.
- D. Sealant Tape: Pressure-sensitive, 100% solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2" wide and 1/8" thick.
- E. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

2.04 SHEET METAL FABRICATION

- A. Accurately form work with break straight, true and sharp. Make plain surfaces free from waves and buckles. Match profiles exactly at connections. Bead or return exposed edges for strength and appearance. Provide ribs, cleats and reinforcement necessary to make the sections rigid and substantial. Allow for expansion and contraction.
- B. Overlap seams in the direction of flow. Finished width of lock seams and soldered lap seams: Not less than 1". Finished width of unsoldered lap seams: Not less than 3".
- C. Locate joints of sheet metal work exposed to view with respect to column centers, mullions, control joints or other architectural features as indicated on the Drawings. Use concealed cover plates. Where appearance is not a factor, sheet metal work may be fabricated in 8' or 10' lengths.
- D. Generally, joints shall be single locked and soldered or double locked and sealed. Field joints shall be designed to permit expansion. Shop form corner pieces. Internal corners shall be lapped, riveted and sealed. External corners shall be lapped, riveted and sealed where exposed to view and locked and soldered where appearance is not a factor. Locate field joints not less than 12" nor more than 3' from actual corner.

- E. Fabricate sheet metal to be installed using concealed clips or other concealed fasteners where possible. Form joints and hem edges to conceal uncoated edges of metal. Handle prefinished sheet metal with care to prevent scratching or damaging surface.

PART 3 EXECUTION

3.01 WORKMANSHIP

- A. Examine surfaces to be covered by sheet metal. Report any improper defective surfaces to Contractor or Architect in writing. Beginning of Sheet Metal Work over surfaces: Presumed as acceptance of surfaces as satisfactory by Sheet Metal Sub-contractor.
- B. Verify field dimensions prior to fabrication.
- C. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 - 3. Space cleats not more than 12" apart. Anchor each cleat with 2 fasteners. Bend tabs over fasteners.
 - 4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
 - 5. Install sealant tape where indicated.
 - 6. Torch cutting of sheet metal flashing and trim is not permitted.
 - 7. Do not use graphite pencils to mark metal surfaces.
- D. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA and CDA.
- E. Ensure that all work is precisely done, true to line, and free from over bending, burning, deforming, stretching, distortion, waves and buckles.
- F. Seal under and around all fasteners which penetrate elastomeric roofing or flashing.

3.02 REPAIR

- A. Repair or replace all damaged or defective work.

3.03 CLEANING

- A. Clean exposed sheet metal of roofing materials, mortar, hand marks, other foreign materials.
- B. Remove protective covering from sheet metal.
- C. Touch up minor scratches in finish with matching paint, compatible with specified finish.
- D. Replace damaged/dented materials where damage is noticeable from areas which are publicly accessible.

END OF SECTION 07 62 00

SECTION 07 65 00

FLASHING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes product specification of the following:
- B. Flexible and metal flashing used in masonry, exterior finish materials, and exterior openings.
- C. Installation of flashings installed in other sections:
 - 1. Section 07 62 00 - Sheet Metal Flashing and Trim

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
 - 1. Product data indicating proposed material conforms to specification.
 - 2. Submit samples of all specified materials for review.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Products by WR Grace are specified unless noted otherwise. Equivalent products by Carlisle Coatings and Waterproofing, Miradri, Polyken, WR Meadows are acceptable.
- B. Flexible Flashing: Perm-A-Barrier Wall Flashing or Polyguard Products 400 Thru Wall Flashing, manufactured of 32 mils of self-adhesive rubberized asphalt integrally bonded to 8 mil of cross-laminated, high-density polyethylene film to provide a min. 40 mil thick membrane. Membrane shall be interleaved with disposable silicone-coated release paper until installed, conforming with the following:
 - 1. Water Vapor Transmission: ASTM E96, Method B: 2.9 ng/m²sPa (0.05 perms) max.
 - 2. Water Absorption: ASTM D570: max. 0.1% by weight
 - 3. Puncture Resistance: ASTM E154: 356 N (80 lbs.) min.
 - 4. Tear Resistance
 - a. Initiation ASTM D1004: min. 58 N (13.0 lbs.) M.D.
 - b. Propagation ASTM D1938: min. 40 N (9.0 lbs.) M.D.
 - 5. Lap Adhesion at -4°C (25°F): ASTM D1876: 880 N/m (5.0 lbs./in.) of width
 - 6. Low Temperature Flexibility ASTM D1970: Unaffected to -43°C (-45°F)
 - 7. Tensile Strength: ASTM D412, Die C Modified: min. 5.5 MPa (800 psi)
 - 8. Elongation, Ultimate Failure of Rubberized Asphalt: ASTM D412, Die C: min. 200%.
 - 9. Wall Flashing Accessories:
 - a. Surface Conditioner:
 - 1) Perm-A-Barrier Surface Conditioner: Water based latex liquid for substrate preparation conforming with the following:
 - a) Flash Point: No flash to boiling point
 - b) Solvent Type: Water
 - c) VOC Content: Not to exceed 125 g/L
 - d) Application Temperature: -4°C (25°F) and above

- e) Freeze/Thaw Stability: 5 cycles min.
 - f) Freezing point (as packaged): -10°C (14°F)
- b. Termination Mastic:
 - 1) Bituthene® Mastic: Rubberized asphalt-based mastic with 20 g/L max. VOC Content.
- c. Optional Primers:
 - 1) Bituthene Primer WP-3000: Water-based latex primer with 110 g/L max. VOC Content.
 - 2) Bituthene Primer B2: Rubber-based primer in solvent with 440 g/L max. VOC Content.
- C. Miscellaneous Accessories
 - 1. Metal Flashing: See Section 07 62 00 - Sheet Metal Flashing and Trim

PART 3 EXECUTION

3.01 INSTALLATION OF ACCESSORIES

- A. See various technical sections listed in paragraph 1.02.B for installation of flashings
- B. No manufacturer labels or films shall be visible upon completion of work.

END OF SECTION 07 65 00

SECTION 07 84 00

FIRESTOPPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by one shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in one location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 DEFINITIONS

- A. Firestopping: Material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations in, or construction joints between, fire rated wall and floor assemblies.

1.03 GENERAL DESCRIPTION OF THE WORK OF THIS SECTION

- A. Only tested firestop systems shall be used in specific locations as follows:
 - 1. Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire-rated vertical barriers (Fire barrier walls and partitions) and horizontal barriers (floor/ceiling assemblies).
 - 2. Openings between structurally separate sections of wall or floors.
 - 3. Gaps between the top of walls and ceilings or roof assemblies.
 - 4. Expansion joints in walls and floors.
 - 5. Openings and penetrations in fire barrier walls and rated partitions containing fire doors.

1.04 RELATED WORK OF OTHER SECTIONS

- A. Coordinate work of this section with work of other sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work of other sections, including:
 - 1. Section 03 30 00 - Cast-In-Place Concrete
 - 2. Section 07 92 00 – Sealant and Caulking
 - 3. Section 09 21 16 - Gypsum Drywall Systems
 - 4. Division 22 - Plumbing
 - 5. Division 23 - HVAC
 - 6. Division 26 - Electrical

1.05 REFERENCES

- A. Test Requirements: ASTM E 814, "Standard Method of Fire Tests of Through Penetration Fire Stops"
- B. Test Requirements: UL 1479, "Fire Tests of Through-Penetration Firestops"

- C. Test Requirements: UL 2079, "Tests for Fire Resistance of Building Joint Systems"
- D. Underwriters Laboratories (UL) of Northbrook, IL publishes tested systems in their "FIRE RESISTANCE DIRECTORY" that is updated annually.
 - 1. UL Fire Resistance Directory:
 - a. Firestop Devices (XHJI)
 - b. Fire Resistance Ratings (BXRH)
 - c. Through-Penetration Firestop Systems (XHEZ)
 - d. Fill, Voids, or Cavity Material (XHHW)
 - e. Forming Materials (XHKU)
 - f. Joint Systems (XHBN)
 - g. Perimeter Fire Containment Systems (XHDG)
 - 2. Alternate Systems: "Omega Point Laboratories Directory" (updated annually).
- E. Test Requirements: ASTM E 1966, "Standard Test Method for Fire Resistive Joint Systems"
- F. Test Requirements: ASTM E 2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus"
- G. Inspection Requirements: ASTM E 2174, "Standard Practice for On-site Inspection of Installed Fire Stops"
- H. ASTM E 84, "Standard Test Method for Surface Burning Characteristics of Building Materials"
- I. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments
- J. International Building Code 2009, and as modified by local jurisdiction.
- K. NFPA 101 - Life Safety Code
- L. NFPA 70 - National Electric Code

1.06 QUALITY ASSURANCE

- A. A manufacturer's direct representative to be on-site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures. This will be done per manufacturer's written recommendations published in their literature and drawing details.
- B. Firestop System installation must meet requirements of ASTM E 814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.
- C. Proposed firestop materials and methods shall conform to applicable governing codes having local jurisdiction.
- D. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the structural engineer prior to penetrating any load bearing assembly.
- E. For those firestop applications that exist for which no UL tested system is available through a manufacturer, an engineering judgment derived from similar UL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineering judgment drawings must follow requirements set forth by the International Firestop Council.

1.07 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.

1. Product Data: Manufacturer's specifications and technical data for each material including the composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions.
2. Manufacturer's engineering judgment identification number and drawing details when no UL system is available for an application. Engineering judgment must include both project name and contractor's name who will install firestop system as described in the assembly drawing.
3. Material safety data sheets provided with product delivered to job-site.
4. Documentation from manufacturer that all firestopping installations on-site meet their requirements.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.
- B. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.
- C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.
- D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.
- E. Do not use damaged or expired materials.

1.09 PROJECT CONDITIONS

- A. Do not use materials that contain flammable solvents.
- B. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.
- C. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.
- D. Weather conditions: Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation printed on product label and product data sheet.
- E. During installation, provide masking and drop cloths to prevent firestopping materials from contaminating any adjacent surfaces.

PART 2 - PRODUCTS

2.01 FIRESTOPPING, GENERAL

- A. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.
- B. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.
- C. Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post installed." Provide cast-in-place firestop devices prior to concrete placement.

2.02 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with through penetration firestop systems (XHEZ), joint systems (XHBN), and perimeter firestop systems (XHDG) listed in Volume 2 of the UL Fire Resistance Directory: Products specified are by Hilti, Inc., Tulsa, Oklahoma, 800-879-8000/www.us.hilti.com

1. Equivalent products by 3M Fire Protection Products 800-328-1687/www.3m.com are acceptable.

2.03 MATERIALS

- A. Use only firestop products that have been UL 1479, ASTM E 814 or UL 2079 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.

- B. L-Rated Systems: Where through-penetration firestop systems are indicated in smoke barriers, provide through-penetration firestop systems with L-ratings of not more than 5.0 cfm/sq. ft. at both ambient temperatures and 400 deg F.

- C. Cast-in place firestop devices for use with noncombustible and combustible pipes (closed and open systems), conduit, and cable bundles penetrating concrete floors, the following products are acceptable:

1. HILTI

- a. CP 680 Cast-In Place Firestop Device
 - 1) Add Aerator adaptor when used in conjunction with aerator (“sovent”) system.
- b. CP 682 Cast-In Place Firestop Device for use with noncombustible penetrants

- D. Sealants, caulking materials, or foams for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following products are acceptable:

1. HILTI

- a. FS-ONE Intumescent Firestop Sealant
- b. CP 604 Self-leveling Firestop Sealant
- c. CP 620 Fire Foam
- d. CP 606 Flexible Firestop Sealant
- e. CP 601s Elastomeric Firestop Sealant

- E. Sealants or caulking materials for use with sheet metal ducts, the following products are acceptable:

1. HILTI

- a. CP 601s Elastomeric Firestop Sealant
- b. CP 606 Flexible Firestop Sealant
- c. FS-ONE Intumescent Firestop Sealant

- F. Sealants, caulking or spray materials for use with fire-rated construction joints and other gaps, the following products are acceptable:

1. HILTI

- a. CP CFS-SP WB Joint Spray
- b. CP 601s Elastomeric Firestop Sealant
- c. CP 606 Flexible Firestop Sealant
- d. CP 604 Self-leveling Firestop Sealant

- G. Pre-formed mineral wool designed to fit flutes of metal profile deck and gap between top of wall and metal profile deck; as a backer for spray material.

1. HILTI
 - a. CP 777 Speed Plugs
 - b. CP 767 Speed Strips
- K. Wall opening protective materials for use with U.L. listed metallic and specified nonmetallic outlet boxes, the following products are acceptable:
 1. HILTI
 - a. CP 617 Firestop Putty Pad
- O. Sealants or caulking materials used for openings between structurally separate sections of wall and floors, the following products are acceptable:
 1. HILTI
 - a. CP CFS-SP WB Joint Spray
 - b. CP 601s Elastomeric Firestop Sealant
 - c. CP 606 Flexible Firestop Sealant
 - d. CP 604 Self-Leveling Firestop Sealant
- R. Provide a firestop system with a "F" Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.
- T. Identification Labels
 1. Pressure-sensitive, self-adhesive, preprinted vinyl labels with the following verbiage:
 - a. "Warning: Fireblocking Application – Do Not Disturb. Notify Building Management of Any Damage"
 - b. Installing Contractor's name, address and phone number.
 - a. Date of installation.
 - b. Fireblocking/Stopping product manufacturer's name.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
 1. Verify penetrations are properly sized and in suitable condition for application of materials.
 2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.
 3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
 4. Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.
 5. Do not proceed until unsatisfactory conditions have been corrected.

3.02 COORDINATION

- A. Coordinate location and proper selection of cast-in-place Firestop Devices with trade responsible for the work. Ensure device is installed before placement of concrete.
- B. Responsible trades to provide adequate spacing of field run pipes to allow for installation of cast-in-place firestop devices without interferences.

3.03 INSTALLATION

- A. Regulatory Requirements: Install firestop materials in accordance with UL Fire Resistance Directory or Omega Point Laboratories Directory.
- B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of through-penetration and construction joint materials.
 - 1. Seal all holes or voids made by penetrations to ensure an air and water resistant seal.
 - 2. Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
 - 3. Protect materials from damage on surfaces subjected to traffic.
- C. Identification: Install identification labels no greater than 6 feet from penetration or 6 feet on center on continuous firestopping applications.

3.04 FIELD QUALITY CONTROL

- A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.
- B. Keep areas of work accessible until inspection by applicable code authorities.
- C. Inspection of through-penetration firestopping shall be performed in accordance with ASTM E 2174, "Standard Practice for On-Site Inspection of Installed Fire Stops" or other recognized standard.
- D. Perform under this section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.
- E. Manufacturer to inspect sealed penetrations for conformance with appropriate product data information for each contractor installing firestopping on site.

3.05 ADJUSTING AND CLEANING

- A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.
- B. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

END OF SECTION 07 84 00

SECTION 07 92 00

SEALANTS AND CAULKING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Exterior colored sealants:
 - 1. Miscellaneous joints where “sealant” or “caulk/caulking” is indicated on drawings.
 - 2. Joints around exterior penetrations.
 - 3. At joints between dissimilar materials as required for the installation of a complete weathertight system.
- B. Related work specified in other sections:
 - 1. Section 07 62 00 – Sheet Metal Flashing and Trim

1.03 REFERENCES

- A. ASTM C 920 – Specification for Elastomeric Joint Sealants.
- B. ASTM C 1193 – Standard Guide for Use of Joint Sealants.

1.04 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
- B. Product Data: Manufacturer’s data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods including joint design, surface preparation, and application instructions.
 - 4. Submit manufacturer’s test reports indicating test results of adhesion and/or compatibility testing of samples of substrates which either come in contact with or are in close proximity to sealants
- C. Selection Samples: For each finish product specified, 2 complete sets of color chips representing manufacturer’s full range of available colors or samples of custom color matches for Architect’s acceptance.
- D. Samples of Warranty.
- E. Manufacturer’s approval of installer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in manufacturers unopened original packaging. Inspect for damage.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
 - 1. Store materials in a clean, dry area indoors in accordance with manufacturer’s instructions.
 - 2. Store sealants within temperature range in accordance with manufacturer’s instructions.
 - 3. Keep containers sealed until ready for use.
 - 4. Do not use materials after manufacturer’s use-before date.

1.06 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by

manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1. Do not apply sealants to surfaces that are wet, damp, or contain frost.
2. Do not apply sealants when air or surface temperature is below 40° F.
3. Use caution when applying sealants when air or surface temperature is above 120° F.

1.07 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: Two (2) years from date of Substantial Completion.
- B. Special Manufacturer's Warranty for Exterior Sealants: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: Ten (10) years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 EXTERIOR SEALANTS

- A. Hybrid Sealant: Single Component, non-sag, low-modulus, fast-curing joint sealant conforming to ASTM C 920, Type S, Grade NS, Class 50. Maximum VOC: 13.6 g/L
 1. Manufacturers/product:
 - a. MasterSeal NP 150 or equal
 - b. Other manufacturer's meeting the requirements of this specification
- B. Colors: To match adjacent materials.

2.02 ACCESSORIES

- A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- C. Joint Backing: Round foam rod compatible with sealant; oversized 25% to 50% larger than joint width; recommended by sealant manufacturer to suit application.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.
- E. Masking Tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Inspect joints for compliance with requirements for joint configuration, installation tolerance, and other conditions affecting joint sealant performance. Correct unsatisfactory conditions before proceeding.

3.02 PREPARATION

- A. Prepare joints in accordance with ASTM C 1193 and manufacturer's instructions.
- B. Clean out joints immediately before installing joint sealants [within one (1) to two (2) hours of sealant application], in accordance with joint sealant manufacturer's recommendations and the following requirements:
 1. Remove from joint substrates foreign material which could interfere with adhesion of joint sealant, including paints other than permanent protective coating tested and approved for sealant adhesion and compatibility by sealant manufacturer, oil, grease, waterproofing, water repellants, water dirt, and frost.
 2. Clean porous joint substrates using approved methods such as brushing, grinding, blast cleaning, mechanical abrading, and acid washing as appropriate, or a combination of these methods, to produce a

- clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
3. Remove laitance and form-release agents from concrete.
 4. Clean metal and other nonporous substrates by using chemical cleaners or other means that neither are harmful to substrates nor leave residues capable of interfering with adhesion of joint sealants.
- C. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to area of joint sealer bond; do not allow spillage or migration onto adjoining surfaces. Allow primer to dry before applying sealant.
- D. Masking Tape: Use masking tape where required to prevent contamination of adjacent surfaces; remove tape immediately after tooling and before sealants begin to cure without disturbing seal.

3.03 SEALANT INSTALLATION

- A. Comply with joint sealant manufacturer's printed installation instructions.
- B. Installation of Sealant Backings:
1. Install joint filler to provide support of sealant during application and at position required to produce the cross-sectional shape and depth of installed sealant relative to joint width that allows optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture, or tear joint fillers.
 - c. Remove fillers which have become wet prior to sealant application and replace with dry materials.
 2. Install bond breaker tape when joint depth is too shallow to allow backer rod.
- C. Installation of Sealant:
1. Install sealants by proven techniques that result in direct contact with and full wetting of joint substrates by joint sealant, completely filling recesses provided and providing uniform cross-sectional shapes and depths relative to joint widths. Sealant depth to be $\frac{1}{2}$ the width of the joint and $\frac{1}{3}$ the width at the center, creating an hourglass shape. Maximum depth of caulk at center to be $\frac{3}{8}$ ". Air pockets or voids are not acceptable.
 2. Immediately after sealant application and prior to the skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or which are not approved by sealant manufacturer.

3.04 PROTECTION AND CLEANING

- A. Protect joint sealers, during and after curing, from contamination or damage. Cut out and remove damaged or deteriorated sealers and replace with new materials.
- B. Clean excess sealants or sealant smears adjacent to joints as work progresses.

3.05 FIELD QUALITY CONTROL

- A. Perform adhesion tests on exterior sealant in accordance with manufacturer's instructions and ASTM C1193, Method A, Field-Applied Sealant Joint Hand-Pull Tab.
1. Perform 5 tests for first 1,000 linear feet of applied exterior sealant and 1 test for each 1,000' of seal thereafter. If there is less than 1,000', perform 1 test per floor per building elevation minimum.
 2. For sealant applied between dissimilar materials, test both sides of joint.
- B. Sealants failing adhesion test shall be removed, substrates cleaned, sealants re-installed, and re-testing performed.
- C. Maintain test log and submit report to Owner indicating tests, locations, dates, results, and remedial actions.

END OF SECTION 07 92 00

SECTION 08 10 00

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. All hollow metal doors, door frames, and borrowed light frames.
 - 2. Rated doors and frames as scheduled and/or noted.
- B. Related work specified in other sections:
 - 1. Section 08 71 00 – Finish hardware
 - 2. Section 09 90 00 – Painting

1.03 QUALITY ASSURANCE

- A. Provide doors and frames complying with the SDI Standard 100-"Recommended Specifications Standard Steel Doors and Frames" and as herein specified.
- B. Obtain hardware templates from hardware supplier (Section 08 71 00) and obtain necessary hardware for factory application.
- C. Where noted on Door Schedule, provide nationally recognized testing agency label of proper classification. Label requirements take precedence over conflicting details. Advise the Owner of any conflict before fabricating work on that item is started.

1.04 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
 - 1. Coordinate with any special conditions of anchorage. Submit door/opening schedule on shop drawings indicating relationship of door, number of room, and number and function of door.
 - 2. Shop Drawings: Include the following:
 - a. Elevations of each door design.
 - b. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 - c. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - d. Locations of reinforcement and preparations for hardware.
 - e. Details of each different wall opening condition.
 - f. Details of anchorages, joints, field splices, and connections.
 - g. Details of accessories.
 - h. Details of molding, removable stops, and glazing.
 - i. Detail of conduit and preparations for power, signal, and control systems.
 - j. Rating of doors and frames as noted on door/opening schedule and/or Code Plan.
 - 3. Submit documentation for UL 10C or other approved testing agency stating doors have passed UBC Standard 7-2.

1.05 PRODUCT PROTECTION

- A. Deliver doors and frames in suitable crating or packaging to prevent damage in transit and storage.

- B. Storage at jobsite:
 - 1. Store frames on plywood and block at least 4" above plywood, under waterproof cover.
 - 2. Store doors under cover in a dry area with doors set upright with 1/4" spacers between doors. Keep doors at least 4" above ground.
 - 3. Do not store HM material in a manner that traps excess humidity.
 - 4. Materials that are rusted prior to installation will be rejected.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Approved Manufacturer(s): Steelcraft, Pioneer, Ceco, Curries, Amweld, Republic, and MPI.
- B. Accompany any request for acceptance of alternative manufacturers by descriptive details or brochures demonstrating compliance with specifications, and sample frame corner.

2.02 MATERIALS

- A. Steel: Commercial quality, level, cold rolled steel conforming to ASTM A366, free of scale and surface defects. Commercial quality hot rolled and pickled steel conforming to ASTM A569 may be used at contractor's option for interior frames. At all exterior hollow metal doors and interior hollow metal doors separating potentially wet environments from dry environments, form doors and frames of galvanized steel conforming to ASTM A526 or A527, A60 zinc coating. Gauges are as follows unless otherwise noted:
 - 1. Interior Frames: 16-gauge.
 - 2. Exterior Frames: 14-gauge, galvanized.
 - 3. Flush Doors: 16-gauge galvanized (exterior), 18-gauge (interior).
 - 4. Interior Doors: Manufacturer's standard fire rated core.
 - 5. Fire Rating: 3- hour rating.
- B. Rust-Inhibitive Primer
 - 1. Manufacturer's standard rust inhibitive baked-on primer. Provide additional primer for touch-up.
 - 2. Pretreat galvanized metal in accordance with paint manufacturer's recommendations.
- C. Stainless Steel: AISI Type 316L (low carbon) stainless with a #4 satin finish.

2.03 FABRICATION

- A. Make hardware mortises and reinforcements according to templates. Provide hinge, lock, door holder, and closer hardware reinforcements. Mortise, drill tap for hardware; fabricate grooves, rabbets as necessary for smoke seals.
- B. Fabricate doors to a maximum tolerance of 1/16" from a straight edge when laid on face of door in any direction, including diagonal.
- C. Attach proper testing agency's labels as indicated on the Drawings. Provide equal labeled frames for labeled doors. Frames with glazing in rated walls must conform to UBC Standard 7.4 (hose stream test). Provide intumescent fire and smoke material for fire rated openings as required by door and frame manufacturer to comply with UL 10C, UBC Test 7-2.
- D. Clearances: Edge clearances shall be provided as follows:
 - 1. Between doors and frame, at head and jambs - 1/8"
 - 2. At door sills:
 - a. Where no threshold is used – 5/8" maximum to finish floor surface
 - b. Where threshold is used – 1/4" maximum between door and threshold
 - c. Where required for hardware operation – as recommended by hardware manufacturer
 - 3. Between meeting edges of pairs of doors - 1/8"

2.04 METAL FRAMES

- A. Provide custom metal frames of the types and styles indicated on the drawings or schedules and complying with SDI 100 for materials and construction requirements.
- B. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, as shown on the drawings. Provide thermally broken frames at exterior wall.

- C. Miter corners on face of all frames, internally weld face and grind smooth exterior. Die coped frames at mullions and stops. Provide with floor anchors.
- D. Provide 1 removable and 1 fixed stop at perimeter of openings for glazed frames. Removable stop on secure side.
- E. Provide closed metal covers over all hardware cutouts to protect against mortar.
- F. Provide integral channel frames, subframes and stiffeners to structure where indicated or required for fastening and stiffening frames.
- G. Provide steel spreader temporarily attached to feet of both jambs for welded frames.
- H. Provide 3 factory installed silencers on single door frames at strike jamb; 4 (2 at each head) silencers on double door frames.
- I. Hinge reinforcements to have 10-gauge straps welded directly above and below each hinge pocket.
- J. Fabricate curved frames as detailed on the drawings.
- K. Fire Rating: 3- hour

2.05 FLUSH HOLLOW METAL DOOR

- A. Provide custom metal doors for the types and styles indicated on the Drawings or schedules and complying with SDI 100 for materials and construction requirements. Fully insulate exterior doors.
- B. Close top and bottom edges of all doors with a continuous recessed steel channel not less than 16-gauge, full width spot welded to both faces. Provide an additional flush closing channel at top edge for exterior doors. Provide openings to bottom closure of exterior door to permit escape of moisture.
- C. Edge profiles to be 1/8" bevel in 2".
- D. For sixty (60) minute and greater rated doors, conform to maximum transmitted temperature end point of 450° as specified in UBC Standard No. 43-2.
- E. All doors to have minimum 16-gauge lock reinforcement and either continuous 14-gauge hinge rail or minimum 8-gauge plate hinge reinforcement.
- F. All faced edge seams to be continuously wire welded, finished smooth.

2.06 HARDWARE MOUNTING

- A. Prepare for hardware at mounting heights and locations as recommended by the Builder's Hardware Manufacturing Association.
- B. Reinforce doors and frames to receive non-templated mortised and surface mounted door hardware so that thru-bolting is not required. No thru-bolting will be allowed.

2.07 SHOP PAINTING

- A. Completely clean all frames by degreasing process, followed by 1 coat rust inhibitive primer equal to a salt spray test (5% solution) of seventy (70) hours. Thoroughly prime all surfaces without runs, smears, or bare spots, and under and inside all removable stops.
- B. Completely clean all doors of impurities and pressure sand to a smooth surface and correct all irregularities with metallic putty sanded smooth. Provide 1 spray coat of primer, baked on. Thoroughly paint unexposed inside surfaces of exterior doors, fire doors, and other doors occurring in excessive moisture area.
- C. Provide vinyl wash pre-treatment of galvanized steel as recommended by shop primer manufacturer.
- D. Provide primer for field touch up of rusted areas, splices, connections, welds and abrasions.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Securely fasten Work in place, without twists, warps, bulges or other unsatisfactory defacing of workmanship. Set plumb, level, and square to proper elevation true to line and eye. Set clips and other anchors with piston driven fasteners equal to Ramset or drilled-in anchors as approved. Fasten units and trim together with neat, uniform and tight joints.
- B. At steel columns and/or concrete surfaces, install sub-frame or rough bucks as specified. At steel columns use 5/16" diameter self-tapping metal screws and at concrete use expansion bolts of the same diameter. Install frame to sub-frame and/or rough buck with countersunk self-tapping metal screws. Fill screw holes with a suitable

metallic filler, sand and prime.

- C. Where field installed hardware is required, provide wood or other suitable filler to avoid drilling and tapping into mortar inside frames.
- D. For all attachments including removable stops, use flat head self-tapping screws. Drill and tap in the field for surface mounted closers, brackets, and rim exit devices, door holders, and other surface hardware. At horizontal exterior surfaces, set screws with neoprene gaskets or set with caulking compound under screw head and wipe clean.
- E. All field splices to be welded and filled with body putty and ground smooth, no exposed screw heads will be accepted. Locate splices where shown on final reviewed shop drawings.
- F. Prime-Coat Touchup: Immediately after erection and when building envelope is watertight, sand smooth rusted, damaged, connection points and welded areas of prime coat and apply touchup primer.

3.02 PROTECTION

- A. Protect installed hollow metal work against damage from other construction.
- B. Repair or replace all damaged work at no extra cost to Owner.

END OF SECTION 08 10 00

SECTION 08 31 00

ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. Wall and ceiling access panels as noted on Drawings and specified herein.
 - 2. Related hardware and attachments.
- B. Related work specified elsewhere:
 - 1. Section 06 10 00 – Rough and Finish Carpentry
 - 2. Section 08 71 00 – Cylinder locks
 - 3. Section 09 21 16 – Openings in gypsum board
 - 4. Section 09 90 00 – Painting

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
- B. Shop drawings

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Package, handle, deliver, and store at the job site in a manner that will avoid damage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Bid is Babcock-Davis; comparable units by Nystrom Products, Milcor, Inc., Karp Associates, JL Industries and Cesco Products are acceptable.

2.02 UNITS

- A. Access Panel #1 (AP #1): Flush mounted open flange wall or ceiling access panel model Architectural Access Panel series BNT (36x36 door).

2.03 MATERIALS

- A. Commercial quality, cold steel sheet with baked on rust inhibitive gray primer.
- B. Non-rated flush access doors
 - 1. Door: Fabricate from 14-gauge cold rolled sheet steel.
 - 2. Frame: Fabricate from 16-gauge cold rolled sheet steel. Provide ¼” mounting holes.
 - a. All surfaces – 1” flange at perimeter.
 - b. Wallboard surfaces – 22-gauge galvanized drywall bead at perimeter.
 - 3. Finish:

- a. Phosphate dipped with factory applied prime coat.
 - b. Painted to match adjacent finish
- C. Hinges: Concealed spring hinges open to 175°. Extracting pin from hinge leaf attached to panel permits panel removal.
- D. Latching/locking: Flush, screwdriver-operated with steel cam. Cylinder lock with 2 keys furnished to replace one cam lock, at Access Panel #1 (keyed alike).
- E. Anchors: Provide masonry anchors, where required.

2.04 MATERIALS

- A. Fabrication: Manufacture each access panel assembly as an integral unit ready for installation.
 - 1. Welded construction: Furnish with a sufficient quantity of 1/4" mounting holes to secure access panels to types of supports indicated.
 - 2. Recessed panel: Form face of panel to provide specified recess for application of finish material. Reinforce panel as required to prevent buckling.
 - 3. Furnish number of latches required to hold door in flush, smooth plane when closed.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that openings are correctly dimensioned to receive doors.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's current printed recommendations, in locations indicated on architectural plans.
- B. Coordinate exact locations to access mechanical/electrical equipment.
- C. Paint access panels:
 - 1. Metal ceiling applications – paint to match adjacent ceiling color.

3.03 ADJUST AND CLEAN

- A. Adjust latching mechanism to operate smoothly.
- B. Leave work area clean and free of debris.

END OF SECTION 08 31 00

SECTION 08 33 00

OVERHEAD SECTIONAL DOORS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. Motorized Exterior Overhead Sectional doors.
- B. Related work specified in other sections:
 - 1. Section 05 50 00 – Doorframe
 - 2. Section 08 71 00 – Cylinders
 - 3. Section 09 90 00 – Painting
 - 4. Divisions 26 – Electrical General Provisions.
 - a. All 120V electrical wiring to be done by Electrical Contractor. Door Contractor to supply all materials necessary to Electrical Contractor. Low voltage wiring by Door Contractor.

1.03 REFERENCE STANDARDS

- A. ANSI/DASMA 102 – American National Standards Institute [A216.1] Specifications for sectional overhead doors published by Door & Access Systems Manufacturers Association International in bulletin 102-2004.
- B. ASTM A123 – Zinc [hot-dipped galvanized] coatings on iron and steel products.
- C. ASTM A216 – Specifications for sectional overhead type doors.
- D. ASTM A229 – Steel wire, oil-tempered for mechanical springs.
- E. ASTM A-653-94 – Steel sheet, zinc-coated [galvanized] by the hot-dipped process, commercial quality.
- F. ASTM D1929 – Ignition temperature test to determine flash and ignition temperature of foamed plastics.
- G. ASTM E84 – Tunnel test for flame spread and smoke developed index.
- H. ASTM E330 – Structural performance of exterior windows, curtain walls, and doors by uniform static air pressure difference.
- I. ASTM E413-87 – Sound transmission class = 20.
- J. ASTM E1332-90 – Outdoor-indoor transmission class = 20 transmission class. Acoustical performance value = 20.
- K. ASTM E283-91 – (Air infiltration = .07 CFM/FT², 15 MPH., 5200)(.23 CFM/FT², 15 MPH., 5150)

1.04 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
 - 1. Shop Drawings
 - a. Product Data
 - b. Shop Drawings: Show field verified dimensions, components, details, and connections to other construction.
 - c. Field verify existing or coordinate with proposed electrical feeder voltage/phase and adjust submittal so motors are compatible.
 - 2. Color Finish Samples
 - a. Provide full range of color samples by manufacturer.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Package, handle, deliver and store at the job site in a manner that will avoid damage or deformation.

1.06 WARRANTY

- A. Provide manufacturer's standard seven (7) year warranty against separation/degradation of the polyurethane foam from the steel skin of the panel. Standard manufacturer's ten (10) year warranty against cracking, splitting or deterioration due to rust-through. Standard manufacturer's ten (10) year on insulation value.

PART 2 PRODUCTS

2.01 EXTERIOR OVERHEAD SECTIONAL DOORS

- A. Basis of Bid: Products manufactured by Wayne Dalton www.wayne-dalton.com are specified, Model Thermomark 5200, Panel Style Flush, with Thermolite windows. Similar products by Cookson, Cornell, Overhead Door and Raynor are acceptable.
- B. Door Sections: Shall be of steel/polyurethane/steel sandwich type construction with thermal break and calculated materials "R"- value of 16.22 on 5200, in accordance with industry guidelines.
 - 1. Exterior Skin: Structural quality, hot-dipped galvanized steel, .022" minimum embossing, factory finished with baked-on polyester primer and polyester finish coats.
 - 2. Interior Skin: Structural quality, hot-dipped, galvanized steel, factory finished with a polyester primer and white finish coat.
 - 3. Ends of section shall be sealed with 18-gauge hot-dipped galvanized steel full-height end caps.
 - 4. Insulation: Cavity shall be filled with foamed-in-place CFC and HCFC free polyurethane core. Sections include an integral thermal break.
 - 5. Insulated sections shall be tested by an I.C.C. certified laboratory in accordance with ASTM E-84 and shall achieve a Flame spread Index of 75 or less, and a Smoke Developed Index of 450 or less.
 - 6. Insulation material shall be tested by an I.C.C. certified laboratory in accordance with ASTM D-1929 and shall achieve a minimum Flash ignition temperature of 600° F, and a minimum Self Ignition temperature of 800° F.
 - 7. Insulated sections shall be tested and meet all requirements of the UBC 17-5 corner burn.
- C. Track: Track design shall be standard lift. Vertical mounting angles shall be hot-dipped galvanized. Track size shall be minimum size by manufacturer. Vertical track shall be graduated to provide wedge type weathertight closing with continuous angle mounting for steel jambs, and shall be fully adjustable to seal door at jambs. Horizontal track shall be reinforced with continuous angle of adequate length and gauge to minimize deflection.
- D. Hardware: Hinge and Roller Assembly:
 - 1. Hinges and brackets shall be made from hot dipped, galvanized steel.
 - 2. Track rollers shall be case-hardened inner steel races with 10-ball rollers.
 - 3. All factory authorized attachments shall be made at locations indicated and reinforced with backup plates.
- E. Counterbalance:
 - 1. Springs shall be torsion type, low-stress, helical wound, oil-tempered spring wire to provide minimum 25,000 cycles of use, on continuous steel.
 - 2. Spring fittings and drums made of die cast, high strength aluminum.
 - 3. Pre-formed galvanized steel aircraft cable shall provide a minimum of a 5:1 safety factor.
- F. Operation shall be by motor with 2 remote controls and 1 push button operators per door. 1 door to have keypad access control device
- G. Locks shall engage the right-hand vertical track and utilize an interior side lock.
- H. Weatherstripping shall be equipped with field installed, top seal to seal against header, co-polymer joint seals between sections and vinyl "bulb" shaped astragal provided on the bottom section, with optional jamb seals.
- I. Windload minimum 20 psf per DASMA 102-2003 and as required by local codes.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that openings are prepared with headers level, jambs plumb, floor levels without projection, and are

correctly dimensioned to receive doors.

- B. Coordinate with installers of finish materials such as gypsum board and acoustic ceilings, to insure proper support, clearances and access to door operators and hardware.
- C. Coordinate wiring and controls with Division 26.

3.02 INSTALLATION

- A. Install per approved shop drawings, with all necessary hardware, anchors, inserts, hangers, and supports.
- B. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

3.03 FIELD QUALITY CONTROL

- A. Site Test: Test doors for normal operation and closing.

3.04 CLEANING

- A. Clean surfaces soiled by work as recommended by manufacturer.
- B. Remove surplus materials and debris from the site.

3.05 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain overhead sectional doors. Refer to Section 01 79 00 Demonstration and Training.

END OF SECTION 08 33 00

SECTION 08 71 00

DOOR HARDWARE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section Includes:
 - 1. Hardware for swinging Hollow Metal and Wood Door Openings.
- B. Related Sections:
 - 1. Section 01 25 00 – Product Substitutions
 - 2. Section 06 20 00 – Finish Carpentry
 - 3. Section 08 11 13 – Hollow Metal Doors and Frames
 - 4. Section 13 34 18 - Post Frame Building System

1.03 REFERENCES

- A. Use the following references to properly detail, schedule, furnish and install finish hardware items.
 - 1. NFPA 80 – Standard for Fire Doors and Other Opening Protectives (2007)
 - 2. DHI Installation Guide for Doors and Hardware (1984)
 - 3. DHI Sequence and Format for the Hardware Schedule (1996)
 - 4. ANSI/BHMA A156.4 – Door Controls – Closers (2008)
 - 5. ANSI/BHMA A156.2 – Bored and Preassembled Locks and Latches (2011)
 - 6. ANSI/BHMA A156.18 – Materials and Finishes (2012)

1.04 SUBMITTALS

- A. Schedule:
 - 1. Provide submittals in accordance with 01 33 00 – Submittal Procedures.
 - 2. Provide hardware schedule in vertical format on 8-1/2" x 11" paper. Conform to DHI publication Sequence and Format for Hardware Schedule using Architect's door numbers and hardware set numbers.
 - 3. Provide elevation drawings for openings with electrical hardware and access control devices with each hardware schedule. Include illustration of opening, operational description, legend, approximate mounting location and size of enclosures, size and quantity of conductors, facility name and date.
- B. Product Data: Provide 1 set of manufacturer's catalog and technical data for each hardware item used, highlighting design, function, fasteners, accessories, and options to facilitate review with each hardware schedule submitted.
- C. Templates: Provide 2 sets of manufacturer's templating information for mortised and template hardware upon receipt of approved hardware schedule to the door and frame supplier(s). Include requirements for internal reinforcements required for surface mounted hardware.
- D. Keying Schedule: Provide owner with the '0' bitted permanent cores at the time the hardware is delivered to the job site. The owner is responsible for keying of the permanent cores.

1.05 CLOSEOUT SUBMITTALS

- A. Furnish operations and maintenance manual in accordance with Section 01 78 23 – Operations and Maintenance Data and as follows:
 - 1. Furnish 1 copy of manual at date of Substantial Completion on a flash drive (PDF format) with project information, date and name and contact information for the hardware supplier.
 - 2. Include in manual:
 - a. Copy of approved hardware schedule, including door numbers and locations.
 - b. Copy of approved keying schedule.
 - c. Catalog data for each product.
 - d. Warranty information.

1.06 MAINTENANCE MATERIAL SUBMITTALS

- A. Deliver to Owner special installation tools upon completion of Project.

1.07 QUALITY ASSURANCE

- A. Supplier:
 - 1. Furnish hardware from recognized supplier who has warehousing facility within 100 miles of project location, and who has actively supplied hardware for similar projects in the vicinity for a minimum of five (5) years.
 - 2. Supplier shall employ a Hardware Consultant with five (5) years' experience on staff full time to administer and supervise project.
- B. Installer: Install hardware using installers who have actively installed commercial door hardware for a minimum of five (5) years, and are familiar with hardware installation of type required on this Project.
- C. Pre-Installation Meeting:
 - 1. Prior to installation of hardware, arrange for manufacturer's representatives of locksets, door closers, and exit devices to hold a jobsite meeting to instruct the installing personnel on the proper installation of their products.
 - 2. Send a letter of compliance, indicating when this meeting was held, and who was in attendance, to the Architect and Owner.
- D. Fire Rated Door Openings:
 - 1. Comply with NFPA 80.
 - 2. Furnish nationally recognized testing agency label or stamp on hardware for labeled openings.
 - 3. Only labeled locks or latches or fire exit hardware can be used on fire rated openings.
 - 4. Where UL requirements conflict with Drawings or Specifications, furnish hardware conforming to the UL requirements.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Delivery:
 - 1. Jointly check in hardware, upon delivery to jobsite, against approved hardware schedule with hardware supplier. Record shortage or damage and replace or repair as necessary.
 - 2. Deliver hardware to be installed during fabrication of doors and frames, to manufacturer.
- B. Storage:
 - 1. Store hardware in a secure, dry, temperature controlled room on shelving to protect against loss, theft and damage.
 - 2. Store items too long for shelving on pallet, off the floor.
- C. Marking and Packaging:
 - 1. Deliver hardware to jobsite in manufacturer's original packaging marked to correspond with approved hardware schedule with Architect's door numbers and hardware sets.
 - 2. Mark all locksets, exit devices, cylinders, auxiliary hardware and key switches with keyset symbol.
 - 3. Replace any wet or damaged packaging with new.

1.09 WARRANTY

- A. Furnish warranties in accordance with Section 01 78 23 – Warranties. Extended or limited warranties shall be as follows:

1. Furnish minimum ten (10) year factory warranty on door closers, against defects in material and workmanship, from date of substantial completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. The following manufacturers' are acceptable for use on this project. Provide like items of hardware from 1 of the manufacturers listed.
 1. Hinges Ives
 2. Locks and Latchsets Falcon
 3. Cores Falcon
 4. Surface Closers Falcon
 5. Exit Devices Falcon
 6. Overhead Stop/holders Glynn Johnson
 7. Protection Plates Ives
 8. Wall/Floor Stops Ives
 9. Thresholds and Gasketing Reese, National Guard
- B. Silencers Ives
- C. Submit requests for substitution in accordance with Section 01 25 00 Product Substitution requirements and as follows:
 1. Provide catalog data with product information highlighted or bubbled to facilitate review. Product must meet or exceed level or design intended and/or function established by specified products.

2.02 MATERIALS

- A. Screws and Fasteners:
 1. Provide manufacturer's recommended fasteners of proper type, material and finish.
 2. Provide self-tapping screws for sweeps and stop applied weatherstripping.
 3. Avoid the use of through-bolts for the attachment of door closers and exit devices. Doors and frames are to be properly reinforced.
 4. Exposed screw heads: phillips type.
- B. Hinges:
 1. Type:
 - a. 5-knuckle, full mortise, ball bearing.
 - b. Furnish heavy weight hinges on heavy doors and doors expected to have high frequency use.
 2. Quantity:
 - a. 1 pair of hinges for all doors up to 5' high. Furnish 1 additional hinge for every 2'-6" in height or fraction thereof.
 - b. 4 hinges at doors up to 7'-6" in height.
 3. Size:
 - a. For 1-3/4" thick doors up to 3' wide: 4 1/2" high
 - b. For 1-3/4" thick doors over 3' wide: 5" high
 - c. For all doors over 1-3/4" thick: 5" high
 - d. Size in width shall minimally clear door trim.
 4. Application:
 - a. NRP (non-removable pin) at exterior doors and reverse bevel doors with locking hardware.
 5. Acceptable manufacturers and types:

Ives		
5BB1		

- C. Locksets:
 1. Cylindrical Locks:
 - a. Conform to ANSI/BHMA A156.2, Series 4000 Operational Grade 1.
 - b. Latchbolt with appropriate throw for fire rated doors and pairs of doors in accordance with manufacturers listing.
 - c. Lock functions as specified in hardware schedule with construction cores. Permanent cores to be installed by owner at the time of substantial completion. Cylinders are designed to receive small

format interchangeable cores (SFIC).

- d. Lever design: 15D (verify, match existing)
- e. Backset: 2-3/4"
- f. Strike single door: ANSI 4-7/8" with proper lip length to minimally clear trim.
- g. Strike pair of doors: flat lip strike sized to fit flush with face of door.
- h. Furnish wrought strike box.
- i. Acceptable manufacturers and types:

Falcon		
K Series, Dane Lever		

- 2. Cylinders:
 - a. Provide SFIC mortise and rim cylinders for exit devices from same manufacturer as locksets.
 - b. Appropriate cam and blocking rings for proper installation.
- 3. Cores:
 - a. Provide '0' bitted cores with a keyway matching the keyway currently used on campus. Turn permanent cores over to owner at the time the hardware is delivered to the job site for Owner to key and install at the time of substantial completion.

D. Keys & Keying

- 1. Provide 2 blank keys with each permanent core. Turn key blanks over to owner at the same time as the permanent cores are provided to the owner. Keying of permanent cores shall be by owner.

E. Exit Devices:

- 1. UL-listed for fire at fire door assemblies, and UL listed for panic at non-rated door assemblies.
- 2. Size exit devices to proper door width and height.
- 3. Cylinders for exit devices with cylinder dogging or locking trim.
- 4. Strike: as recommended by manufacturer.
- 5. Lever design: To match lockset trim.
- 6. Acceptable manufacturers and types:

Falcon		
24-R Series		

F. Surface Door Closers:

- 1. Conform to ANSI/BHMA A156.4 Grade 1.
- 2. Heavy duty cast iron or aluminum body closers.
- 3. Furnish manufacturers recommended size, arms, and configuration for door and frame application required.
- 4. Furnish brackets, spacers, support shoes, and plates for complete and proper installation.
- 5. DA (delayed-action) at toilet room doors and as scheduled.
- 6. Acceptable manufacturers and types:

Falcon		
SC 70 Series		

G. Overhead Door Stop:

- 1. Provide overhead stop or overhead stop/holder for interior doors as specified. Provide overhead stop for interior doors that swings more than 140° before striking a wall, open against equipment, casework, sidelights, and/or where conditions do not allow a wall stop or a floor stop presents a tripping hazard.
- 2. Where overhead holders are specified provide friction type at doors without a closer and positive type at doors with a closer.
- 3. Acceptable manufacturers:

Glynn Johnson		
90 Series		

H. Protection Plates:

- 1. Where bottom rail allows, furnish 10" high kick plates and 4" high mop plates.
- 2. Material: 0.050" thick stainless steel plates with four beveled edges.
- 3. Countersink screw heads.
- 4. Width:
 - a. 2" less door width on stop (push) side.
 - b. 1" less door width on stop (push) side of pairs of doors.
 - c. 1" less door width on face (pull) side.
- 5. Acceptable manufacturer and types:

Ives		
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8400		
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I. Door Stops:

1. Convex, wrought, wall stops. Where turn piece or push button on lock trim contacts stop, provide concave.
2. Furnish fastener suitable for wall condition.
3. Acceptable manufacturers and types:

Ives		
WS407		

J. Thresholds and Gasketing:

1. Thresholds:
 - a. Returned closed ends at openings where threshold extends beyond frame face.
 - b. Silicone inserts at panic type thresholds.
 - c. Acceptable manufacturers and types:

Type	Reese	National Guard	
ADA	S483	896	
Saddle	S205	512	

2. Gasketing:
 - a. Rigid jamb weatherstrip with replaceable neoprene insert.
 - b. Include self-adhesive 2-sided tape in addition to manufacturer's standard fastener.
 - c. Meeting-stile gasketing required at exterior pairs of doors and doors in smoke partitions.
 - d. Flexible adhesive fire/smoke gasketing at "S" labeled openings.
 - e. Acceptable manufacturers and types:

Type	Reese	National Guard	
Rigid	855	700	
Flexible	797	2525	

K. Silencers:

1. Grey rubber silencers with injector tool.
2. 3 silencers at single doors and 2 silencers at pairs.
3. Acceptable manufacturers and types:

Ives		
SR64		
SR65		

2.03 FINISHES

A. Conform to ANSI/BHMA A156.18.

1. Provide hardware finish per the hardware schedule
2. Generally, the finishes are to be satin/brushed chrome US26D/626, satin/brushed stainless steel US32D/630, or brushed aluminum US28/628.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify doors and frames are plumb, square, level, and true and free from defects that would prevent proper installation of finish hardware.
- B. Wash down masonry walls and complete painting and staining of doors and frames prior to installation of hardware.
- C. Complete finish flooring at doorways.
- D. Correct conditions that inhibit a proper installation before continuing with work.

3.02 INSTALLATION

- A. Install hardware in compliance with the DHI publication, Installation Guide for Doors and Hardware.
- B. Drill and countersink items not factory prepared for fasteners.
- C. Mount closers on room-side of corridor doors, inside of exterior doors, and stair-side of stairway doors. Mount

- closers at clean rooms and operating rooms opposite room side to eliminate shelf to collect dust and debris. Use necessary arms, brackets, spacers and plates to accommodate auxiliary hardware and special applications.
- D. Install fire door assemblies to maintain clearances at door edge to frame and meeting edge of pairs of doors in compliance with NFPA 80, providing 1/8" clearance at the hinge edge, lock edge, head and between pairs. Provide maximum 3/4" undercut at door bottom. Where panic thresholds are used, undercut door to allow 1/8" clearance between door and threshold.
 - E. Trim, cut, and notch thresholds and saddles neatly to minimally fit the profile of the door frame. Set thresholds in bed of mastic sealant, forming tight seal between threshold and surface to which set.
 - F. Use only fasteners furnished by manufacturer for installation as recommended by manufacturer.
 - G. Install blocking material for all wall mounted door stops at height appropriate to contact door trim.
 - H. Install weather-strip prior to installation of door closers and exit devices. Do not cut or notch weather-strip.

3.03 FIELD QUALITY CONTROL

- A. Verify doors open and close smoothly without rubbing or catching and have positive latching where scheduled. Verify fire rated doors are installed with clearances in compliance with NFPA 80.

3.04 ADJUSTING AND CLEANING

- A. Upon substantial completion, make final adjustments to door closers and other items of hardware after balance of heating and ventilating equipment to ensure doors close and latch properly.
- B. Clean and polish all exposed hardware surfaces in accordance with manufacturer's recommended procedures.
- C. Clean or repair pencil or tool marks from adjacent surfaces damaged or soiled by work of this Section.
- D. Recycle cardboard boxes and paper products used in packaging and transport of finish hardware.

3.05 PROTECTION

- A. Remove hardware prior to painting or finishing door and frame. Wrap or mask exposed hardware that cannot be removed until date of substantial completion to avoid exposure to paint, solvents, and abuse.
- B. Repair or replace hardware damaged during construction at least two (2) weeks prior to date of substantial completion.

3.06 SCHEDULES

- A. Should items of hardware not definitely specified be required for completion of the Work, furnish such items of type and quality comparable to adjacent hardware and appropriate for service required.
- B. Where items of hardware aren't definitely or correctly specified, are required for completion of the Work, a written statement of such omission, error, or other discrepancy to Architect, prior to date specified for receipt of bids for clarification by addendum; or, furnish such items in the type and quality established by this specification, and appropriate to the service intended.

3.07 HARDWARE SETS

Hardware Set #1		DOOR #001 & #002	
3 EACH	HINGES	5BB1 4.5 X 4.5 NRP	652 IVE
1 EACH	PANIC HARDWARE	24-R-EO	630 FAL
1 EACH	CORE	C607	626 FAL
1 EACH	CLOSER	SC 71A SS	689 FAL
1 EACH	OH STOP	105SE	630 GYN
1 EACH	THRESHOLD	655A-223	719 ZERO
1 EACH	WEATHERSTRIPPING	SUPPLIED BY DOOR SUPPLIER	
1 EACH	SWEEP	323C	REE
1 EACH	DRIP CAP	R201A	REE

Operational Description: Doors normally closed and locked. Entrance by key only. Inside panic hardware always

unlocked for immediate egress.

Hardware Set #2

DOOR #003

3 EACH	HINGES	5BB1 4.5 X 4.5 NRP	652	IVE
1 EACH	PANIC HARDWARE	24-R-EO	630	FAL
1 EACH	CORE	C607	626	FAL
1 EACH	CLOSER	SC 71A SS	689	FAL
1 EACH	OH STOP	105SE	630	GYN
1 EACH	THRESHOLD	655A-223	719	ZERO
1 EACH	WEATHERSTRIPPING	SUPPLIED BY DOOR SUPPLIER		
1 EACH	SWEEP	323C		REE
1 EACH	DRIP CAP	R201A		REE

Operational Description: Doors always locked outside with no lever hardware to get in. Inside panic hardware always unlocked for immediate egress.

Hardware Set #3

DOOR #004 (PAIR)

4 EACH	HINGES	5BB1 NEP 4.5"X4.5"	630	IVE
2 EACH	PANIC HARDWARE	24-R-EO (3 HR RATING)	630	FAL
2 EACH	CLOSER	SC 71A	689	FAL
2 EACH	OH STOP	90 SERIES	630	GLY
2 EACH	SMOKE SEAL			

Operational Description: Passage set, no locking. Free egress any time. Turn lever hardware and panic hardware always unlocked.

Hardware Set #4

DOOR #005

3 EACH	HINGES	5BB1 4.5 X 4.5	652	IVE
1 EACH	ENTRY/OFFICE	F109 K SERIES	626	FAL
1 EACH	CORE	C607	626	FAL
1 EACH	WALL STOP	WS407 CVX	630	IVE
3 EACH	SILENCERS	SR64	GRY	IVE

Operational Description: Locking by turn button or key on outside. Entrance is by key only. Inside lever is always free for immediate egress.

Hardware Set #5

DOOR #006

3 EACH	HINGES	5BB1 4.5 X 4.5	652	IVE
1 EACH	PASSAGE LATCHSET	F75 K SERIES	626	FAL
3 each	SILENCERS	SR64	GRY	IVE
1 EACH	WALL STOP	WS407 CVX	630	IVE

Operational Description: No locking, latchset to be passage. Immediate egress any time.

Hardware Set #6

DOOR #007

3 EACH	HINGES	5BB1 4.5 X 4.5	652	IVE
1 EACH	BATH/PRIVACY LOCKSET	F76 K SERIES	626	FAL
1 EACH	WALL STOP	WS407CCV	630	IVE
3 EACH	SILENCER	SR64	GRY	IVE

Operational Description: Inside lever with push button locks outside lever. Rotating inside lever unlocks push button. Inside lever always free for emergency egress.

Hardware Set #7

DOOR #008

3 EACH	HINGES	5BB1 4.5 X 4.5 NRP	652	IVE
1 EACH	STOREROOM LOCKSET	F86 K SERIES	626	FAL
1 EACH	CORE	C607	626	FAL
1 EACH	CLOSER	SC 71A SS	689	FAL
1 EACH	OH STOP	105SE	630	IVE
3 EACH	SILENCER	SR64	GRY	GLY
1 EACH	GASKETING	481 SBK	BLK	ZERO

Operational Description: Outside lever fixed. Entrance by key only. Inside lever always unlocked for immediate egress.

END OF SECTION 08 71 00

SECTION 09 21 16

GYPSUM BOARD

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. Non-load bearing interior stud framing for drywall.
 - 2. Gypsum wallboard and joint systems.
 - 3. Mold and moisture resistant gypsum boards.
 - 4. Very high impact boards.
 - 5. Cement board as called out on the drawings.
 - 6. Reglets, reveals and trim as called out on the drawings.
- B. Related work specified in other sections:
 - 1. Section 07 21 00 - Insulation
 - 2. Section 07 92 00 - Sealants and Caulking
 - 3. Section 09 90 00 - Painting

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
 - 1. UL listings for gypsum board partitions for proposed products.
 - 2. UL listings for shaft wall assemblies proposed.
 - 3. Samples of mold and moisture resistant gypsum board.
 - 4. Samples of gypsum tile backer board.

1.04 QUALITY ASSURANCE

- A. Referenced Specifications: Current Gypsum Associates publications (www.gypsum.org).

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery and Handling
 - 1. Deliver materials to the project site with manufacturer's labels intact and legible.
 - 2. Handle materials with care to prevent damage.
 - 3. Deliver fire-rated materials bearing testing agency label and required fire classification numbers.
 - 4. The plastic packaging used to wrap gypsum panel products for shipment is intended to provide temporary protection from moisture exposure during transit only and is not intended to provide protection during storage after delivery. Such plastic packaging shall be removed immediately upon receipt of the shipment.
 - a. Failure to remove protective plastic shipping covers can result in condensation which can lead to damage, including mold.

B. Storage

1. Store materials inside under cover, stack flat, properly supported on a level surface, all in same direction, off of floor. Gypsum panel products to be fully protected from weather, direct sunlight exposure and condensation.
2. Avoid overloading floor system
3. Store adhesives in dry area; provide protection against freezing at all times.

1.06 JOB CONDITIONS

A. Environmental Conditions

1. Do not install gypsum board products at temperatures below 40°F for mechanical installation and 50°F for adhesive installation, unless approved by manufacturer.
2. Measure temperature and humidity on a daily basis during taping operations. Re-application of taping compound shall not occur sooner than shown on the table in Gypsum Association Brochure GA-236.
3. Temperature: During cold weather, in areas receiving wallboard installation, maintain temperature range between 55° F to 90° F for 48 hours before, and during gypsum board and joint treatment application. Maintain specified temperature range until joint treatment is completely dry.
4. Ventilation
 - a. Provide ventilation during and following adhesives and joint treatment applications.
 - b. Use temporary air circulators in enclosed areas lacking natural ventilation.
 - c. Under slow drying conditions, allow additional drying time between coats of joint treatment.
 - d. Protect installed materials from drafts during hot, dry weather.

B. Protect adjacent surfaces against damage and stains.

1.07 JOB COORDINATION

- A. Coordinate Work with installation of metal framing and electrical work.
- B. Coordinate framing and blocking for wall mounted accessories with Section 06 10 00.

PART 2 PRODUCTS

2.01 PANELS, GENERAL

- A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.
- B. General: Complying with ASTM C 36/C 36 M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.
- C. Panel Schedule:
 1. Regular type:
 - a. All non-rated panels, unless noted otherwise
 2. Type X or C:
 - a. As required to meet fire-resistant rated assemblies
 3. Mold and Moisture Resistant:
 - a. All panels installed at the interior face of exterior walls
 - b. All panels located in spaces where the presence of moisture is likely, including but not limited to rooms with sinks
 - c. At locations indicated on drawings

2.02 GYPSUM BOARD

- A. Basis of Bid: products of USG, Sheetrock® Brand, Ultralight Panels, Firecode® 30, and Firecode® X as required or shown, in thicknesses shown; lightweight, engineered composite design.
 1. Products of other gypsum wallboard manufacturers are acceptable, including National Gypsum, Certainteed, American Gypsum, Georgia-Pacific, provided they meet the intent of the specifications.
- B. Standard:
 1. Panel Physical Characteristics.
 - a. Core: Regular

- b. Surface Paper: 100% recycled content paper on front, back and long edges.
 - c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
 - d. Thickness: As noted on drawings.
 - e. Panel shall comply with requirements of ASTM C 1396 Standard Specification for Gypsum Board.
- C. Very High Impact:
 - 1. Panel Physical Characteristics.
 - a. Core: Moisture and fire-resistant rated at Type X
 - b. Meets ASTM C1629 Level 3 for hard- and soft-body impact
 - c. Surface Paper: 100% recycled content paper on front, back and long edges.
 - d. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
 - e. Thickness: 5/8"
 - f. Panel shall comply with requirements of ASTM C 1396 Standard Specification for Gypsum Board.
- D. Fire-Resistance Rated:
 - 1. Type X, Panel Physical Characteristics
 - a. Core: Fire-resistant rated gypsum core.
 - b. Surface Paper: 100% recycled content paper on front, back and long edges.
 - c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
 - d. Thickness: 5/8"
 - e. Panel shall comply with Type X requirements of ASTM C 1396 Standard Specification for Gypsum Board.
 - 2. Type C, Panel Physical Characteristics:
 - a. Core: Fire-resistant rated gypsum core.
 - b. Surface Paper: 100% recycled content paper on front, back and long edges.
 - c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
 - d. Thickness: 1/2"
 - e. Panel shall comply with Type C requirements of ASTM C 1396 Standard Specification for Gypsum Board.
- E. Mold and Moisture Resistant:
 - 1. Panel Physical Characteristics
 - a. Core: Moisture resistant (moisture and fire-resistant rated at Type X).
 - b. Surface Paper: Coated fiberglass mat on face, back and long edges.
 - c. Long Edges: Tapered; square edge acceptable at areas with Level 1 finish.
 - d. Thickness: As noted on drawings. (5/8" at fire-resistant applications)
 - e. Humidified Deflection: Not more than 1/4" when tested in accordance with ASTM C473 and C1658.
 - f. Water Absorption: Less than 5% of weight when tested in accordance with ASTM C630, C1396 and C1658.
 - g. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273

2.03 ACCESSORIES

- A. Trim: ASTM C 1047.
 - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc.
 - 2. Shapes:
 - a. Cornerbead.
 - b. L-C Bead: J-shaped; exposed long flange receives joint compound.
 - c. L-Bead: L-shaped: exposed long flange receives joint compound.
 - d. Off-angle or splayed cornerbead.
 - e. V-shaped Control Joint protected with plastic tape.
- B. Acoustical sealant: As specified in Section 07 92 00 – Sealants.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112" thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
 - 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR, 59, Subpart D (EPA Method 24).
- E. Sound Batt Insulation and Rigid Wall Insulation: Conform to requirements of Section 07 21 00.

- F. Joint Treatment Materials:
 - 1. General: Comply with ASTM C 475/C 475M.
 - 2. Joint Tape:
 - a. Interior Gypsum Wallboard: 2 1/16" wide paper reinforcing tape.
 - b. Glass-Mat Gypsum Wallboard: 2" wide self-adhering fiberglass tape.
 - c. Tile Backing Panels: As recommended by panel manufacturer.
 - 3. Joint Compound for Interior Gypsum Wallboard: Drying type pre-mixed vinyl base compound and/or drying type pre-mixed vinyl base topping compound.
- G. Joint compound for glass-mat gypsum wallboard: As recommended by wallboard manufacturer.
- H. Control Joints: USG No. 093.
- I. Outside Corner Reinforcement: USG No. (101-1" x 1"), (103-1-1/2" x 1-1/2"), (104-1 1/8" x 1 1/8") corner beads.
- J. Isolation Hangers: Kinetics Noise Control Model ICC (phone: 614-889-0480) or Mason-Mercer Model W30 (phone: 631-348-0282).
- K. Drywall Finishing Accessories
 - 1. Joint Compound: Ready mixed type.
 - 2. Joint Reinforcement for Drywall: USG Perf-A-Tape.
 - 3. Joint Reinforcement for Tackwall: Fiberglass joint tape.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates to which gypsum board construction attaches or abuts, installed hollow metal frames, cast-in anchors and structural framing with installer present for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board assemblies specified in this section.
 - 1. Do not proceed with installation until satisfactory conditions have been corrected.

3.02 APPLICATION OF GYPSUM BOARD

- A. Install the following gypsum board types as follows:
 - 1. Regular type: All non-rated areas unless noted differently below.
 - 2. Type X or C: As required to meet fire-resistant rated assemblies.
 - 3. Mold and Moisture Resistant: All gypsum board on the interior face of an insulated stud exterior wall. (Note: Gypsum Board on furred masonry walls can be regular type.)
- B. Gypsum Board Application and Finishing Standards: Comply with ASTM C 480 and GA-216.
- C. Install sound attenuation insulation blankets where indicated, prior to gypsum board, unless readily installed after board has been installed on one side.
- D. Single-Layer Application: Install gypsum wallboard as follows:
 - 1. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24" in alternate courses of board.
 - 2. On partitions/walls apply gypsum board vertically (parallel to framing), unless otherwise indicated or required by fire resistance rated assembly, and provide sheet lengths which will minimize end joints.
 - a. On partitions/walls 8'-1" or less in height, apply gypsum board horizontally (perpendicular to framing); use maximum length sheets possible to minimize end joints.
 - b. At stairwells and other high walls, install gypsum board horizontal, unless otherwise indicated or required for fire resistance rating.
- E. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for light at edges and ends with not more than 1/16" open space between boards. Do not force into place.
- F. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints.
 - 1. Position boards so like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends.
 - 2. Do not place tapered edges against cut edges or ends.
 - 3. Gypsum panel product joints shall be located so that no joint will align with the edge of an opening unless

- control joints are to be installed at these locations.
- 4. Joints on opposite sides of a partition shall not occur on the same stud.
- 5. In single layer gypsum panel products systems, end joints parallel to and on the same side of framing members shall be staggered between alternate courses of gypsum panel products and from joints on the opposite side of the framing members.
- 6. In multi-layer gypsum panel product systems, end joints parallel to and on the same side of framing members shall be staggered between alternate courses of gypsum panel products.
- 7. Base layer end joints parallel to and on 1 side of framing shall be staggered from base layer end joints on the opposite side of the framing members.
- 8. Install ceiling boards across framing in manner to minimize end-butt joints, and avoid end joints in central area of each ceiling. Stagger end joints at least 24".
- G. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32" wide except where full grout is shown. Apply spot grout at each jamb anchor clip just before inserting board into frame.
- H. Form control joints and expansion joints at locations indicated or as recommended, with space between edges of boards, prepared to receive trim accessories.
 - 1. Where a control joints occurs in an acoustical or fire-rated system, blocking shall be provide behind the control joint by using a backing material such as 5/8" type X gypsum panel product, or other tested equivalent.
- I. Cover both faces of metal stud partition framing with gypsum board in concealed spaces (above ceiling, etc.), except in chase walls which are braced internally.
 - 1. Except where concealed application is indicated or required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq.ft. area, and may be limited to not less than 75% of full coverage.
 - 2. Fit gypsum board around ducts, pipes and conduits.
- J. Isolate perimeters of non-load-bearing drywall partitions at structural abutments. Provide 1/4" to 1/2" space to accept trim edge.
- K. Where STC-rated gypsum board assemblies are indicated or drawings indicate acoustical sealant, conform to requirements of Section 07 92 00 – Sealants.
- L. Gypsum panel products applied to walls shall be applied with the bottom edge spaced a minimum of 1/8" and maximum of 1/4" above the floor.
- M. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.03 METHODS OF GYPSUM BOARD FASTENING

- A. Fastener lengths shall be at least 1 1/8" long for 1/2" gypsum panels and 1 1/4" long for 5/8" gypsum panels used for metal framing.
- B. Screws shall be spaced not more than 12" o.c. for ceilings and 16" o.c. for walls where the framing members are 16" o.c. Screws shall be spaced not more than 12" o.c. for both ceilings and walls where framing members are 24" o.c.
- C. Fasteners at gypsum panel product edges or ends shall be located not less than 3/8" from the edge or end. Fasteners at edges or ends in a perpendicular application shall be located not more than 1" from the edge or end. Perimeter attachment into partition top and bottom plates is neither required nor recommended except where fire ratings, structural performance requirements, or other special conditions require such attachment.
- D. While driving fasteners, gypsum panel products shall be held in firm contact with framing members or underlaying support. Application of fasteners shall proceed from the center or field of the gypsum panel product toward the ends and edges, or shall begin along 1 edge and proceed toward the other edge.
- E. To provide a more flat surface at joints, attach gypsum board to steel studs so leading edge or end of each board is attached to open (unsupported) edge of stud flanges first.
- F. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.
- G. Screws shall be driven so that screw heads are slightly below the gypsum panel product surface without breaking the face paper, fracturing the core, or stripping the framing member around the screw shank.
- H. Double-Layer and Triple-Layer Fastening Methods: Apply base layer of gypsum board and face layer to base layer as follows:

1. Fasten base layer(s) with screws and face layer with adhesive and supplementary fasteners, except where otherwise required for fire-resistance rated assemblies.

3.04 INSTALLATION OF DRYWALL TRIM ACCESSORIES

- A. General: Where feasible, use same fasteners to anchor trim accessory flanges as required to fasten gypsum board to supports. Otherwise, fasten flanges to comply with manufacturer's recommendations.
- B. Install corner beads at external corners.
- C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed. Provide type with face flange to receive joint compound except where "U" bead (semi-finishing type) is indicated.
 1. Install "J" bead where drywall construction is tightly butted to other construction and back flange can be attached to framing or supporting substrate.
 2. Install "L" bead where edge trim can only be installed after gypsum board is installed.
- D. Install control joints at locations as follows:
 1. At ceilings, 50'-0" o.c. each way maximum and/or where shown on drawings. At corners and at tee intersections of soffits that change directions.
 2. At walls, 30'-0" o.c. maximum, and/or where shown on drawings.
 3. Full height door frames shall be considered equivalent to a control joint.
- E. Install reveals at locations indicated.

3.05 FINISHING OF GYPSUM WALL BOARD

- A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
- B. Prefill open joints using setting-type joint compound.
- C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
- D. Glass-Mat Water Resistant Backer Board: Comply with glass mat backer board manufacturer's recommendations.
- E. Water or additive shall not be added to joint compound unless recommended by manufacturer. See quality assurance for application temperature and drying times.
- F. Levels of Gypsum Board Finishing per Gypsum Association GA-214 and as noted herein:
 1. Level 1/Fire Taping: All joints and interior angles shall have tape set in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. Tape and fasteners need not be covered.
 - a. For use in plenum areas above ceilings, gypsum board not scheduled for paint or wallcovering, gypsum board concealed from view in the finished work, except as noted in level 2.
 2. Level 2: Not Used
 3. Level 3: All joints and interior angles shall have tape embedded in joint compound and 1 additional coat of joint compound applied over all joints and interior angles. Fastener heads and accessories shall be covered with 2 separate coats of joint compound. All joint compound shall be smooth and free to tool marks and ridges.
 - a. For use on surfaces of mechanical and electrical spaces scheduled to receive paint.
 4. Level 4: All joints and interior angles shall have tape embedded in joint compound and 2 separate coats of joint compound applied over all flat joints and 1 separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with 3 separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. When necessary, sand between coats and following final coat to provide smooth surface ready for decoration.
 - a. For use on all walls scheduled for paint or wallcovering except those areas noted under Level 3 and 5.

3.06 FINISHING ADJUSTMENT

- A. Screw Pop
 1. Repair nail pop by driving new screw approximately 1-1/2" away and reseal screw.
 2. When face paper is punctured drive new screw approximately 1-1/2" from defective fastening and remove defective fastening.

3. Fill damaged surface with compound in coats specified by required finish level.
- B. Ridging
 1. Sand ridges to reinforcing tape without cutting through tape.
 2. Fill concave areas on both sides of ridge with topping compound.
 3. After fill is dry, blend in topping compound over repaired area.
- C. Fill cracks with compound and finish smooth and flush.

3.07 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.
- B. Protect installed products from damage from weather, condensation, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, or mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 21 16

SECTION 09 90 00

PAINTING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. Field finish all materials scheduled and/or specified for paint, trim, stain or seal. Including but not limited to:
 - a. Steel
 - b. Galvanized metal
 - c. Gypsum board
 - d. Diffusers and louvers in gyp shall match adjacent color
 - e. Access panels
- B. Related work specified in other sections:
 - 1. Section 03 30 00 – Cast-In-Place Concrete
 - 2. Section 07 92 00 – Sealants and Caulking
 - 3. Section 08 31 00 – Access Doors and Panels
 - 4. Section 09 21 16 – Gypsum Board
 - 5. Section 13 34 18 – Post Frame Building Systems
 - 6. Division 22 – Plumbing General Provisions
 - 7. Division 23 – Mechanical General Provisions

1.03 REFERENCES

- A. Latest Editions, or whichever is more stringent, shall govern:
 - 1. Green Seal GS-11, 1993
 - 2. Green Seal GC-03, 2nd Edition, 1997
 - 3. SCAQMD Rule 1113, 2004
 - 4. ASTM D6886

1.04 SUBMITTALS

- A. Provide 3 copies of a schedule detailing each substrate in the same order as the schedules used in Part 2 of this section. Include the following:
 - 1. The specific products to be used for each coat.
 - 2. Documentation that the manufacturer has reviewed and approved each painting system.
 - 3. Data pages for all products listed, highlight the following:
 - a. Type of resin.
 - b. Dry Film Thickness.
 - c. Volume Solids.
 - d. Units of Sheen.
 - e. VOC content and chemical components.
 - f. Other performance or descriptive data required by Part 2 of this section.

- g. If this information is not on the data page provide the information in a letter of certification from the manufacturer. Attach the letter to the appropriate data page.
- B. Submit 3 drawdowns of each product and color combination. Drawdowns shall be applied using a 4 mil WFT drawdown bar on Leneta form WD plain white coated cards size 3-7/8" x 6".
 - 1. Label each card with the following:
 - a. Job name.
 - b. Date.
 - c. Product name.
 - d. Product number.
 - e. Color number as stated in the material finish/color schedule.
 - f. Name, address, and phone number of the supplying facility.
 - g. Surface material product is to be applied onto.
- C. Do not deliver material to site until having received written approval of submitted information and samples.
- D. Complete sample area on project as selected by Architect on each type surface and with each type of paint system specified. Do not proceed further with application until receiving acceptance of each sample area by Architect. Accepted areas will serve as standard of quality for entire project.

1.05 EXAMINATION OF DOCUMENTS

- A. Examine the specifications for the work of other trade contractors and to become familiar with their work. All surfaces that are left unfinished by the requirements of other specifications to be finished by this section.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use, in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45° F.
 - 1. Maintain containers in clean condition, free for foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.07 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50° and 95° F.
- B. Do not apply paints when relative humidity exceeds 85%; at temperatures less than 5° F above the dew point; or to damp or wet surfaces.
- C. Do not apply coatings during cold, rainy or frosty weather.
- D. Do not apply to surfaces, which are exposed to hot sun.

1.08 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with Master Painter's Institute (MPI) standards indicated and listed in "MPI Approved Products List."
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
 - 3. Previously Painted Surface Preparation and Workmanship: Comply with requirements in "MPI Maintenance and Repainting Manual" for products and paint system indicated.

PART 2 PRODUCTS

2.01 PAINTING SYSTEMS

- A. Painting systems for normal applications are specified using the products of Sherwin-Williams Co. (S-W). All construction materials shall be painted according to the following guidelines as scheduled, implied by material type, or as otherwise indicated, unless noted otherwise.

- B. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, as determined by ASTM D6886 using 280C as boiling point. Alternatively, ISO 11890-Part 2 may be used, using 280C as boiling point.; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
- | | |
|----------------------------------|---------------------------------------|
| 1. Flat Paints and Coatings: | VOC content of not more than 50 g/L. |
| 2. Non-flat Paints and Coatings: | VOC content of not more than 100 g/L. |
| 3. Primers and Undercoats: | VOC content of not more than 100 g/L. |
| 4. Floors: | VOC content of not more than 100 g/L. |
| 5. Anti-Corrosive: | VOC content of not more than 250 g/L. |
- C. Color selection by Owner.
- D. Chemical Components of Field-Applied Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0% by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 2. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein
 - b. Acrylonitrile
 - c. Antimony
 - d. Benzene
 - e. Butyl benzyl phthalate
 - f. Cadmium
 - g. Di (2-ethylhexyl) phthalate
 - h. Di-n-butyl phthalate
 - i. Di-n-octyl phthalate
 - j. 1,2-dichlorobenzene
 - k. Diethyl phthalate
 - l. Dimethyl phthalate
 - m. Ethylbenzene
 - n. Formaldehyde
 - o. Hexavalent chromium
 - p. Isophorone
 - q. Lead
 - r. Mercury
 - s. Methyl ethyl ketone
 - t. Methyl isobutyl ketone
 - u. Methylene chloride
 - v. Naphthalene
 - w. Toluene (methylbenzene)
 - x. 1,1,1-trichloroethane
 - y. Vinyl chloride

2.02 PRIMERS (INTERIOR AND EXTERIOR)

- A. Rust Inhibitive, Waterborne, Acrylic Primer:
1. Minimum Volume Solids: 46%.
 2. Maximum VOC: See References 1.03
 - a. S-W DTM Acrylic Primer B66W1.
- B. 100% Acrylic, Interior Alkali Resistant Primer:
1. Minimum Volume Solids: 35%.
 2. Maximum VOC: See References 1.03
 3. Alkali Resistance: Tolerance of PH levels up to 13.
 - a. S-W A24W8300 Loxon Acrylic Masonry Primer.
- C. 100% Acrylic Interior Primer:
1. Shall be certifiable for use on gypsum drywall or wood, and paint.
 2. Minimum Volume Solids: 37%.
 3. Maximum VOC: See References 1.03

- a. S-W B28W02600 Pro Mar 200 Zero.

2.03 EXTERIOR FINISH PAINTS

- A. 100% Acrylic Exterior Satin Coating:
 - 1. Minimum Volume Solids: 29%.
 - 2. Maximum VOC: See References 1.03
 - 3. Sheen: satin sheen
 - a. S-W A-100 Exterior Latex Satin A82 series.
- B. Non-blocking, 100% Acrylic Exterior Gloss Coating:
 - 1. Minimum Volume Solids: 37%.
 - 2. Maximum VOC: See References 1.03
 - 3. Sheen: satin sheen
 - a. S-W SuperPaint Exterior Latex Gloss Enamel A84 Series.
- C. Zinc-coated Metals – Doors and Frames
 - 1. Minimum Volume Solids: 35%
 - 2. Maximum VOC: See References 1.03
 - 3. Sheen: satin sheen
 - a. S-W Pro Industrial B66W651

2.04 INTERIOR FINISHES

- A. Vinyl Acrylic Interior Eggshell Finish:
 - 1. Minimum Volume Solids: 35%.
 - 2. Maximum VOC: See References 1.03
 - a. S-W B20-2600 ProMar 200 Zero
- B. Vinyl Acrylic Interior Flat Finish:
 - 1. Minimum Volume Solids: 32%.
 - 2. Maximum VOC: See References 1.03
 - 3. Sheen: flat
 - a. S-W B30W02651 ProMar 200 Zero
- C. 100%, Acrylic, Interior Gloss Coating:
 - 1. Minimum Volume Solids: 34%.
 - 2. Maximum VOC: See References 1.03
 - 3. Sheen: gloss
 - a. S-W Pro Industrial 0 VOC Acrylic Gloss, B66-600 Series
- D. 100% Acrylic, Waterborne Eggshell Dryfall:
 - 1. Minimum Volume Solids: 30%.
 - 2. Maximum VOC: See References 1.03
 - 3. Sheen: eggshell
 - a. S-W Waterborne Acrylic Dryfall B42W2
- E. Acrylic Primer/Finish:
 - 1. Minimum Volume Solids: 39%
 - 2. Maximum VOC: See References 1.03
 - 3. Sheen: flat
 - a. S-W DTM Acrylic Primer/Finish B66W00011
- F. 2-component, Semi-Gloss Waterbased Catalyzed Epoxy:
 - 1. Minimum Volume Solids: 38% (catalyzed).
 - 2. Maximum VOC: See References 1.03
 - 3. Sheen 20-50 units at 60°.
 - a. S-W B60V00025 Waterbased Catalyzed Epoxy.
- G. Wood- Transparent Finish:
 - 1. Maximum VOC: See References 1.03
 - 2. 1 coat: ICI Paints Wood Pride 1700 interior Solventborne Wood Finishing stain.
 - 3. 2 coats: ICI Paints Wood Pride 1902 interior polyurethane satin varnish.

2.05 EXTRA STOCK

- A. Provide left over paint with Owner for touch-up purposes. At completion of project, provide 1 complete set of drawdowns in each maintenance manual with a schedule noting the locations each paint color was used. Refer to Section 01 78 39.

PART 3 EXECUTION

3.01 EXAMINATION OF SURFACES

- A. General
 - 1. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
 - 2. Do not start work until preparation specified in surface Section is completed.
 - 3. Ensure surfaces are dry and adequately protected from dampness.
 - 4. Thoroughly clean surfaces free of loose, rough and foreign substances which will affect adhesion or appearance of applied coats.
 - 5. Remove mildew and neutralize surface.
 - 6. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface applied protection before surface preparation and painting.
 - a. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - b. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 7. Complete repainting or refinishing will be required if coats are applied over improperly prepared surfaces.
- B. Gypsum Board:
 - 1. Fill minor irregularities with patching material and sand to smooth level surfaces taking care not to raise nap of paper.
 - 2. Previously painted gypsum wallboards must be completely dry, smooth-sanded, clean and free of dust, dirt, powdery residue, grease, oil, wax or any other contaminants such as flaking or peeling paint before paint application is started. Treat or remove all contaminants and correct defects. Dull glossy old paint by light sanding or with a commercial deglosser/cleaner to assure maximum adhesion of the new coating. Patch holes and cracks with a latex patching compound, sand smooth and spot prime with the paint or enamel to be used as the final coat.
- C. Formed Concrete
 - 1. Remove all traces of form oil.
 - 2. Do not paint until moisture content of surface is 12% or below except as may be required by paint manufacturer.
 - 3. Previously painted surfaces must be free of grease, oil, wax or any other contaminants and loose or flaking paint. Clean concrete of oil and grease with detergent, hot water and vigorous scrubbing. All loose and peeling paint must be scraped or sand blasted back to sound adhesion.
- D. Ferrous or Galvanized Metal
 - 1. Remove dirt and grease with mineral spirits or solvent recommended by paint manufacturer and clean cloths.
 - 2. If prime coat is not smooth, sand to bare metal, reprime. Touch up scratched or abraded primer.
 - 3. Previously painted metal must be dry, clean and free of contaminants. Hard and glossy surfaces are to be sanded lightly or dulled with deglosser/cleaner. Remove peeling, loose, chipped, and blistered paint and rust by scraping and sanding. Prime all sanded areas and areas devoid of paint with an all-purpose metal primer.
- E. Aluminum:
 - 1. Remove dirt and grease with mineral spirits or solvent recommended by paint manufacturer and clean cloths.
 - 2. All chipped, peeling or blistered paint must be removed by hand or power tool cleaning. Remove all oil, grease, dirt or other foreign materials. Remove excessive chalking or sanding. Remove any mildew present by scrubbing with detergent and bleach. Thoroughly clean surface with water prior to repainting.

3.02 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12%
 - 2. Wood: 15%
 - 3. Gypsum Board: 12%
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.
- E. Conditions
 - 1. Do no work when surface, coating product, air temperature, humidity or dew point does not meet requirements of PROJECT CONDITIONS in Part 1 of this specification.
 - 2. Do no interior work until building is properly enclosed.
 - 3. Do work under adequate illumination and dust-free conditions.

3.03 APPLICATION

- A. Methods: Paint may be applied by brush, roller or spray methods except where particular method will produce unsatisfactory results. Where spray method is used on concrete block, follow with roller to work paint into voids.
- B. Materials: Do not open containers until required for use. Stir materials thoroughly and keep at uniform consistency during application.
- C. Coats
 - 1. Number specified is a minimum. Provide sufficient number of coats to provide even, consistent, opaque coverage of substrate.
 - 2. Touch up suction spots between coats.
 - 3. Refinish surfaces affected by refitting work.
 - 4. Do not use tinted primer.
 - 5. Touch up suction and "hot" spots in plaster and concrete after application or first coat and before second coat.
 - 6. Do not apply next coat until previous is thoroughly dry.
 - 7. Provide final coat which is solid and even in color; free from runs, laps, sags, brush marks, air bubbles and excessive roller stipple and worked into crevices, joint and similar areas.
 - 8. Do not paint sealant/sealant joints.

3.04 SCHEDULE OF EXTERIOR WORK

- A. General: Do not paint prefinished aluminum, or sealant (unless scheduled to receive paint).
 - 1. New Work: Paint or finish all other new, unfinished, primed and factory painted surfaces, including all rooftop mechanical equipment, screen louvers, wall louvers (requiring finish to match adjacent surface), miscellaneous metals, steel lintels and prefinished metal copings (color to match brick) occurring in brick as detailed.
- B. Concrete:
 - 1. 1st Coat: 100% Acrylic Exterior Masonry Primer.
 - a. Minimum DFT: 8 mils.
 - 2. 2nd and 3rd Coat: 100% Acrylic Exterior Satin Coating.
 - a. Minimum DFT: 1.1 mils per coat.
- C. Zinc-coated Metal – Flashing, Decking, and Exposed Mechanical Including Rooftop Mechanical:
 - 1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer.
 - a. DFT: 2.5-5.0 mils.
 - 2. 2nd and 3rd Coat: 100% Acrylic Exterior Satin Coating.
 - a. Minimum DFT: 1.3 mils per coat.
- D. Zinc-coated Metal – Doors & Frames:
 - 1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer.
 - a. DFT: 2.5-5.0 mils.
 - 2. 2nd and 3rd Coat: Non-blocking, 100% Acrylic Exterior Gloss Coating.

- a. Minimum DFT: 1.3 mils per coat.
- E. Aluminum – Mill Finish (scheduled to be painted):
 - 1. 1st Coat: Rust-inhibitive Waterborne Acrylic Primer.
 - a. DFT: 2.5-5.0 mils.
 - 2. 2nd and 3rd Coat: Non-blocking, 100% Acrylic Exterior Gloss Coating.
 - a. Minimum DFT: 1.3 mils per coat.

3.05 SCHEDULE OF INTERIOR WORK

- A. General
 - 1. Paint all surfaces noted on drawings.
 - a. In rooms with surfaces not scheduled for paint hollow metal doors and frames, metal stairs and railings as occur.
 - 2. Provide specified finish on exposed surfaces including, but not limited to the following:
 - a. Prime coated mechanical units, piping, pipe covering, sprinkler piping, interior duct surfaces visible behind grilles, tanks without factory finish, radiation covers, cabinet unit heaters, exposed ductwork, louvers and grilles. Supply and return air grills and diffusers occurring in gypsum wallboard applications shall be painted to match adjacent paint color.
 - b. Electrical panel box covers and surface raceways (over factory finish), conduits and boxes and all factory primed electrical equipment.
 - c. Hollow metal doors and frames, stairs and railings, and safety mesh grilles, access panels, prime painted hardware, painted astragals, metal supports for counters and exposed miscellaneous metals.
 - 3. Do not paint sealant.
 - 4. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 5. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 6. Partition Identification
 - a. Place identification on all partitions indicated on Code Drawings as having a required fire or smoke rating.
 - b. Identification shall be as follows:
 - 1. Rating (i.e. 3 HR Fire Barrier Wall;): Same as indicated on Code Drawing Legend.
 - 2. Location: 10' on center, both sides of partitions, above ceiling line.
 - a. Place above panels in hard ceilings.
 - 3. Style of Lettering: 2" high, Helvetica style, painted with aid of stencils.
 - 4. Color: Red.
 - 7. Do not use tinted primer.
- B. Gypsum Drywall – Wall (not scheduled for epoxy):
 - 1. 1st Coat: 100% Acrylic Interior Primer.
 - a. Minimum DFT: 1.5 mils.
 - 2. 2nd and 3rd Coat: Vinyl Acrylic Interior Eggshell Finish.
 - a. Minimum DFT: 1.5 per coat.
- C. Gypsum Drywall – Ceilings (not scheduled for epoxy):
 - 1. 1st Coat: 100% Acrylic Interior Primer.
 - a. Minimum DFT: 1.5 mils.
 - 2. 2nd and 3rd Coat: Vinyl Acrylic Interior Flat Finish.
 - a. Minimum DFT: 1.4 per coat.
- D. Ferrous Metal (not scheduled for epoxy):
 - 1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer
 - a. DFT: 2.0-5.0 mils.
 - 2. 2nd and 3rd Coat: 100% Acrylic Interior Gloss Coating.
 - a. Minimum DFT: 1.3 mils per coat.
- E. Zinc-coated Metal:
 - 1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer
 - a. DFT: 2.0-5.0 mils.
 - 2. 2nd and 3rd Coat: 100% Acrylic Interior Gloss Coating.
 - a. Minimum DFT: 1.6 mils per coat.

- F. Aluminum – Mill Finish (not scheduled for epoxy):
 - 1. 1st Coat: 100% Acrylic Interior Gloss Coating.
 - a. Minimum DFT: 1.3 mils.
 - 2. 2nd Coat: 100% Acrylic Interior Gloss Coating.
 - a. Minimum DFT: 1.3 mils.
- G. Exposed Overhead Work:
 - 1. Touch-up: Rust-inhibitive Waterborne Acrylic Primer.
 - a. DFT: 2.0-5.0 mils.
 - 2. 2nd Coat: 100% Acrylic, Waterborne Eg-shel Dryfall.
 - a. DFT: 2.1-4.5 mils.
- H. Gypsum Drywall – Walls (scheduled to receive epoxy):
 - 1. 1st Coat: 100% Acrylic Interior Primer.
 - a. Minimum DFT: 1.5 mils.
 - 2. 2nd and 3rd Coat: 2-component, Semi-Gloss Waterbased Catalyzed Epoxy.
 - a. DFT: 2.0-3.0 mils per coat.
- I. Ferrous Metal (scheduled to receive epoxy):
 - 1. 1st Coat: Rust Inhibitive, Universal, Metal Primer.
 - a. DFT: 2.0-4.0 mils.
 - 2. 2nd and 3rd Coat: 2-component Polyamide Epoxy.
 - a. DFT: 2.0-4.0 mils per coat.
- J. Wood- Transparent Finish:
 - 1. 1st coat: Wood Finishing stain.
 - 2. 2nd and 3rd coats: Interior polyurethane satin varnish.

3.06 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.07 FIELD QUALITY CONTROL

- A. Testing and Painting Application: Owner reserves the right to test DFT of painted surfaces.
 - 1. If testing discovers that DFT of installed paint does not meet specification, the Contractor will pay for initial and final testing and recoat surfaces until testing agency confirms specification is met.

END OF SECTION 09 90 00

SECTION 10 20 00

INTERIOR SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 0 and 1 Specification Sections, apply to work specified in this section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by one shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in one location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.2 SUMMARY

- A. Section includes:
 - 1. Furnishing and/or installing items indicated on drawings or identified herein as Contractor Furnished Contractor Installed (CFCI) and Owner Furnished Contractor Installed (OFCI).
 - 2. Contractor shall be responsible for coordinating the complete installation of OFCI items including appropriate fasteners, substrate preparation, and blocking.
 - 3. Contractor shall provide blocking, make all necessary substrate preparations, and coordinate with Owner, Owner's vendors, and Owner's equipment suppliers as required to facilitate installation of Owner Furnished Owner Installed (OFOI) items.
- B. Related work specified in other sections:
 - 1. Section 06 10 00 - Blocking
 - 2. Division 26 00 00 – Electrical General Provisions
 - 3. Division 27 00 00 – Communications General Provisions
 - 4. Division 28 00 00 - Electronic General Provisions

1.3 DEFINITIONS

- A. NIC: Not In Contract indicates items that are provided by Owner or entity that is not part of this Contract.
- B. BO: By Others indicates items that are provided by Owner or entity that is not part of this Contract.
- C. CFCI: Indicates items that are Contractor Furnished and Contractor Installed.
- D. OFOI: Indicates items that are Owner Furnished and Owner Installed. Contract.
- E. OFCI: Indicates items that are Owner Furnished and Contractor Installed.

1.4 SUBMITTALS

- A. Brochure: Submit brochure and schedule of materials in accordance with Section 01 33 00.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver items in manufacturer's original unopened protective packaging.
- B. Store materials in original protective packaging to prevent soiling, physical damage, or wetting.
- C. Handle so as to prevent damage to finished surfaces.
- D. Protection:
 - 1. Maintain protective covers on all units until installation is complete.
 - 2. Remove protective covers at final clean-up of installation.

PART 2 - PRODUCTS

2.1 ACCESSORIES

A. Interior Specialties:

1. Contractor Furnished Contractor Installed (CFCI) items include, but are not necessarily limited to:
 - a. Mop Holder - supplied and installed by this Contract
 - 1) Manufacturer: Rubbermaid
 - 2) Color: Gray
 - 3) Model No.: FG199300

PART 3 - EXECUTION

3.1 INSPECTION

- A. Check opening scheduled to receive recessed units for correct dimensions, plumbness of blocking or frames, preparation that would affect installation of accessories.
- B. Check areas to receive surface mounted units for conditions that would affect quality and execution of work.
- C. Verify spacing of plumbing fixtures and toilet partitions that affect installation of accessories.
- D. Coordinate blocking requirements with Section 06 10 00, prior to enclosure of walls.
- E. Do not begin installation of washroom accessories until openings and surfaces are acceptable.

3.2 INSTALLATION

- A. Drill holes according to manufacturer's mounting templates or printed instructions.
- B. Mount recessed accessories into wall openings with wood screws through cabinet side into wood blocking, or sheet metal screws into metal frames.
- C. Mount surface mounted accessories to back up with toggle bolts, plumb and align.

3.3 ADJUST AND CLEAN

- A. Adjust accessories for proper operation.
- B. After completion of installation, clean and polish all exposed surfaces.
- C. Deliver instruction sheets to Owner's Representative.

END OF SECTION 10 20 00

SECTION 10 28 13
TOILET ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 0 and 1 Specification Sections, apply to work specified in this section.

1.2 SUMMARY

- A. Section includes:
 - 1. Toilet accessories where shown on the Drawings and specified herein.
 - 2. Items provided by Owner and installed by Contractor
- B. Related work specified in other sections:
 - 1. Section 06 10 00 - Blocking
 - 2. Section 08 80 00 - Glazing

1.3 SUBMITTALS

- A. Brochure: Submit brochure and schedule of materials in accordance with Section 01 33 00.
- B. Submit a sample of each item dispensed by each type dispensing accessory machine or accessory to Construction Manager.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver items in manufacturer's original unopened protective packaging.
- B. Store materials in original protective packaging to prevent soiling, physical damage, or wetting.
- C. Handle so as to prevent damage to finished surfaces.
- D. Protection:
 - 1. Maintain protective covers on all units until installation is complete.
 - 2. Remove protective covers at final clean-up of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Products by Bobrick and Bradley are specified. All units and trim shall be stainless steel, #4 finish.
- B. Comparable products by other manufacturers will be considered prior to Bid according to Section 01 25 00 - Substitutions and Product Options.

2.2 ACCESSORIES

- A. Grab Bars (Field verify sizes) - supplied and installed by this Contract
 - 1. G.B. No. 1: Bobrick B-6806 x 18"
 - 2. G.B. No. 2: Bobrick B-6806 x 36"
 - 3. G.B. No. 3: Bobrick B-6806 x 42"
- B. Toilet Paper Dispensers - supplied and installed by this Contract
 - 1. TPD: Bobrick B-685
- C. Mirrors - supplied and installed by this Contract
 - 1. M: Bobrick B-165
- D. Soap Dispensers - supplied and installed by this Contract
 - 1. SD: Bobrick B-4112
- E. Paper Towel Dispensers - supplied and installed by this Contract
 - 1. PTD: Bobrick B-262
- F. Keys to Locked Accessories: Manufacturer's standard, keyed alike.
- G. Mounting Kits: Provided with each unit shall suit wall construction.
- H. Dispensing Accessories: Fully loaded and in operating condition at time of completion.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Check opening scheduled to receive recessed units for correct dimensions, plumbness of blocking or frames, preparation that would affect installation of accessories.
- B. Check areas to receive surface mounted units for conditions that would affect quality and execution of work.
- C. Verify spacing of plumbing fixtures and toilet partitions that affect installation of accessories.
- D. Coordinate blocking requirements with Section 06 10 00, prior to enclosure of walls.
- E. Do not begin installation of washroom accessories until openings and surfaces are acceptable.

3.2 INSTALLATION

- A. Drill holes according to manufacturer's mounting templates or printed instructions.
- B. Mount recessed accessories into wall openings with wood screws through cabinet side into wood blocking, or sheet metal screws into metal frames.
- C. Mount surface mounted accessories to back up with toggle bolts, plumb and align.
- D. Anchor grab bars to through-wall anchor plates.

3.3 ADJUST AND CLEAN

- A. Adjust accessories for proper operation.
- B. After completion of installation, clean and polish all exposed surfaces.

C. Deliver keys and instruction sheets to Owner's Representative.

END OF SECTION 10 28 13

SECTION 10 44 00

FIRE PROTECTION SPECIALTIES

PART 1: GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 0 and 1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Section includes:
1. New fire extinguishers, cabinets, and brackets as specified and shown on drawings or as required by National, State and Local codes.
 2. New Knox Box Fire Department Key Box (see 2.03 KNOX BOX).
- B. Related Sections:
1. Section 06 10 00 - Rough Carpentry
 2. Section 07 21 00 - Insulation
 3. Section 07 92 00 - Sealants and Caulking
 4. Section 09 90 00 - Painting and Coating

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
1. Brochure: Submit brochure of materials and installation details.
 2. Shop drawing to indicate location and quantities of all products.
 3. Provide proof of coordination with local authorities.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Package, handle, deliver and store at the job site in a manner that will avoid damage. Damaged equipment will be rejected.

PART 2: PRODUCTS

2.01 MANUFACTURERS

- A. All equipment is specified from the line of J. L. Industries; comparable equipment of Elkhart Brass Mfg. Co., General, Noris, Larsen and Badger are acceptable.
- B. Basis of Design: Cabinets equal to JLI 1827W10, modified as recommended by manufacturer for application indicated on Drawings. Other provisions may apply.

2.02 FIRE EXTINGUISHERS AND CABINETS

- A. Provide a UL rated fire extinguisher, when "FEC" (cabinet) or "FE" (bracket) is shown on the drawings per the following table:

Application	Wall Material and/or Rating	Cabinet or Bracket Model	Fire Extinguisher Model
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Public Occupied Space	Gypsum board, masonry & concrete non-rated walls.	3" rolled edge semi-recessed w/ type "W" door style	Cosmic 10E, 4A-80BC
Public Occupied Space	2 hr and under fire-rated gypsum board, masonry & concrete walls (cabinet carries rating)	3" rolled edge semi-recessed w/ type "W" door style w/ Fire-FX rated tub	Cosmic 10E, 4A-80BC
Public Occupied Space	Over 2 hr gypsum board, masonry & concrete walls (wall carries rating)	3" rolled edge semi-recessed w/ type "W" door style	Cosmic 10E, 4A-80BC
Non-public Occupied Space (i.e., boiler rooms and mechanical rooms, electrical and data rooms, receiving areas, storage rooms,)	All types	Surface mounted bracket MB818.	Cosmic 5E, 3A-40BC

- B. Cabinets shall be red powder coated steel with vertical narrow acrylic glazing and black vertical letters stating "FIRE EXTINGUISHER."

2.03 KNOX BOX

- A. Series 3200 hinged door model high-security rapid entry key box, as manufactured by Knox Company - www.knoxbox.com, (800) 552-5669. Provide recessed mounting kit and optional door tamper switch. Color to be Dark Bronze.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Verify all locations with local authorities prior to installation.
- B. Install level and plumb, true to line and in accord with approved installation details.
- C. Unless noted otherwise, install 40 lbs. or less extinguishers 4'-6" from floor to top of cabinet, or to nearest horizontal masonry joint, but not higher than 5'-0". For extinguishers greater than 40 lbs., install top of cabinet no higher than 3'-6".
- D. Check extinguishers for proper charge, operation.
- E. Remove and replace damaged, defective or under charged units.
- F. Install Knox Box at height and location determined by local AHJ. Unit shall be level and plumb. Coordinate with all applicable trades and local AHJ.

END OF SECTION 10 44 00

SECTION 13 34 18

POST FRAME BUILDING SYSTEMS

PART 1 - GENERAL

- 1.01** Provide pre-engineered post frame building system, including but not limited to primary and secondary structural framing system, roofing, siding, roof and wall insulation.

1.02 RELATED SECTIONS

- A. Section 31 23 10 – Excavation and Fill for Buildings
- B. Section 03 30 00 - Cast-in-Place Concrete

1.03 REFERENCES

- A. ASTM International:
 - 1. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
 - 2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 3. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

1.04 SYSTEM DESCRIPTION

- A. Structural Frame Design:
 - 1. Design shall include the following building framing components.
 - a. Type: Clear span roof truss.
 - b. Maximum Truss span: 60 feet.
 - c. Maximum Clear Height: 28'-8" feet.
 - d. Columns: Embedded in ground. (or affixed to a concrete foundation)
 - e. Purlins: 2x4 dimensional lumber affixed above trusses.
- B. Dimensions:
 - 1. Width: 60'-0" outside to outside of primary or secondary wall framing.
 - 2. Length: 100'-0" outside to outside of primary or secondary wall framing.
 - 3. Height: 17'-0" clearance from top of floor to underside of truss or rafter.
 - 4. Roof Slope: 4:12 (units of rise per 12 units of run).
- C. Structural Requirements:
 - 1. Building Code: International building Code (IBC) and ASCE-7, current edition.
 - 2. Design Loads:
 - a. Ground Snow Load: 30 psf.
 - b. Ground Exposure Factor: as defined by current governing code
 - c. Roof Load, Live load: 30 psf.
 - d. Roof Dead Load: 10 psf.
 - e. Ceiling Dead Load: 10 psf.
 - f. Wind Load: Wind speed (3 sec gust): 115 mph, Exposure B
 - g. Seismic Design Criteria: as defined by current governing code
 - h. Collateral Loads: Additional loads imposed by contract documents other than weight of building system specified in this section.
 - i. Load Combinations: Comply with Building Code.
 - 3. Structural Design:
 - a. Perform calculations using diaphragm and/or frame analysis. Incorporate bracing as required.
 - b. Comply with AF&PA "National Design Specification for Wood Construction (NDS)."
 - c. Trusses:
 - 1. Limit deflection for live or snow loads to L/240 for trusses supporting rigid ceilings and to L/180 for overhangs and trusses not supporting ceilings.
 - 2. Comply with appropriate NDS and Truss Plate Institute (TPI) standards.

- d. Metal Wall and Roof Panels:
 - 1. Design in accordance with AISI "Specifications for the Design of Light-Gauge, Cold-Formed Steel Structural Members" and in accordance with sound engineering methods and practices.
- e. Plywood or Oriented Strand Board Sheathing: Comply with APA "Plywood Design Specification."
- f. Expansion/Contraction Provisions: Design roof attachment system to allow for expansion and contraction of metal roofing, due to seasonal temperature variations, without detrimental effect to the roof panels.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Manufacturer's specifications and installation instructions for building components and accessories.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
- C. Shop Drawings: Showing roof framing, cross sections, roof and wall covering and trim details and accessory and component details clearly indicating proper assembly.
- D. Structural Engineer Certification: Shop Drawings shall be signed by a Professional Engineer, registered to practice in the jurisdiction of the project, verifying compliance with applicable building code requirements.
- E. Selection Samples: For each finish product specified, provide a complete set of color chips representing manufacturer's full range of available colors and patterns.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum twenty years experience in producing pre-engineered wood buildings of the type specified.
- B. Installer Qualifications: Minimum twenty years experience in erection of pre-engineered wood buildings of the type specified.
- C. Engineer's Qualifications: Minimum of five years designing post frame structures; registered in the jurisdiction of the project.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation. Follow manufacturers recommended storage procedures. Do not allow steel siding and roofing to contact the ground.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of authorities having jurisdiction.

1.08 PROJECT CONDITIONS

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

1.09 WARRANTY

- A. Structural Design: 5 year protection against structural damage caused by snow not exceeding design loads.
- B. Preservative Treated Structural Columns: 50 years – insect damage or decay.
- C. Roofing and Siding Finish: Lifetime film integrity, limited 35-year chalk and fade, limited 15 year edge rust, limited 25 year non perforation due to acid rain. Refer to warranty document for complete details.
- D. Individual Building Products: Manufacturer's standard warranty.
- E. Workmanship: One year.
- F. Roof Leaks: 5 years for leaks due to defects in materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Approved Manufacturer (Basis of Design):
 - a. Wick Buildings, 405 Walter Road, Mazomanie, WI. 53560. Tel: 855-438-9425 Web: www.wickbuildings.com
- B. “Or equal” Substitutions: Requests for substitutions will be considered in accordance with provisions of Section 01 25 00.

2.02 STRUCTURAL FRAMING

- A. Concrete Footings:
 - 1. Embedded Column Footings (**Contract #3**):
 - a. Precast 4 by 14-inch diameter concrete footing pad for End Walls only.
 - b. Cast in place concrete footing of 3,000 psi ready-mix concrete of size and thickness specified in the shop drawings.
 - c. Reinforcing bars: ASTM A615 Grade 60. Size as shown on “Engineered Shop Drawings.”
 - 2. Concrete Column Foundation, Above Grade (**Contract #3**):
 - a. Monolithic floating slab. Sized and reinforced as specified in the shop drawings.
 - b. Pier and Beam. Sized and reinforced as specified in the shop drawings.
 - c. Cast in place trenched wall foundation. Sized and reinforced as specified in the shop drawings.
 - d. Cast in place frost wall and foundation. Sized and reinforced as specified in the shop drawings.
 - e. Anchor posts to foundation with Simpson Strong-tie post hold downs with anchors. Size per “Engineered Shop Drawing” calculations for loading.
- B. Foundation Walls, Below Grade (**Contract #3**):
 - 1. Minimum Compressive Strength, when tested in accordance with ASTM C 39/C 39M at twenty-eight (28) days: 4,000 psi.
 - 2. Reinforcing Bars: ASTM A615 Grade 60. Size as shown on “Engineered Shop Drawings.
 - 3. Reinforcing bars to be continuous at wall corners. Wire corner bars to continuous bars with a minimum 12” overlap.
- C. Concrete Floor Slab (**Contract #3**):
 - 1. Minimum Compressive Strength, when tested in accordance with ASTM C 39/C 39M at twenty-eight (28) days: 4,000 psi.
 - 2. Minimum thickness: 6” concrete floor slab with #4 rebars at 24” o.c. each way.
 - 3. Reinforcing bars: ASTM A615, Grade 60
 - 4. Finishing/Sealers:
 - a. Shop Bay #1, Shop Bay #2, Tool Crib:
 - 1. Apply Salt Protection sealer to concrete surface in these areas. CreteDefender P2 or equal.
 - 2. Prepare concrete surface as recommended by product manufacturer to allow sealer to penetrate the concrete for maximum protection from salt and water damage.
 - b. Office, Work Room, Rest Room, Closet:
 - 1) Apply decorative stain to concrete surface in these areas. Prosoco, Consolideck, GemTone Stain, or equal. Color: “Concrete Gray.”
 - 2) Prepare concrete surface as recommended by product manufacturer to allow stain to penetrate into concrete.
 - 3) Seal stained concrete with Prosoco, Consolideck LS or as recommended by the concrete stain manufacturer. Apply sealer as recommended by manufacturer to obtain the desired color and sheen.
- D. Primary Framing:

1. Columns: Outer plies of columns with a total length of 24' or less shall be un-spliced. Columns shall be 3 or more plies of 2x6 or 2x8 dimension lumber as required by structural design.
 - c. Treated Lumber:
 5. Lumber: No. 1 or Better Southern Yellow Pine, Laminated, pressure treated with Chromated Copper Arsenate, Type III, to a retention of 0.6 pcf. and kiln dried after treating to 19 percent maximum moisture content.
 6. Fabrication: Laminate individual pieces using nails per manufacturer's engineered nailing pattern. Fasteners shall be rated by the manufacturer for use in treated lumber.
 7. Grade and size shall be selected to support imposed loads within deflection limits.
 - d. Untreated Lumber:
 1. Lumber: Lumber: No. 1 or Better Southern Yellow Pine kiln dried to 19 percent maximum moisture content.
 2. Fabrication: Laminate individual pieces using nails per manufacturer's engineered nailing pattern.
 3. Grade and size shall be selected to support imposed loads within deflection limits.
 2. Trusses: Comply with "Structural Design" and "Quality Assurance" requirements as specified herein.
 - a. Comply with most recent addition of TPI "Design Specification for Metal Plate Connected Wood Trusses" and "Quality Standard for Metal Plate Connected Wood Trusses."
 - b. Manufacturer shall have a third-party inspection program to verify compliance with requirements of TPI.
 - c. Trusses center notched into columns.
 1. Trusses attached with (2) ½" bolts and (8) 16D nails or as required by truss manufacturer.
 2. Provide Simpson Strong-tie uplift anchors for trusses not notched into columns. Type and size per "Engineered Shop Drawings".
- E. Secondary Framing:
1. Purlins and Girts:
 - a. Lumber: No. 2 or Better dimension lumber kiln dried to 19 percent maximum moisture content.
 - b. Configuration: 2x4 or 2x6, 1650 MSR SPF or as required by "Structural Design" of building provider or as per the requirements specified by herein.
 1. Girts: Size, grade and spacing to meet wind and deflection criterion.
 - a) Face mounted to exterior side of column.
 2. Purlins: Size grade and spacing to meet wind and deflection criterion.
 - a) Mounted above the trusses, with 1' minimum overlap to provide tensile continuity. Nail fastened to trusses with 40d or 60d nails per "Structural Design"
 - c. Spacing: As required by "Structural Design" requirements specified herein.
 - d. Provide beveled eave purlin.
 - e. All purlins to be 24" o.c. or as required by "Engineer's Structural Shop Drawings"
 2. Splash Plank (bottom-most girt):
 - a. Lumber: minimum 2x8 No. 1 or Better Southern Yellow Pine, MCA preservative treated. Milled S4S.
 3. Corner Bracing, End Wall Jack Bracing, and Lateral Truss Type (where required by "Structural Design"):
 - a. Lumber: No. 2 or Better dimension lumber.
 - b. Configuration: 2x4 or 2x6, Teed, 1650 MSR, SPF minimum as required by "Structural Design" requirements specified herein.

2.03 METAL ROOFING AND SIDING

- A. Metal Roofing and Siding: Fabral Grand Rib III Plus.
1. Material and Finish: 29 Gauge, Grade E, 82,000 PSI, Full Hard, ASTM A 653 Structural Quality, Grade 80 galvanized steel with G90 zinc coating both sides. Exterior Surface Finish: 1 ½ Mil "Ceram-A-Star". Color: Owner to choose from Manufacturer's standard.

- a. Roll-formed; 36 inch (915 mm) coverage width. Provide panels covering up to 35 foot (10.5 m) lengths in single pieces.
 - b. Five major corrugations, 3/4 inch high, spaced 9 inches on center with 2 minor corrugations, 1/8 inch between each major corrugation.
 - c. Form one outboard corrugation as overlapping corrugation.
 - d. Form opposite outboard corrugation as underneath corrugation with full return leg to support side lap and a continuous anti-siphon drain channel.
 - e. Factory cut to required length.
- B. Fasteners: Color coated No. 9 piercing screws with 1/4 inch (6 mm) hex head pre-assembled to washers.
- C. Metal Ridge Vent: COR-A- VENT, V-600TE or equal, provide snow screen, with minimum 16 sq. in. net free area.
- D. Metal Soffit Vent: NORANDEX or equal, 16" fully ventilated, pre-finished aluminum, with minimum 17.98 sq. in./ sq. ft.
 - 1. Attic vents to meet the current IBC attic ventilation requirements.

2.04 INSULATION

- A. Blanket Insulation for walls: ASTM C 665, Type I, Class A, Un-faced Fiberglass Blanket.
 - 1. Thermal Resistance: R-20.
 - a. Flame Spread, ASTM E 84: Less than 25.
 - b. Smoke Developed, ASTM E 84: Less than 50.
 - c. Water Vapor Transmission, ASTM E 96, 1.00 Perm or less.
- B. Rigid Board Insulation (All applications, unless noted otherwise):
 - 1. Foamular® 250 extruded polystyrene (XPS) board insulation as manufactured by Owens Corning, or equal. Comply with ASTM C578, Type IV.
 - 2. Thermal Resistance: Aged R-value of 5 per inch at 75° mean temperature per ASTM C518.
 - 3. Surface Burning Characteristics (ASTM E84): Flame spread less than 25 and smoke developed less than 450.
 - 4. Warranty: Limited lifetime warranty covering all ASTM C578 physical properties.
 - 5. Blowing Agent Formulation: Zero ozone depleting.
 - 6. Indoor Air Quality: GREENGUARD GOLD Certified® or GREENGUARD Children and Schools Certified®
 - 7. Recycled Content: Minimum 20%, certified by independent third party such as Scientific Certification Systems.
 - 8. Environmental Product Declaration (EPD): UL Certified EPD in accordance with ISO 14025.
- C. Below-Grade & Foundation Perimeter Allowed Substitutions:
 - 1. Expanded polystyrene insulation (EPS). ASTM C578. Type II (1.35 pcf min.) Foam Control EPS as manufactured by ACH Foam Technologies, or equal.
 - 2. Each Foam-Control panel shall be labeled with third party inspection agency and ASTM material type.
 - 3. EPS shall have flame spread of less than 25 and a smoke developed index of less than 450
 - 4. Provide Foam-Control EPS twenty (20) year in-service, non-prorated R-value warranty covering the long-term thermal performance of expanded polystyrene insulation.
 - 5. The insulation must be compatible with all components of the intended application.
- D. Expanding Foam Insulation:
 - 1. Dow Chemical Great Stuff Pro or equal 1 part polyurethane foam sealant.
 - 2. Conform to ASTM C557-93, D6464, CA25-4 and is UL Class 1 (Flame Spread of 15, Smoke of 20).
 - 3. Application temperature range of 25°F to 120°F.
 - 4. Paintable, stainable and sandable.
 - 5. Acoustical Rating: Sound transmission class rating of 69.
 - 6. Minimum R-value of 4 per inch.
- E. Vapor Barriers/ Vapor Retarders:
 - 1. Walls & Ceilings: Glass reinforced or laminated polyethylene sheet, minimum perm rating, 0.1 when tested in accordance with ASTM-E96, Procedure A.
 - a. Manufacturers/Products: Fortifiber "Moistop", Rufco SS-300, Glas-Kraft, Inc.
 - b. Vapor Barrier Tape: Compatible polyethylene self-adhesive tape recommended by vapor

- barrier manufacturer.
 - c. Adhesive: Manufacturer's vapor-proofing mastic.
- 2. Under Floor Slabs: Meet requirements of ASTM E1745 Class A.
 - a. Materials: Meets Class A, 15 mil minimum thickness polyolefin geomembrane,
 - i. Water vapor transmission rate per ASTM E96 of 0.008 grains/sf/hr WVTR or lower
 - ii. Maintain permance rating of less than 0.01 perms per ASTM F 1249 after mandatory conditioning tests per ASTM E 154 Sections 8, 11, 12 and 13.
 - iii. Puncture resistance of 2200 grams when tested in accordance with ASTM D 1709.
 - iv. Tensile strengths of 75 lbf./in. when tested in accordance with ASTM D 882.
 - b. Only the following manufacturers/products are acceptable (no substitutions):
 - i. Stego Industries/Stego Wrap Vapor Barrier (15 mil).
 - ii. Reef Industries/Vaporguard (15 mil).
 - iii. Fortifiber Building Group/Moistop Ultra (15 mil).

2.05 AIR INFILTRATION BARRIERS

- A. Tyvek Commercial Building Wrap as manufactured by Dupont Company; Barricade Building Wrap as manufactured by Simplex Products Division; continuous roll material, specifically designed to reduce air infiltration while allowing water vapor to pass through. No substitutions.
- B. ASTM E-84 flame spread rating of 5 or less, fuel contributed of 0, and smoke density of 5 or less. Air porosity of 7.6 seconds or higher.
- C. ACCESSORIES

- 1. Seam Tape: As recommended by the weather barrier manufacturer.
- 2. Fasteners: 1-5/8" rust resistant screw with 2" diameter plastic cap or manufacturer approved 1-1/4" or 2" metal gasketed washer.
- 3. Sealants:
 - a. Provide sealants that comply with ASTM C920, elastomeric polymer sealant to maintain watertight conditions.
 - b. Products: Sealants recommended by the weather barrier manufacturer.
- 4. Adhesives:
 - a. Provide adhesive recommended by weather barrier manufacturer.
 - b. Products: Adhesives recommend by the weather barrier manufacturer.
- 5. Primers:
 - a. Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing.
 - b. Products: Primers recommended by the flashing manufacturer.
- 6. Flashing:
 - a. Flexible membrane flashing materials for window openings and penetrations recommended by manufacturer.
 - b. Straight flashing membrane materials for flashing windows and doors and sealing penetrations such as masonry ties, etc. recommended by manufacturer.
 - c. Thru-Wall flashing membrane materials for flashing at changes in direction or elevation (shelf angles, foundations, etc.) and at transitions between different assembly materials.
 - d. Preformed Inside and Outside Corners and End Dams: Preformed 3-dimensional shapes to complete the flashing system used in conjunction with Thru-Wall Flashing.

2.06 EXTERIOR DOORS

- A. Basis of Design: Therma-Tru Corp., 1750 Indian Wood Circle, Maumee, Ohio 43537.
www.thermatru.com
- 1. Substitutions accepted per Section 01 25 00
- B. Fiberglass Entry Door: Therma-tru, Profiles. 24 GA, Steel insulated door.

1. Half- light door. Therma-tru 104, with clear, double pane, Low-E, argon filled, tempered glazing, U-0.23.
2. Opaque Door. Therma-tru 100, fully insulated door, U-0.14.
3. All doors to be outswing doors with holes cut for panic hardware.
4. Provide ADA Public Access sill with thermal break for the Door #001 to Shop Bay #1. Doors 002 and 003 to have standard aluminum sill with thermal break.
5. Emergency exit door #003 in back of building will have panic hardware but no lever to get back in.
6. Provide closers, hinges, weather stripping, and snow stop trim on all doors.

2.07 VINYL SLIDING WINDOWS

- A. Basis of Design: Jeld-Wen Corporation, 820 Industrial Avenue, Grinnell, Iowa 50012. www.jeld-wen.com
 1. Substitutions accepted per Section 01 25 00.
- E. Premium Vinyl V-4500, Sliding Window, No grille, insect screen.
 1. Glazing: ¾" dual pane, Low-E Argo filled
 2. Energy Efficiency: U-Factor: 0.29. SHGC Rating: 0.51

2.08 INTERIOR DOORS

- A. Basis of Design: Masonite Corporation,
 1. Substitutions accepted per Section 01 25 00.
- B. Interior Wood Flush Doors:
 1. Door Panel: 1 ¾" thick Flush Door, wood veneer or hardboard facings, wood stiles, wood rails and particle board cores.
 2. Door Frame: Flat jamb with door stop applied. Hinge jamb for 1 ¾" door with three 4" hinges. Strike jamb preparations are to be machined for full lip strike plate.
- C. Fire Rated door and frame: See Section 08 10 00 – Hollow Metal Doors and Frames.

2.09 OVERHEAD DOORS

- A. See Specification Section 08 33 00

END OF SECTION 13 34 18

SECTION 22 00 00

PLUMBING GENERAL PROVISIONS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 0 and 1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Section includes:
 - 1. Work of this Section shall be Design/Build
 - 2. Contractor shall furnish plans and calculations as required by local AHJ for issuance of building permit and to show compliance with said codes and ordinances.
 - 3. Plumbing Contractor to determine all piping layouts, connections types and sizing, and to supply all materials and labor required for a complete plumbing system, including but not necessarily limited to, sanitary sewer, water piping, gas piping, plumbing fixtures and other equipment and material required for a complete system as implied by drawings or indicated on drawings.
 - 4. Contractor is solely responsible for providing accurate and workable plumbing systems, complete in every regard. All equipment, piping, fittings, valves, insulation, etc., shall be new and installed in complete compliance with the State, Federal, and Local Ordinances, codes and regulations, and in accordance with the manufacturer's recommendations.
- B. Related work in other sections:
 - 1. Section 07 92 00 - Sealants and Caulking
 - 2. Section 09 41 16 - Plastic Laminate Casework
 - 3. Section 09 90 00 - Painting
 - 4. Division 26 - Electrical General Provisions

1.03 DESCRIPTION OF WORK

- A. Section includes:
 - 1. Work of this Section shall be Design/Build.
 - 2. Contractor shall furnish plans and calculations as required by local AHJ for issuance of building permit and to show compliance with said codes and ordinances.
 - 3. Contractor is solely responsible for providing accurate and workable systems, complete in every regard. All equipment, piping, fittings, valves, insulation, etc., shall be new and installed in complete compliance with the State, Federal, and Local Ordinances, codes and regulations, and in accordance with the manufacturer's recommendations.
 - 4. This section applies to all work under the mechanical contract. This shall include, but not necessarily be limited to, the following:
 - a. Waste and Vent Systems
 - b. Hot and Cold Water Distribution System
 - c. Plumbing Fixtures
 - d. Water Heating Systems
 - e. Sanitary Sewer
 - f. Piping Insulation

g. Natural Gas Piping

- B. The work shall include all materials, equipment, labor and design required for complete and properly functioning mechanical systems.
- C. The plumbing work shown is in part diagrammatic, intended to convey the scope of work and indicate general arrangement of equipment, piping and approximate sizes and locations of equipment and materials. It is the responsibility of the Contractor to design and provide the complete functioning mechanical systems.
- D. Where job conditions require reasonable changes in indicated locations and arrangements, make such changes without additional cost to Owner.
- E. All elements of the construction shall be performed by workmen skilled in the particular craft involved, and regularly employed in that particular craft.
- F. All work shall be performed in a neat, workmanlike manner in keeping with the highest standards of the craft.

1.04 CODES AND STANDARDS

- A. All work shall be done in accordance with the applicable portion of the following current codes and standards:
 - 1. International Building Code
 - 2. International Plumbing Code
 - 3. International Mechanical Code
 - 4. International Fire Code
 - 5. National Electric Code (NEC)
 - 6. National Fire Protection Association Standards (NFPA)
 - 7. Local Utility Company Requirements
 - 8. Local Codes, all trades
 - 9. Standards of ASME, ASHRAE, NEMA, IEEE, AGA, SMACNA
 - 10. Occupational Safety and Health Administration (OSHA)
 - 11. Underwriters Laboratories, Inc. (U.L.)
 - 12. Iowa Administrative Codes
 - 13. Americans With Disabilities Act (ADA)
- B. All Contractors shall familiarize themselves with all codes and standards applicable to their work. No extra compensation will be allowed for corrections or changes in the work required due to Contractor's failure to comply with the applicable codes or standards. Where two or more codes or standards are in conflict, that requiring the highest order or workmanship shall take precedence, but such questions shall be referred to Architect and NICC Construction Manager for final decision.
- C. Where drawings or specifications call for workmanship or materials in excess of code requirements, a lower grade of construction will not be permitted.

1.05 REQUIREMENTS & FEES OF REGULATORY AGENCIES

- A. This Contractor shall comply with the rules and regulations of the local utility companies. He shall check with each utility company providing service to this project and determine or verify their requirements regarding incoming services.
- B. Secure and pay for all permits, licenses, fees and inspections.

- C. This Contractor shall make all arrangements with each utility company.

1.06 DRAWINGS

- A. Contractor shall examine construction drawings to familiarize himself with the specific type of building construction, i.e. type of structural system, floors, walls, ceilings, room finishes and elevations.
- B. Contractor shall design and layout his own work and shall be responsible for determining the exact locations for equipment and rough-ins and the exact routing of piping and ducts so as to best fit the layout of the work.
- C. Contractor shall take his own field measurements for verifying locations and dimensions: scaling of the drawings will not be sufficient for laying out the work.

1.07 SITE INSPECTION

- A. Contractor shall inspect the site prior to submitting bid for work to familiarize himself with the conditions of the site which will affect his work and shall verify points of connection with utilities, routing of outside piping to include required clearances from any existing structures, trees or other obstacles.
- B. Extra payment will not be allowed for changes in the work required because of Contractor's failure to make this inspection.

1.08 COORDINATION AND COOPERATION

- A. It shall be the Contractor's responsibility to schedule and coordinate his work with the schedule of the Building Construction Contractor and the NICC Construction Manager so as to progress the work expeditiously, and to avoid unnecessary delays.
- B. Contractor shall fully examine the drawings and specifications for other trades and shall coordinate the installation of his work with the work of the other contractors. Contractor shall consult and cooperate with the other contractors for determining space requirements and for determining that adequate clearance is allowed with respect to this equipment, other equipment and the building. The Owner reserves the right to determine space priority of the contractors in the event of interference between piping, conduit, ducts and equipment of the various contractors.
- C. Drawings and specifications are intended to be complementary. Any work shown in either of them, whether in the other or not, shall be executed according to the true intent and meaning thereof, the same as if set forth in all. Conflicts between the drawings and the specifications or between the requirements set forth for the various contractors shall be called to the attention of the Owner. If clarification is not asked for prior to the taking of bids, it will be assumed that none is required and that the Contractor is in agreement with the drawings and specifications as issued.
- D. Where the final installation or connection of equipment in the building requires the Contractor to work in finished areas of the building, the Plumbing Contractor shall be responsible that such areas are protected and are not marred, soiled or otherwise damaged during the course of such work. Plumbing Contractor shall arrange with the Building Construction Contractor and NICC Construction Manager for patching and refinishing of such areas which may be damaged in this respect.

1.09 OPENINGS, CUTTING AND PATCHING

- A. Plumbing Contractor will coordinate the placing of openings in the new structure as required for the installation of the underground piping with the Building Construction Contractor and NICC Construction Manager.
- B. Piping, sleeves and ducts passing through all fire or smoke rated floors, roofs, walls, and partitions shall be provided with firestopping. Space between wall/floor and pipe, sleeve, and/or duct shall be sealed with 3M or Dow Chemical fire barrier material equivalent to rating of wall/floor.

1.10 EXCAVATING AND BACKFILLING

- A. Plumbing contractor shall do all excavating necessary for sanitary sewers, storm sewers, water piping, natural gas piping, etc., and shall backfill trenches and excavations after work has been inspected. Care shall be taken in excavating walls and footings that adjacent load bearing soils are not disturbed in any way, except where lines must cross under a wall footing. Where a line must pass under a footing, the crossing shall be made by the smallest possible trench to accommodate the pipe. Excavation shall be kept free from water by pumping if necessary.
- B. Backfill about the structure shall be placed, when practical, as the work of construction progresses. Back filling on or against concrete work shall be done only when directed. Backfilling of trenches shall progress as rapidly as the testing and acceptance of the finished sections of the work will permit. Backfill shall be in accordance with Specification Division 31.

1.11 MATERIALS

- A. All material shall be installed in strict accordance with the manufacturer's recommendations.
- B. The equipment specifications cannot deal individually with any minute items such as fittings, controls, devices, etc., which may be required to for a complete system.

1.12 SHOP DRAWINGS

- A. Contractor shall furnish, to the Owner, complete sets of shop drawings and other submittal data. Contractor shall review and sign shop drawings before submittal.
- B. Shop drawings shall be bound into sets and cover related items for a complete system as much as practical and shall be identified with symbols or "plan marks" used on drawings. Incomplete, piecemeal or unbound submittals will be rejected.
- C. Submittals required by the various sections of the Project Manual include, but are not necessarily limited to those identified in the submittal schedule below.
- D. After award of contract, the contractor shall provide a completed submittal schedule including dates that the submittals will be to the Owner for review.
- E. An Engineer may review shop drawings solely to assist contractor in correctly interpreting the plans and specifications as needed.
- F. Contract requirements cannot be changed by shop drawings which differ from contract drawings and specifications.

1.13 OPERATION AND MAINTENANCE MANUALS

- A. Operation and maintenance manuals shall be submitted to the Owner in accordance to Section 01 33 00 - Submittals. Each manual shall have the following information on the cover:

OPERATION
AND
MAINTENANCE
MANUAL
FOR PLUMBING SYSTEMS

(PROJECT NAME)
(LOCATION)
(DATE)

SUBMITTED BY
(NAME AND ADDRESS OF CONTRACTOR)

- B. Provide a master index at the beginning of manual showing items included. Use plastic tab indexes for sections of the manual. Each section shall contain the following information for equipment furnished under this contract:
1. Equipment and system warranties and guarantees
 2. Installation instructions
 3. Operating instructions.
 4. Maintenance instructions.
 5. Spare parts identification and ordering list.
 6. Local service organization, address, contract and phone number.
 7. Shop drawings with reviewed stamp of Design Professional and Contractor shall be included, if applicable, along with the items listed above.

1.14 TESTS AND DEMONSTRATIONS

- A. Tests Required: Piping shall be tested and proved tight under the following static pressures. Pressure shall be maintained for two (2) weeks.

<u>System</u>	<u>Pressure</u>
HW, CW Water Piping	100 psi (water)
Soil, Waste, Drainage Piping Below Grade	10 feet waterhead or fill to top of vent outlet above roof.
Soil, Waste, Drainage Piping Above Grade	Fill Piping with water to top of vent outlet above roof, or 10 feet waterhead.
Gas Piping	10 psi air pressure, liquid soap test around all joints.

TESTING NOTE: All rubber gasket joints for cast iron soil pipe and fittings should be properly restrained if test pressures exceed 10 feet of head.

- B. All systems shall be tested by the Contractor and placed in proper working order prior to demonstrating systems to Owner. The Contractor shall submit a report to an Engineer citing dates, times, pressures, and results of all tests performed.
- C. The Contractor shall submit to the Owner a certificate, signed by the Owner stating the date, time and persons instructed and that the instruction has been completed to the Owner's satisfaction.

1.15 PERMITS, FEES, ETC.

- A. Secure all required permits and pay for all inspections required in connection with the plumbing work. Contractor shall post all bonds and obtain all licenses required by the State, City, County and Utility.

1.16 SUBSTITUTIONS

- A. Refer to Instruction to Bidders and Section 01 25 00.
- B. Where substitutions are approved, Contractor assumes all responsibility for physical dimensions and all other resulting changes. This responsibility extends to cover all extra work necessitated by other trades as a result of the substitution.

1.17 EQUALS

- A. The plumbing fixtures shown on drawings are basis of design. Equal substitution is allowed per Section 01 25 00. Listed with the base specification, either in the manual or on the plan schedules, are acceptable manufacturers approved to bid products of equal quality. These manufacturers are encouraged to submit to Architect at least 8 day prior to the bid due date drawings and catalog number of products to be bid as equals.
- B. Manufacturers who do not submit prior to bidding, run the risk of having the product rejected at time of shop drawing submittal. Extra costs associated with replacing the rejected product shall be the responsibility of the contractor and/or the manufacturer.
- C. If the contractor chooses to use a manufacturer listed as an equal, it shall be his responsibility to assure that the manufacturer has complied with the requirements in 'A' above. Contractor shall assume all responsibility for physical dimensions, operating characteristics, and all other resulting changes. This responsibility extends to cover all extra work necessitated by other trades as a result of using the alternate manufacturer.

1.18 COMPLETION

- A. Systems, at time of completion, shall be complete, efficiently operating, non-hazardous and ready for normal use by the Owner.
- B. The Contractor shall clean up and remove from the site all debris, excess material and equipment left during the progress of this contract at job completion.

1.19 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 - Submittals
 - 1. Submit manufacturer's data for all materials and products proposed for use in work of this Section including product illustrations, types, sizes capacities, and dimensions.
 - 2. Submit color samples for selection by Owner.

- B. Submit the following per Section 01 78 23 - Operating, Maintenance and Warranty Data
 - 1. Maintenance instructions
 - 2. Copy of warranty

1.20 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials in undamaged condition as packaged by the manufacturer, with manufacturer's seals and labels intact.

1.21 WARRANTY

- A. Guarantee: This Contractor shall guarantee the apparatus installed under these specifications to circulate water thoroughly through every fixture without excessive noise. If the apparatus fails to accomplish this guarantee by reason of any defect developing within the period of one year from date of completion, this Contractor shall remedy such defect at their own cost within reasonable time after notice thereof.

PART 2 PRODUCTS

2.01 FIXTURE SCHEDULE

- A. See Sheet A1.2 for Plumbing Fixture Schedule for Basis of Design.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify all existing conditions and make accommodations for all fixture and pipe connections, appliance connections, electrical connections, and to interconnect all components for a complete system.

3.02 INSTALLATION

- A. Sanitary Sewer: All plumbing fixtures and other drains shall be connected together and extended to the sanitary sewer.
- B. Install fixtures and equipment in accordance with manufacturer's written instructions.

3.03 CLEANING

- A. Remove all dirt, rubbish and grease on walls, floors, and fixtures for which this Contractor is responsible. The premises shall be left in first class condition in every respect. All piping, hangers, and equipment shall be cleaned as required for finish painting.

END OF SECTION 22 00 00

SECTION 23 00 00

MECHANICAL GENERAL PROVISIONS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 DESCRIPTION OF WORK

- A. Section includes:
 - 1. Work of this Section shall be Design/Build.
 - 2. Contractor shall furnish plans and calculations as required by local Authorities Having Jurisdiction (AHJ) for issuance of building permit and to show compliance with said codes and ordinances.
 - 3. Contractor is solely responsible for providing accurate and workable systems, complete in every regard. All equipment, piping, fittings, valves, insulation, etc., shall be new and installed in complete compliance with the State, Federal, and Local Ordinances, codes and regulations, and in accordance with the manufacturer's recommendations.
 - 4. This section applies to all work under the mechanical contract. This shall include, but not necessarily be limited to, the following:
 - a. Ventilation Systems
 - b. Ductwork for Air Distribution
 - c. Grilles, Registers, Diffusers and Dampers
 - d. Exhaust Fans and Ducts
 - e. Thermostats and Control Wiring
 - f. Insulation of Ducts and Plenums
 - g. HVAC Units
- B. The work shall include all materials, equipment, labor and design required for complete and properly functioning mechanical systems.
- C. The mechanical work shown is in part diagrammatic, intended to convey the scope of work and indicate general arrangement of equipment, piping and approximate sizes and locations of equipment and materials. It is the responsibility of the Contractor to design and provide the complete functioning mechanical systems.
- D. Where job conditions require reasonable changes in indicated locations and arrangements, make such changes without additional cost to Owner.
- E. All elements of the construction shall be performed by workmen skilled in the particular craft involved, and regularly employed in that particular craft.
- F. All work shall be performed in a neat, workmanlike manner in keeping with the highest standards of the craft.

1.03 CODES AND STANDARDS

- A. All work shall be done in accordance with the applicable portion of the following current codes and standards:
 - 1. International Building Code
 - 2. International Plumbing Code
 - 3. International Mechanical Code
 - 4. International Fire Code
 - 5. National Electric Code (NEC)
 - 6. National Fire Protection Association Standards (NFPA)
 - 7. Local Utility Company Requirements
 - 8. Local Codes, all trades

9. Standards of ASME, ASHRAE, NEMA, IEEE, AGA, SMACNA
 10. Occupational Safety and Health Administration (OSHA)
 11. Underwriters Laboratories, Inc. (U.L.)
 12. Iowa Administrative Codes
 13. Americans With Disabilities Act (ADA)
- B. All Contractors shall familiarize themselves with all codes and standards applicable to their work. No extra compensation will be allowed for corrections or changes in the work required due to Contractor's failure to comply with the applicable codes or standards. Where 2 or more codes or standards are in conflict, that requiring the highest order or workmanship shall take precedence, but such questions shall be referred to Architect and NICC Construction Manager for final decision.
- C. Where drawings or specifications call for workmanship or materials in excess of code requirements, a lower grade of construction will not be permitted.

1.04 REQUIREMENTS & FEES OF REGULATORY AGENCIES

- A. This Contractor shall comply with the rules and regulations of the local utility companies. He shall check with each utility company providing service to this project and determine or verify their requirements regarding incoming services.
- B. Secure and pay for all permits, licenses, fees and inspections.
- C. This Contractor shall make all arrangements with each utility company.

1.05 DRAWINGS

- A. Contractor shall examine construction drawings to familiarize himself with the specific type of building construction, i.e. type of structural system, floors, walls, ceilings, room finishes and elevations.
- B. Contractor shall design and layout his own work and shall be responsible for determining the exact locations for equipment and rough-ins and the exact routing of piping and ducts so as to best fit the layout of the work.
- C. Contractor shall take his own field measurements for verifying locations and dimensions: scaling of the drawings will not be sufficient for laying out the work.

1.06 SITE INSPECTION

- A. Contractor shall inspect the site prior to submitting bid for work to familiarize himself with the conditions of the site which will affect his work and shall verify points of connection with utilities, routing of outside piping to include required clearances from any existing structures, trees or other obstacles.
- B. Extra payment will not be allowed for changes in the work required because of Contractor's failure to make this inspection.

1.07 COORDINATION AND COOPERATION

- A. It shall be the Contractor's responsibility to schedule and coordinate his work with the schedule of the Building Construction Contractor and NICC Construction Manager so as to progress the work expeditiously, and to avoid unnecessary delays.
- B. Contractor shall fully examine the drawings and specifications for other trades and shall coordinate the installation of his work with the work of the other contractors. Contractor shall consult and cooperate with the other contractors for determining space requirements and for determining that adequate clearance is allowed with respect to this equipment, other equipment, and the building. The Architect reserves the right to determine space priority of the contractors in the event of interference between piping, conduit, ducts and equipment of the various contractors.
- C. Drawings and specifications are intended to be complementary. Any work shown in either of them, whether in the other or not, shall be executed according to the true intent and meaning thereof, the same as if set forth in all. Conflicts between the drawings and the specifications or between the requirements set forth for the various contractors shall be called to the attention of the Architect. If clarification is not asked for prior to the taking of bids, it will be assumed that none is required and that the Contractor is in agreement with the drawings and specifications as issued. If clarification is required after the contract is awarded, such clarification will be made by the Architect and his decision will be final.

- D. Special care shall be taken for protection for all equipment. All equipment and material shall be completely protected from weather elements, painting and plaster until the project is substantially completed. Damage from rust, paint and scratches shall be repaired as required to restore equipment to original condition.
- E. Protection of all equipment during the painting of the building shall be the responsibility of the Painting Contractor, but this shall not relieve the Contractor of the responsibility for checking to assure that adequate protection is being provided.
- F. Where the final installation or connection of equipment in the building requires the Contractor to work in finished areas of the building, the Mechanical Contractor shall be responsible that such areas are protected and are not marred, soiled or otherwise damaged during the course of such work. Mechanical Contractor shall arrange with the Building Construction Contractor for patching and refinishing of such areas which may be damaged in this respect.

1.08 OPENINGS, CUTTING AND PATCHING

- A. Mechanical Contractor will coordinate the placing of openings in the new structure as required for the installation of the mechanical work with the Building Construction Contractor and the NICC Construction Manager.
- B. Mechanical Contractor shall furnish to Building Construction Contractor and NICC Construction Manager the accurate locations and sizes for required openings, but this shall not relieve Mechanical Contractor of the responsibility of checking to assure that proper size openings are provided. When additional cutting and patching is required due to Mechanical Contractor's failure to coordinate this work; then Mechanical Contractor shall make arrangements for the cutting and patching required.
- C. Piping, sleeves and ducts passing through all fire or smoke rated floors, roofs, walls, and partitions shall be provided with firestopping. Space between wall/floor and pipe, sleeve, and/or duct shall be sealed with 3M or Dow Chemical fire barrier material equivalent to rating of wall/floor.

1.09 MATERIALS AND EQUIPMENT

- A. All materials and equipment shall be the standard product of a reputable U.S.A. manufacturer regularly engaged in the manufacture of the specified item. Where 2 or more units are required of the same item, they shall be furnished by the same manufacturer except where specified otherwise.
- B. All material and equipment shall be installed in strict accordance with the manufacturer's recommendations.
- C. The equipment specifications cannot deal individually with any minute items such as parts, controls, devices, etc., which may be required to produce the equipment performances and function as specified, or as required to meet the equipment guarantees. Such items, when required, shall be furnished as part of the equipment, whether or not specifically called for.

1.10 SHOP DRAWINGS

- A. Contractor shall furnish, to the Owner, complete sets of shop drawings and other submittal data. Contractor shall review and sign shop drawings before submittal.
- B. Shop drawings shall be bound into sets and cover related items for a complete system as much as practical and shall be identified with symbols or "plan marks" used on drawings. Incomplete, piecemeal or unbound submittals will be rejected.
- C. Submittals required by the various sections of the Project Manual include, but are not necessarily limited to those identified in the submittal schedule below.
- D. After award of contract, the contractor shall provide a completed submittal schedule including dates that the submittals will be to the Architect for review.
- E. The Architect will review shop drawings solely to assist contractor in correctly interpreting the plans and specifications.
- F. Contract requirements cannot be changed by shop drawings which differ from contract drawings and specifications.

1.11 OPERATION AND MAINTENANCE MANUALS

- A. Operation and maintenance manuals shall be submitted to the Architect in accordance to Section 01 33 00 - Submittals. Each manual shall have the following information on the cover:

OPERATION
AND
MAINTENANCE
MANUAL
FOR MECHANICAL SYSTEMS

(PROJECT NAME)
(LOCATION)
(DATE)

SUBMITTED BY
(NAME AND ADDRESS OF CONTRACTOR)

- B. Provide a master index at the beginning of manual showing items included. Use plastic tab indexes for sections of the manual. Each section shall contain the following information for equipment furnished under this contract:
1. Equipment and system warranties and guarantees
 2. Installation instructions
 3. Operating instructions.
 4. Maintenance instructions.
 5. Spare parts identification and ordering list.
 6. Local service organization, address, contract and phone number.
 7. Shop drawings with reviewed stamp of Architect/Engineer and Contractor shall be included, if applicable, along with the items listed above.

1.12 TESTS AND DEMONSTRATIONS

- A. All systems shall be tested by the Contractor and placed in proper working order prior to demonstrating systems to Owner. The Contractor shall submit a report to the Engineer citing dates, times, pressures, and results of all tests performed.
- B. Prior to acceptance of the mechanical installation, the Contractor shall demonstrate to the Owner, or his designated representatives, all essential features and functions of all systems installed, and shall instruct the Owner in the proper operation and maintenance of such systems.
- C. The Contractor shall submit to the Owner a certificate, signed by the Owner stating the date, time and persons instructed and that the instruction has been completed to the Owner's satisfaction.

1.13 PERMITS, FEES, ETC.

- A. Secure all required permits and pay for all inspections required in connection with the mechanical work. Contractor shall post all bonds and obtain all licenses required by the State, City, County and Utility.

1.14 SUBSTITUTIONS

- A. Refer to Instruction to Bidders and Section 01 25 00.
- B. Where substitutions are approved, Contractor assumes all responsibility for physical dimensions and all other resulting changes. This responsibility extends to cover all extra work necessitated by other trades as a result of the substitution.

1.15 EQUALS

- A. In most cases, equipment specifications are based on a specific manufacturer's type, style, dimensional data, catalog number, etc. Listed with the base specification, either in the manual or on the plan schedules, are acceptable manufacturers approved to bid products of equal quality. These manufacturers are encouraged to submit to the Engineer at least eight (8) days prior to the bid due date drawings and catalog number of products to be bid as equals.
- B. Manufactures who do not submit prior to bidding, run the risk of having the product rejected at time of shop drawing submittal. Extra costs associated with replacing the rejected product shall be the responsibility of the

contractor and/or the manufacturer.

- C. If the contractor chooses to use a manufacturer listed as an equal, it shall be his responsibility to assure that the manufacturer has complied with the requirements in 'A' above. Contractor shall assume all responsibility for physical dimensions, operating characteristics, and all other resulting changes. This responsibility extends to cover all extra work necessitated by other trades as a result of using the alternate manufacturer.

1.16 COMPLETION

- A. Systems, at time of completion, shall be complete, efficiently operating, non-hazardous and ready for normal use by the Owner.
- B. The Contractor shall clean up and remove from the site all debris, excess material and equipment left during the progress of this contract at job completion.

1.17 CLEANING

- A. At the conclusion of the construction the entire system of piping and equipment shall be cleaned internally.
- B. All temporary labels, stickers, etc., shall be removed from all fixtures and equipment. Name plates, ratings, instruction plates, etc. shall not be obscured by paint, insulation, or placement of units.
- C. Heating and air conditioning equipment shall be thoroughly cleaned and clean filters installed.
- D. Before being placed into service, all domestic water distribution systems, including those for cold water and hot water shall be chlorinated.
1. The treatment shall consist of a solution of not less than 50 parts per million (ppm) of available chlorine. The chlorinating material shall be either liquid chlorine or sodium hypochlorite.

1.18 ELECTRICAL WORK

- A. Electrical work and equipment provided by the mechanical contractor shall include the following:
1. Motors for mechanical equipment.
- a. Motor type: Energy-efficient type; minimum 1.15 service factor on general-purpose motors; rated at 900° C ambient temperature (Class B insulation) with 400° C temperature rise.
- b. Multiple speed motors: Multiple windings.
- c. Motors 1/2HP and under: Suitable for 120/60 except as scheduled otherwise.
- d. Motors over 1/2 HP: Suitable for 3 phase except as specified or scheduled otherwise; voltage indicated.
- e. Motor Efficiency: Tested in accordance with IEEE Standard 112, Test Method B, using accuracy improvement by segregated loss determination including stray load loss improvement as specified in NEMA MG1-12.53a.
- f. Minimum Motor Efficiencies: 1800 rpm.

<u>Motor HP</u>	<u>Efficiency</u> Open Drip-proof	<u>Efficiency</u> Totally Enclosed
1	82.5	84.0
1-1/2	84.0	85.5
2	84.0	85.5
3	87.0	88.5
5	88.0	88.5
7-1/2	89.0	90.2
10	90.2	91.0
15	91.7	92.4
20	92.4	93.0
25	93.0	93.0

- g. Peak instantaneous current: Maximum 1300% of full-load.
2. Starters and disconnects for motors of mechanical equipment, but only where specifically indicated to be furnished integrally with equipment.

3. Wiring from motors to disconnect switches or junction boxes for motors of mechanical equipment, but only where specifically indicated to be furnished integrally with equipment.
4. Electrical heating coils and similar elements in mechanical equipment.
- B. The Electrical Contractor shall provide all power wiring for mechanical equipment, including services for motors and equipment furnished by the Mechanical Contractor.
- C. The Electrical Contractor shall make final connections for all motors, equipment, etc. furnished by the Mechanical Contractor or Electrical Contractor.
- D. The Electrical Contractor shall furnish safety disconnects and starters for all motors and equipment furnished by the Mechanical Contractor (unless specifically indicated to be furnished integrally with the equipment, so as to make service complete to each item of equipment).
- E. Prior to the Electrical Contractor roughing conduit, the Mechanical Contractor shall consult with the Electrical Contractor and shall verify with him the exact locations for rough-ins, and the exact size and characteristics of the services required, and shall provide the Electrical Contractor a schedule of electrical loads for the equipment furnished by him. These schedules will be used for sizing services, disconnects, fuses, starters and overload protection.
- F. Control wiring, where not exposed, may be installed without conduit. Wiring in ducts, plenums and other air handling spaces shall be specifically listed for the use. Installation shall comply with all code requirements.

1.19 ACCESS DOORS

- A. When the Mechanical Contractor provides any equipment requiring periodic servicing which will be concealed by non-accessible architectural construction, the Mechanical Contractor shall provide a flush access door. The access door shall be equal to a Karp DSC-211 Universal access door or Nystrom APWB or type for the specific construction involved.
- B. Access doors in fire rated construction shall be fire rated and have U.L. label.
- C. Construction
 1. Door and trim shall be 13-gauge steel, frames shall be 16-gauge steel.
 2. Trim shall be of 1 piece construction.
 3. Finish shall be prime coat of rust inhibitive baked grey enamel.
 4. Hinges shall be concealed, offset, floating hinge.
 5. Locks shall be flush, screwdriver operated with stainless steel cam-and-studs.

1.20 TEMPORARY HEAT

- A. Under no circumstances shall the building HVAC equipment be used for temporary heat, cooling or ventilation during construction prior to Owner acceptance of the building at substantial completion.

PART 2 PRODUCTS

2.1 FIXTURE SCHEDULE

1. See Sheet A1.2 for HVAC Equipment Schedule for Basis of Design.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify all existing conditions and make accommodations for all fixture and pipe connections, appliance connections, electrical connections, and to interconnect all components for a complete system.

3.2 INSTALLATION

1. Install HVAC equipment in accordance with manufacturer's written instructions.

3.3 CLEANING

1. Remove all dirt, rubbish and grease on walls, floors, and fixtures for which this Contractor is responsible. The premises shall be left in first class condition in every respect. All piping, hangers, and equipment shall be cleaned as required for finish painting.

END OF SECTION 23 00 00

SECTION 26 00 00

ELECTRICAL GENERAL PROVISIONS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section includes:
 - 1. Work of this Section shall be Design/Build.
 - 2. Contractor shall furnish plans and calculations as required by local Authorities Having Jurisdiction (AHJ) for issuance of building permit and to show compliance with said codes and ordinances.
 - 3. Electrical Contractor to provide all design, labor, and materials necessary for the installation of a complete electrical system, including but not necessarily limited to: all panels, distribution systems, fixtures, lamps, smoke and heat detection appurtenances, and connections of all systems implied by Drawings, indicated on Drawings, included in other Sections of this Specification, or as otherwise required by the Contract Documents.
 - 4. All elements of the construction shall be performed by workmen skilled in the particular craft involved, and regularly employed in that particular craft.
 - 5. All work shall be performed in a neat, workmanlike manner in keeping with the highest standards of the craft.
- B. Related work in other sections:
 - 1. Section 07 92 00 – Sealants and Caulking
 - 2. Section 09 90 00 – Painting
 - 3. Section 23 00 00 – Plumbing General Provisions

1.03 CODES & REGULATIONS

- A. All electrical work to comply with all local, state, and federal laws, ordinances and regulations, as well as the current edition of the following codes.
 - 1. International Building Code
 - 2. International Plumbing Code
 - 3. International Mechanical Code
 - 4. International Fire Code
 - 5. National Electric Code (NEC)
 - 6. National Fire Protection Association Standards (NFPA)
 - 7. Local Utility Company Requirements
 - 8. Local Codes, all trades
 - 9. Standards of ASME, ASHRAE, NEMA, IEEE, AGA, SMACNA
 - 10. Occupational Safety and Health Administration (OSHA)
 - 11. Underwriters Laboratories, Inc. (U.L.)
 - 12. Iowa Administrative Codes
 - 13. Americans With Disabilities Act (ADA)
 - 14. Standards of Institute of Electrical and Electronic Engineers
 - 15. NECA Standards

- B. All Contractors shall familiarize themselves with all codes and standards applicable to their work and shall notify Design Professional of any discrepancies between the design and applicable code requirements so that any conflicts can be resolved. Where 2 or more codes or standards are in conflict, that requiring the highest order of workmanship shall take precedence, but such questions shall be referred to Architect and NICC Construction Manager for final decision.
- C. The Contractor is solely responsible for providing accurate and workable electrical systems, complete in every regard. Contractor is responsible for designing the system to meet all National, State, and Local codes and ordinances. Contractor shall furnish such plans and calculations as required to show compliance with said codes and ordinances.

1.04 REQUIREMENTS & FEES OF REGULATORY AGENCIES

- A. Contractor shall comply with the rules and regulations of the local utility companies. They shall check with each utility company providing service to this project and determine or verify their requirements regarding incoming services.
- B. Meters for incoming services shall be selected based on the project requirements. Any questions concerning this shall be referred to Design Professional prior to bidding. Contractor shall provide the appropriate meter and associated materials if not furnished by the utility company.
- C. Secure all required permits and pay for all inspections, licenses and fees required in connection with the electrical work including State of Iowa Electrical Inspections. Contractor shall post all bonds and obtain all licenses required by the State, City, County and Utility.
- D. Contractor shall make all arrangements with each utility company and pay all service charges associated with new service.

1.05 SITE INSPECTION

- A. Contractor shall inspect the site prior to submitting bid for work to familiarize himself with the conditions of the site which will affect his work and shall verify points of connection with utilities, routing of outside conduit to include required clearances from any existing structures or other obstacles.
- B. Extra payment will not be allowed for changes in the work required because of Contractor's failure to make this inspection.

1.06 COORDINATION AND COOPERATION

- A. It shall be Contractor's responsibility to schedule and coordinate his work with the schedule of the Building Construction Contractor and NICC Construction Manager so as to progress the work expeditiously, and to avoid unnecessary delays.
- B. Contractor shall fully examine the drawings and specifications for other trades and shall coordinate the installation of his work with the work of the other contractors. Contractor shall consult and cooperate with the other contractors for determining space requirements and for determining that adequate clearance is allowed with respect to his equipment, other equipment and the building. The Design Professional reserves the right to determine space priority of the contractors in the event of interference between piping, conduit, ducts and equipment of the various contractors.
- C. Conflicts between the drawings and the specifications or between the requirements set forth for the various contractors shall be called to the attention of the Design Professional. If clarification is not asked for prior to the taking of bids, it will be assumed that none is required and that the Contractor is in agreement with the drawings and specifications as issued. If clarification is required after the contract is awarded, such clarification will be made by the Design Professional and his decision will be final.
- D. Special care shall be taken for protection for all equipment. All equipment and material shall be completely protected from weather elements, painting, plaster, etc., until the project is substantially completed. Damage from rust, paint, scratches, etc., shall be repaired as required to restore equipment to original condition.
- E. Protection of all equipment during the painting of the building shall be the responsibility of the Painting Contractor, but this shall not relieve Contractor of the responsibility for checking to ensure adequate protection is being provided. Refer to Division 09 for painting protection.

- F. Where the final installation or connection of equipment in the building requires the contractor to work in areas previously finished by the Building Construction Contractor, the Electrical Contractor shall be responsible that such areas are protected and are not marred, soiled, or otherwise damaged during the course of such work. Electrical Contractor shall arrange with the General Contractor for patching and refinishing of such areas which may be damaged in this respect.

1.07 OPENINGS, CUTTING, AND PATCHING

- A. Refer to Division 01 for additional cutting and patching information.
- B. Contractor shall coordinate underground conduit and sleeves locations with Building Construction Contractor where they penetrate the building structure.
- C. Conduit and sleeves passing through all fire or smoke rated floors, roofs, walls, and partitions shall be provided with firestopping. Space between wall/floor and pipe, sleeve, and/or duct shall be sealed with UL listed intumescent fire barrier material equivalent to rating of wall/floor. Where piping, sleeves and ducts pass through floors, roofs, walls and partitions that are not fire or smoke rated, penetrations shall be sealed with grout or caulk.

1.08 MATERIALS AND EQUIPMENT

- A. All material and equipment shall be installed in strict accordance with the manufacturer's recommendations.
- B. The equipment specifications cannot deal individually with any minute items such as parts, controls, devices, etc., which may be required to produce the equipment performance and function as specified, or as required to meet the equipment guarantees. Such items when required shall be furnished as part of the equipment, whether or not specifically called for.

1.09 SHOP DRAWINGS

- A. Contractor shall furnish complete sets of shop drawings and other submittal data. Contractor shall review and sign shop drawings before submittal.
- B. Shop drawings shall be bound into sets and cover related items for a complete system as much as practical and shall be identified with symbols or "plan marks" used on drawings. Incomplete, piecemeal, or unbound submittals will be rejected.
- C. Submittals required by the various sections of the Project Manual include, but are not necessarily limited to those identified in the submittal schedule below.
- D. After award of contract, the contractor shall provide a completed submittal schedule including dates that the submittals will be to the General Contractor for review.
- E. NICC Construction Manager and Architect will review shop drawings solely to assist contractors in correctly interpreting the plans and specifications.
- F. Contract requirements cannot be changed by shop drawings which differ from contract drawings and specifications.

1.10 SUBSTITUTIONS

- A. To obtain approval to use unspecified equipment, Bidding Contractors (not equipment supplier, manufacturers, etc.) shall submit written requests to Design Professional at least ten (10) days prior to bid due date. Requests shall clearly describe the equipment for which approval is being requested. Include all data necessary to demonstrate that equipment's capacities, features and performance are equivalent to include a cost comparison between specified equipment and equipment for which approval is being requested. If the equipment is acceptable, Design Professional will approve it in an addendum. Design Professional will, under no circumstances, be required to prove that an item proposed for substitution is or is not of equal quality to the specified item.
- B. Where substitutions are approved, Contractor assumes all responsibility for physical dimensions and all other resulting changes. This responsibility extends to cover all extra work necessitated by other trades as a result of the substitution.

1.11 GUARANTEE

- A. The entire electrical system including all sub-systems shall be guaranteed against defect in materials and installation for a minimum of one (1) year. Any malfunctions which occur within the guarantee period shall be

promptly corrected without cost to the Owner. This guarantee shall not limit or void any manufacturer's express or implied warranties.

1.12 COMPLETION

- A. Systems, at time of completion, shall be complete, efficiently operating, non-hazardous and ready for normal use by the Owner.
- B. When all the electrical work is complete Contractor shall thoroughly clean all material and equipment installed as a part of this contract and leave all equipment and material in new condition.
- C. Contractor shall clean up and remove from the site all debris, excess material and equipment left during the progress of this contract at job completion.

1.13 ACCESS DOORS

- A. When the Electrical Contractor provides any equipment requiring periodic servicing which will be concealed by non-accessible architectural construction, the Electrical Contractor shall provide a flush access door.
- B. Provide in accordance with Section 08 31 00 - Access Panels.
- C. Access doors in fire rated construction shall be fire rated and have U.L. label.

1.14 OPERATION AND MAINTENANCE MANUALS

- 1. Operation and maintenance manuals shall be submitted to the Owner in accordance to Section 01 33 00 - Submittals. Each manual shall have the following information on the cover:

OPERATION
AND
MAINTENANCE
MANUAL
FOR ELECTRICAL SYSTEMS

(PROJECT NAME)
(LOCATION)
(DATE)

SUBMITTED BY
(NAME AND ADDRESS OF CONTRACTOR)

- 2. Provide a master index at the beginning of manual showing items included. Use plastic tab indexes for sections of the manual. Each section shall contain the following information for equipment furnished under this contract:
 - 1. Equipment and system warranties and guarantees
 - 2. Installation instructions
 - 3. Operating instructions.
 - 4. Maintenance instructions.
 - 5. Spare parts identification and ordering list.
 - 6. Local service organization, address, contract and phone number.
 - 7. Shop drawings with reviewed stamp of Design Professional and Contractor shall be included, if applicable, along with the items listed above.

1.15 TEMPORARY UTILITIES

- A. Refer to Specification Division 01 for specific requirements concerning temporary utilities.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Substitutions may be considered per Specification Section 01 25 00 - Substitutions and Product Options.

2.02 LIGHT FIXTURES & MISCELLANEOUS ELECTRICAL ITEMS:

- A. See Light Fixture Schedule on Sheet E1.1 for Basis of Design.
- B. Devices:
 - 1. Ground Fault Circuit Interrupters (GFCI): Provide ground fault circuit interrupters as required by all codes. The GFCI in the Bathrooms to have separate circuit breakers at each receptacle.
 - 2. Duplex Receptacles: To be grounded type mounted at 12" above finish floor unless above cabinetry or as required by Owner.
 - 3. Switches: To be located at 48" height unless otherwise noted or detailed on the drawings.
 - 4. Devices and cover plates to match existing.
 - 5. Occupancy sensors in all Rooms, Closets, Mezzanine, and Shop Bays.
- C. Lamps:
 - 1. Lamps shall be General Electric, North American Philips, Osram-Sylvania.
 - 2. Furnish lamps for all fixtures as per schedule on drawings.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify all existing conditions and make accommodations for all fixture and device connections, connections to plumbing equipment, and to interconnect all components for a complete system.

3.02 INSTALLATION

- A. Install interior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of the National Electric Code (NEC), NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.
- B. Coordinate with other electrical work as appropriate to properly interface installation of interior lighting fixtures with other work.
- C. All fixtures shall be grounded. All lamp sockets shall be wired so that the outer shell is connected to the neutral grounded conductor.
- D. Fixtures recessed in furred ceiling shall be installed so that they can be removed from below the ceiling.
- E. Install wiring devices as indicated on the drawings and as called for below.
- F. Where light switches are located adjacent to doors, they shall be installed on "knob" side of door, unless noted otherwise.
- G. All GFI type receptacles shall be installed where GFI notation is shown on plans. No downstream protection of receptacles will be allowed from load side of other GFI type receptacles.

3.03 CLEANING

- A. Remove all dirt, rubbish or grease on walls, floors, or fixtures for which this Contractor is responsible. The premises shall be left in first class condition in every respect.

END OF SECTION 26 00 00

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES

1. Remove vegetation.
2. Tree, brush, and stump removal.

1.2 RELATED SECTIONS

- A. Section 31 23 10 – Excavation and fill for Buildings.
- B. Section 31 23 30 – Excavating, Trenching and Backfilling for Utilities.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

- A. Remove vegetation, organic and loose material from site as called out in Civil Drawings.
- B. Clear trees, saplings, shrubs, bushes, vines, undergrowth and the like from areas required, except as noted on drawings for trees designated to be saved or transplanted.
- C. Grub entire stump and root ball of trees, shrubs and bushes.
- D. Cleared and/or grubbed materials deemed disposable by the Owner's Representative shall become the property of the Contractor and shall be disposed of by him/her. The method and location of disposal shall be consistent with applicable laws and ordinances.

END OF SECTION 31 11 00

SECTION 31 14 00

TOPSOIL STRIPPING, SALVAGING AND SPREADING

PART 1 GENERAL – PHASE 1 – CONTRACT #1

1.1 SUMMARY

- A. Section includes:
 - 1. Stripping, salvaging and spreading of topsoil.
 - 2. Furnishing and installing off-site material.

1.2 RELATED SECTIONS

- A. Section 31 23 10 – Excavation and Fill for Buildings.
- B. Section 31 23 30 – Excavating, Trenching and Backfilling for Utilities.

PART 2 PRODUCTS – PHASE 1 – CONTRACT #1

2.1 TOPSOIL

- A. Use suitable existing topsoil of uniform quality, free from hard clods, roots, sod, stiff clay, hard pan, stones larger than 1/2 inch, lime cement, ash, slag, concrete, tar residue, tarred paper, boards, chips, sticks, or any undesirable material.
- B. Off-site Topsoil shall contain at least 3% organic matter, according to ASTM D 2974, have a high degree of fertility, be free of herbicides that prohibit plant growth, have a pH level between 6.0 and 8.0, and meet the following mechanical analysis requirements:

Sieve	Percent Passing
1"	100
1/2"	100
1/4"	40 to 60
No. 100	40 to 60
No. 200	10 to 30

The Geotechnical Engineer will approve the source of off-site topsoil. Surface soils from ditch bottoms, drained ponds, and eroded areas, or soils that are supporting growth of noxious weeds or other undesirable vegetation, will not be accepted. The Geotechnical Engineer will determine if testing is necessary. The Contractor will be responsible for payment of the testing if the off-site topsoil does not meet the above requirements.

PART 3 EXECUTION – PHASE 1 – CONTRACT #1

3.1 STRIPPING

- A. Clearing and grubbing shall be completed prior to stripping of topsoil.
- B. Stripping depths will vary throughout site as recommended per the Geotechnical Report and the Civil Drawings.
- C. Stripping of topsoil shall occur immediately prior to earthwork.

3.2 SALVAGING

- A. Stockpiling of topsoil and excavated material will be onsite at a location approved by the NICC Construction Manager.
- B. Topsoil and other excavated material shall be kept separate unless directed otherwise.

3.3 SPREADING – PHASE 2 – CONTRACT #1

- A. Topsoil shall be the both material obtained on-site from stripping and stockpiling and from an off-site source. The required depth of off-site material shall be as stated in the plans. During the course of stripping, stockpiling, and spreading of topsoil, the topsoil shall be protected against the admixture of foreign debris. Remove from the topsoil prior to spreading all sticks, stones, and refuse 1/2 inch or more in any dimension.
- B. Before commencing the spreading of topsoil, verify that the subgrades are at the proper elevation to accept the topsoil.
- C. Spreading of topsoil may be from early spring to late fall when no frost exists in the ground or is likely to occur.
- D. When construction work is finished and after rough grading has settled and been reviewed, and immediately prior to finished grading, any sticks, stones, or foreign material 3 inches or greater shall be removed from the subgrade, and the surface shall be harrowed or otherwise loosened to a depth of 3 inches.
- E. Topsoil shall be spread over all disturbed areas of the project site where construction activity has disturbed the natural grass cover and shall conform smoothly to the lines, grades, and elevations shown.
- F. After spreading topsoil all large stiff clods, hard lumps, roots, litter, other foreign matter, and stones larger than 1 inch in greatest dimensions shall be raked up from the topsoiled areas and removed from premises or disposed of in a manner satisfactory to the NICC Construction Manager. All topsoiled areas shall be raked to a smooth uniform surface.
- G. Off-site topsoil will be placed on top of existing topsoil and be to a depth as stated in the plans.
- H. Topsoil shall not be spread if the topsoil or the subgrade is in a muddy condition.

END OF SECTION 31 14 00

SECTION 31 22 00

EARTHWORK AND GRANULAR MATERIALS

PART 1 GENERAL – CONTRACT #1

1.1 SUMMARY

- A. Some provisions of this specification are not applicable to this project. This project shall be governed by all provisions that are applicable.
- B. Section Includes
 - 1. Scarifying and compaction.
 - 2. Benching of fill slopes.
 - 3. Stockpiling of excavated material
 - 4. Provide suitable material from stockpile and excavated areas to rough grade for parking, sidewalks, curb and gutters, paving, building pad, and landscaped areas.
 - 5. Granular material and gradations.
 - 6. The contractor will be required to haul excess and unsuitable material off site.

1.2 APPLICABLE REFERENCES

- A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
 - 1. Iowa Department of Transportation (IDOT), Division of Highways; English Standard Specifications for Highway and Bridge Construction, latest edition.
 - 2. ASTM Standards for compaction testing: ASTM D-2922 and ASTM D-698

1.3 RELATED SECTIONS

- A. Section 01 22 00 – Unit Prices.
- B. Section 31 11 00 – Clearing and Grubbing.
- C. Section 31 14 00 – Topsoil Stripping, Salvaging and Spreading.

PART 2 PRODUCTS AND MATERIALS – PHASE 1 -CONTRACT #1

2.1 QUALITY ASSURANCE

- A. Moisture and density control will be exercised and in-place density testing will be performed on this project by Geotechnical Engineer as required in the Geotechnical Report included in Section 00 31 32.
 - 1. When work or portions of work of this Section are completed, notify the testing laboratory to perform density tests. Do not proceed with additional portions of work until results have been verified.
 - 2. If, during the progress of work, tests indicate that compacted materials do not meet specified requirements, remove defective work, replace and compact and retest. Repeat until material meets requirements.
 - 3. Proof rolling of subgrade shall be conducted prior to paving operations. Proof roll with a truck loaded to the maximum single legal axle gross weight of 20,000 pounds or the

maximum dual legal axle gross weight of 34,000 pounds. Operate the truck at speed less than 10 mph. Make a pass a minimum of every twelve feet. The subgrade shall be considered unstable if, under the operation of the loaded truck, the surface shows yielding or rutting of more than 2.0 inches measured from the top to the bottom of the rut at the outside edges.

2.2 JOB CONDITIONS

D. Dust control

1. Use all means necessary to control dust on and near work, if such dust is caused by the Contractor's operations during performance of the work or if resulting from the condition in which the Contractor leaves the site. All dust control methods will be reviewed with the Owner/Owner's Representative.

E. Protection

1. Locate existing underground utilities in the areas of work before starting grading operations and provide adequate means of protection during earthwork operations. Should uncharted or incorrectly charted piping or other utilities be encountered during grading, consult the Owner immediately. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the utility owner.

2.3 STANDARD SPECIFICATIONS AND STANDARDS

- A. Compaction requirements stated in percentages refer to the minimum degree of compaction required in Geotechnical Report in relation to the maximum dry density of the backfill material as determined in the laboratory in accordance with ASTM D-698, Standard Proctor Density. Where the Standard Proctor technique (ASTM D-698) does not result in a definable maximum dry density and optimum moisture content use Relative Density technique (ASTM D4253 & D4254).
- B. The moisture content of granular soils, non-expansive, and moderately expansive soils shall be within range as required in Geotechnical Report.
- C. Codes and Standards
 1. Comply with the applicable provisions of the codes and standards published by the following organizations to the extent indicated by reference thereto:
"American Society of Testing and Materials" (ASTM)

2.4 CLASSIFICATION OF MATERIALS

A. Earth:

1. All materials not classified as rock include clay, silt, sand, gravel, hardpan, disintegrated shale and rock debris, junk brick, loose stones, and boulders.

B. Rock:

1. Solid deposits so firmly cemented together that their removal requires continuous use of pneumatic tools or blasting.
2. Use blasting only with written permission of the Owner and AHJ.

2.5 ON-SITE FILL MATERIAL

- A. All materials used for filling and backfilling, except granular backfill, coarse aggregate subbase (breaker run), granular subbase, pea gravel (3/8" clean limestone chips) and 1" clean crushed stone shall be obtained as required by Geotechnical Report. Such material shall be suitable for the purpose intended and shall be capable of being compacted to the desired density. Except as noted on the plans, all fill material shall be soil, soil-gravel mixture, or soil-rock mixture which is free from organic matter and other deleterious substances; it shall contain no rocks or lumps over six (6) inches in greatest dimension. Material used for fill or backfill shall not contain sticks, roots, debris or organic matter. Undesirable material shall be wasted by the Contractor at an off-site location determined by the contractor.

2.7 OTHER MATERIALS

- A. All other materials not specifically described but required for proper completion of the work of this Section, shall be as selected by the Contractor subject to review by the Geotechnical Engineer.

PART 3 EXECUTION - PHASE 1 - CONTRACT #1

3.1 GENERAL

- A. Familiarization
 - 1. Prior to all work of this Section, become thoroughly familiar with the site, the site conditions, and all portions of the work falling within this Section.
 - 2. Clearing and grubbing, vegetation removal and topsoil stripping, salvaging shall be completed.
- B. Backfilling prior to approvals:
 - 1. Do not allow or cause any of the work performed or installed to be covered up or enclosed by work of this Section prior to all required reviews and tests.
 - 2. Should any of the work be so enclosed or covered up before it has been reviewed and/or tested, the Contractor shall uncover all such work at no additional cost to the Owner.

3.2 EXCAVATION

- A. General
 - 1. Contractor shall be responsible for excavating all materials encountered and performing all earthwork required for the site improvements. The excavation shall be made as shown on the Civil Drawings and as required by the Geotechnical Report.
 - 2. Unless otherwise shown or specified, there shall be no extra payment or other charges due to the encounter of unexpected materials.
 - 3. Surplus excavated material shall be deposited on the site by the Contractor in a location approved by the NICC Construction Manager. Any such work shall be considered incidental to the Contract and shall be accomplished by the Contractor without extra compensation.
 - 4. Contractor shall do all shoring necessary to maintain banks or excavation or to protect property and shall be held responsible for any damage done due to failure of such.
 - 5. The work shall be conducted so that excavations shall drain.
 - 6. In excavated areas defined for driveway and paving construction, the excavated grade shall be scarified and recompactd in accordance with Section 3.6 of this section.

- B. Depressions Resulting from Removal of Obstructions:
 - 1. Where depressions result from or have resulted from the removal of surface or subsurface obstructions, open the depression to equipment working width and remove all debris and soft material as directed by the Geotechnical Engineer.
- C. Other Areas:
 - 1. Excavate to the grades shown on the plans.
 - 2. Where excavation grades are not shown on the plans, excavate as required to accommodate the installation.
 - 3. All final exposed borrow or excavation or stockpile slopes shall be no steeper than 3:1 and shall be graded to drain.
- D. Interceptor Drain line
 - 1. Contractor to install an interceptor subdrain, if ground water seepage is encountered in area as shown on the Plans. Drain shall be installed as recommended by a Geotechnical Engineer.

3.3 EXCESS WATER CONTROL

- A. Unfavorable Weather
 - 1. Do not place, spread, or roll any fill material during unfavorable weather conditions.
- B. Flooding
 - A. Provide berms or channels to prevent flooding of subgrade; promptly remove all water collecting in depressions.
- C. Softened Subgrade
 - 1. Where soil has been softened or eroded by flooding or placement during unfavorable weather, remove all damaged areas and re-compact as specified for fill and compaction below.
- D. Dewatering
 - 1. Provide and maintain at all times during construction, ample means and devices with which to promptly remove and dispose of all water from every source entering the excavations or other parts of the work.
 - 2. Dewater by means which will ensure dry excavations and the preservation of structures and the final lines and grades of bottoms of excavations.

3.4 FILL

A. Surface Preparation

1. When fill is to be placed over the existing grade, clearing and grubbing, vegetation removal and topsoil stripping and salvaging shall be completed prior to beginning work.
2. Embankments placed on or against an existing slope shall be keyed into the natural slope. The slope shall be cut with a continuous series of steps or benches extending at least 3 feet horizontally into the natural slope. The bench under the toe of the fill shall be at least 10 feet wide horizontally.

B. Filling

1. Spread fill material in layers not exceeding 8 inches in uncompacted thickness or as recommended in Geotechnical Report.
2. Fill areas to contours and elevations with unfrozen materials.

3.5 MOISTURE-CONDITIONING

- A. Water or dry the fill material as necessary and thoroughly mix to obtain a moisture content which will permit proper compaction.
- B. A uniform moisture content will be required throughout the layers of fill material.

3.6 EARTH FILL COMPACTION REQUIREMENTS

- A. All fill that is placed shall be constructed using moisture and density control.
 1. Compaction tests shall be conducted as required in the Geotechnical Report.
- B. All excavated areas shall be roughened to a minimum depth of 8 inches, scarified, and recompactd using moisture and density control. The compaction requirements shall be 95% Standard Proctor Density per ASTM D-698 or as required in Geotechnical Report.
- C. Not all soils on site may be used. Refer to Geotechnical Report for acceptable soils to be used

3.7 GRANULAR FILL COMPACTION

- A. All granular fill placed shall be constructed using moisture and density control.
 1. Compaction tests shall be conducted at a frequency of one test per 500 square feet or as required by Geotechnical Report.

3.8 REST AND SETTLEMENT PERIOD

- A. Contractor to prepare rough grading and temporary erosion control on site for the 4 week "Rest and Settlement" of compacted soils as required by the Geotechnical Report.
- B. Geotechnical Engineer to check compacted soils at end of "Rest and Settlement" to determine if settlement has occurred and it is within the Geotechnical Report recommendations.

3.9 GRADING – PHASE 2

A. General

1. Except as otherwise directed by the Owner's Representative, perform all grading required to attain the elevations indicated on the plans. All bulges shall be removed and all sags filled unless shown on the plans.
2. Make grade changes gradual. Blend slopes into back of curb and sidewalks.
3. Remove all excess material from site.
4. Slope grade away from building as per the Grading plans.

B. Grades and contours on plans show finished grades. Contractor shall adjust subgrade elevations to allow for placement of topsoil on all open areas.

C. Grading tolerances for earth fill at top of subgrade: Plus or minus 0.1 foot.

D. Grading tolerances for granular fill under pavements and curb & gutter: Plus or minus 0.05 foot.

E. The Contractor will be expected to complete erosion control work on all finished areas within five working days after completion of finishing. The Contractor will be expected to keep finishing operations current with other construction operations and to keep erosion control operations current with finishing operations.

F. Treatment after completion of grading:

1. Contractor to complete topsoil placement after final grading. See Section 31 14 00.
2. Contractor to prevent the erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

3.10 CLEANING UP AND MAINTENANCE – PHASE 2

A. Upon completion of the work of this section, immediately remove all debris from the site. The Contractor shall maintain the site during the process of construction up to the final acceptance of the project.

END OF SECTION 31 22 00

SECTION 31 23 10

EXCAVATION AND FILL FOR BUILDINGS

PART 1 GENERAL – PHASE 2- CONTRACT #3

1.1 SUMMARY

- A. Section Includes
 - 1. Excavation for building foundations.
 - 2. Excavation for Slab-on-grade.
 - 3. Stockpiling of excavated material

1.2 QUALITY ASSURANCE

- A. After “Rest and Settlement” Testing shall be performed to ensure the bearing capacity as per the Structural plans.
- B. If unsuitable soils are encountered at footing bearing elevations, extra Work, as may be recommended by the Geotechnical Testing Firm, will be paid for as unsuitable material at the per cubic yard unit price negotiated prior to the start of work.
- C. Testing frequency shall be as specified in Geotechnical Report.
- D. Verify survey benchmark and elevations of Work are as indicated.
- E. All Testing, Evaluation and Inspections identified shall be considered inclusive to the Project costs.

1.3 RELATED SECTIONS

- A. Section 00 31 32 – Geotechnical Report
- B. Section 31 11 00 – Clearing and Grubbing.

1.4 SUBMITTALS

- A. Submit name of material sources and of the imported fill material suppliers.

PART 2 PRODUCTS AND MATERIALS – CONTRACT #3

2.1 FILL MATERIALS

- A. Materials shall be as required in the Geotechnical Report and approved by Geotechnical Engineer prior to use.
- B. When work or portions of work of this Section are completed, notify the testing laboratory to perform density tests. Do not proceed with additional portions of work until results have been verified.
- C. If, during the progress of work, tests indicate that compacted materials do not meet specified requirements, remove defective work, replace and compact and retest. Repeat until material meets requirements at no cost to Owner.

PART 3 EXECUTION – PHASE 2 – CONTRACT #3

3.1 GENERAL

A. Familiarization

1. Prior to all work of this Section, become thoroughly familiar with the site.
2. Verify that fill materials, intended to be used, are acceptable to the Geotechnical Testing Firm.
3. Verify that areas to receive fill and areas of over-excavation have been inspected and approved by Geotechnical Testing Firm.

B. Backfilling prior to approvals:

1. Do not allow or cause any of the work performed or installed to be covered up or enclosed by work of this Section prior to all required reviews and tests.
2. Should any of the work be so enclosed or covered up before it has been reviewed and/or tested, the Contractor shall uncover all such work at no additional cost to the Owner.

3.2 PREPARATION

- A. Identify required lines, levels, contours and datum locations.
- B. Locate, identify and protect utilities that remain and protect from damage.
- C. Notify utility company to remove and locate utilities as necessary.

3.3 EXCAVATION

- A. Vegetation removal, topsoil stripping and salvaging shall be completed prior to beginning work in this section.
- B. Stockpiling of excavated material will be onsite at the location as shown on the plans.
- C. The Contractor shall slope banks or angle of repose and/or the Contractor shall do all shoring necessary to maintain banks or excavation or to protect property and shall be held responsible for any damage done due to failure of such.
- D. Excavate subsoil to accommodate building foundations, slabs on grade, construction operations, and areas indicated to be cut and excavated as shown on the Plans.
- E. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- F. Remove lumped subsoil's, boulders, and rock up to 1/3 cu. yd. measured by volume.
- G. Hand trim excavation. Remove loose material.
- H. The prepared subgrade for footing and slab-on-grade construction shall be evaluated by the Geotechnical Testing Firm. Notify Geotechnical Testing Firm to observe the exposed subgrade. Notify the Owner of unexpected subsurface conditions and discontinue affected Work in the area until notified to resume.
- I. Over-excavation
 1. Unstable/unsuitable areas shall be over-excavated as recommended by the Geotechnical Testing Firm.
 2. The backfill material shall meet requirements of granular subbase per the Civil Drawings and Geotechnical Testing Firm requirements.
 3. If the soils near the bottom of excavation are very moist the backfill material shall be 1-inch clean crushed stone or as recommended by Geotechnical Testing Firm.
 4. If over-excavation is required, it will be measured in cubic yards of compacted backfill in place and will be paid for a negotiated unit price per cubic yard prior to over-excavation work starting. The over-excavation of the unstable/unsuitable material, removal of the material from the site, and the compacted backfill shall be included in the unit price for compacted backfill.

3.4 EXCESS WATER CONTROL

A. Unfavorable Weather

1. Do not place, spread, or roll any fill material during unfavorable weather conditions.

B. Dewatering:

1. Provide and maintain at all times during construction, ample means and devices with which to promptly remove and dispose of all water from every source entering the excavations or other parts of the work.
2. Dewater by means that will ensure dry excavations and the preservation the final lines and grades of bottoms of excavations.

3.5 BACKFILLING AND COMPACTION

- A. A uniform moisture content will be required throughout the layers of fill material. The moisture content shall be within as recommended in the Geotechnical Report.
- B. All fill that is placed shall be constructed using moisture and density control. The compaction requirement shall be 95% Standard Proctor Density per ASTM D-698 or as required in Geotechnical Report.
- C. All excavated areas shall be roughened to a depth of 6 inches, scarified, and recompacted using moisture and density control. The compaction requirements shall be 95% Standard Proctor Density per ASTM D-698.
 - 1. Compaction tests shall be conducted at a frequency of one test per 2000 square feet or less at subgrade and at each compacted fill and backfill layer, but in no case fewer than three tests.
- D. Backfill to contours and elevations indicated with unfrozen materials.
- E. Employ a placement method that does not disturb or damage other work.
- F. Place materials in uniform layers not to exceed 6-inches in uncompacted in thickness.
- G. The compaction requirements for foundation, footing and slab-on-grade fill shall be 98% Standard Proctor Density per ASTM D-698.
- H. Backfill shall not be placed until the forms have been removed, required surface treatments applied, excavation cleaned of all trash and debris, and the work reviewed by the Geotechnical Testing Firm.
- I. Backfill shall not be placed against the foundation walls until they have attained sufficient strength to withstand the compacting operation and all support structures are placed and have attained sufficient strength. Compaction required within 3 feet of any structure shall be by hand held mechanical methods.
- J. Slope grade away from building a minimum of 2-inches in 10 feet, unless otherwise noted.
- K. Placement of the fill shall be simultaneously with backfilling outside of the walls where appropriate.
- L. Backfilling shall not be done in freezing weather or with frozen material.
- M. Make grade changes gradual. Blend slope into level areas.

3.6 FIELD QUALITY CONTROL

- A. Geotechnical Testing Firm visual inspection of surfaces to receive fill and areas of over-excavation required before proceeding with work.
- B. Geotechnical Testing Firm visual inspection of footing bearing surfaces and excavations required before proceeding with work.
- C. Testing firm will take samples and perform tests and analysis of fill in accordance with ASTM D698. Where ASTM D698 technique does not result in a definable maximum dry density and optimum moisture content use ASTM D4253 and D4254 test methods.
- D. Testing firm will perform compaction testing on fill material in accordance with ASTM D698 or ASTM D4254.

1. Test frequency as listed in this Section under 3.5.

3.7 PROTECTION

- A. Protect displacement or loose material from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation and slab-on-grade from freezing.

END OF SECTION 31 23 10

SECTION 31 23 30

EXCAVATING, TRENCHING AND BACKFILLING FOR UTILITIES

PART 1 GENERAL – PHASE 1 – CONTRACT #1

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction, and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contract Documents, including all Drawings, Specifications, and Addenda are complementary, and what is required by 1 shall be as binding as if required by all. Contractors, Subcontractors, and Suppliers are required to review every page of the Contract Documents for work that may be shown in 1 location, but not another. No extra compensation will be given for work that is required by the Contract Documents, or reasonably inferable from them as being necessary to produce the indicated results.

1.02 SUMMARY

- A. Section Includes
 - 1. This section encompasses the work required for excavating of trenching, appurtenances, bedding and backfilling for the installation of utilities.
 - 2. Exploratory excavation for existing utilities.

1.03 APPLICABLE REFERENCES

- A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
 - 1. Standard Specifications and Drawings.
 - 2. American Society for Testing and Materials (ASTM), Annual Book of ASTM Standards, Current Edition.
 - 3. Code of Federal Regulations (CFR), Title 29, Chapter XVII - Occupational Safety and Health Administration (OSHA), Department of Labor, Part 1926 Regulations, Current Edition.
 - 4. Iowa Department of Transportation (IADOT), English Standard Specifications for Highway and Bridge Construction, Current Edition.
 - 5. Iowa Water Supply Facilities Design Standards (IAWSFDS), Current Edition.
 - 6. Iowa Wastewater Facilities Design Standard (IAWFDS), Current Edition.
 - 7. Traffic Control shall be in accordance with IDOT Standard Road Plans TC-212 and TC-252.

1.04 QUALITY ASSURANCE

- A. Testing frequency shall be as specified Civil Drawings and per Geotechnical Report.

1.05 RELATED SECTIONS

- A. Section 313 05 00 – Common Work Results for Utilities.
- B. Section 31 22 00 – Earthwork and Granular Materials.

1.06 JOB CONDITIONS

- A. Length of open trench
 - 1. The maximum length of open trench shall be 100’.
 - 2. The Contractor shall not leave open trench unattended without proper barricades or fencing.
- B. Protection of existing utilities
 - 1. Contractor is responsible for contracting Iowa One-Call and having utilities located. NICC private utilities shall be located by the Contractor or a private locating service employed by the Contractor.
 - 2. Where public utilities fixtures are shown as existing on the plans or encountered within the construction area, it shall be the responsibility of the contractor to notify the owners of those utilities prior to the beginning of any construction. The Contractor shall afford access to these facilities for necessary

modification of services. Underground facilities, structures and utilities have been plotted from available surveys and records and therefore their locations must be considered approximate only. It is possible there may be others, the existence of which is presently not known or shown. It is the contractor's responsibility to determine their existence and exact location and to avoid damage thereto. No claims for additional compensation will be allowed to the Contractor for any interference or delay caused by such work.

3. Contractor shall coordinate notification and interruption with NICC, the interruption will not cause a disruption of services greater than twelve (12) hours in length between the hours of 8:00AM and 8:00PM. Forty-eight (48) hour notice of service interruption, to NICC is required, except during emergencies.
 4. Contractor will not be allowed to operate any public valves, hydrants or water services on the water distribution system without the NICC's approval.
 5. If a non-scheduled interruption of utility service results from accidental damage, the Contractor shall take immediate steps as necessary to notify the utility and restore service.
 6. All existing utilities crossing through the excavation trench shall be shored/supported as required to protect the utility. The Contractor shall be responsible for repairing all damage to utilities caused by the construction activities.
- C. Protection of existing facilities
1. Structures, sidewalk, driveways, curb and gutter, trees, shrubs, lawns, signs, fences, utilities, survey monuments, pavements, culverts and other appurtenances which are adjacent to the right-of-way or work easements, and identified as items to remain following construction shall be carefully protected against damage.
 - a. In the event of damage or inadvertent injury or removal of these surface features by failure of the Contractor to exercise reasonable precautions or proper construction techniques, he shall bear the full cost and responsibility for resulting damages and shall replace or repair such damage as early as possible. No allowance for extra payment or time lost will be allowed for such interferences that the Contractor could have suspected or anticipated during pre-bid site inspection and interpretation of the bidding documents.
 2. Obstructions, which are intended to be reset, shall be stored and protected by the Contractor.
 3. Monuments for land surveys encountered in the path of work shall be carefully protected from movement. Should removal be necessary, the Contractor shall notify the Engineer in advance. The Contractor will be held responsible for re-establishing monuments lost due to his negligence or failure to notify the Engineer at least twenty-four (24) hours in advance of disturbing.
- D. Scheduling
1. Cleanup shall be performed promptly following utility installation.
 2. Repair of trench settlement shall be performed promptly.

PART 2 PRODUCTS AND MATERIALS – PHASE 1- CONTRACT #1

2.01 GRANULAR BACKFILL MATERIALS

- A. Granular backfill materials shall be in accordance with Civil Drawings and the Geotechnical Report.

PART 3 EXECUTION – PHASE 1 – CONTRACT #1

3.01 GENERAL

- A. All excavation of every description and of whatever substances encountered shall be performed to the depth, alignment and grade indicated in the Plan or as otherwise specified.
- B. The Contractor shall be responsible for providing barricades and safety protection around excavation and work areas.
- C. During excavation, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins. All excavated materials not required or suitable for backfill shall be removed and wasted. Grading shall be done as may be necessary to prevent surface water from flowing into trenches or other excavations and any water accumulated therein shall be removed by pumping or by other approved methods.
- D. Care should be exercised to avoid over-compacting and disturbing soils supporting adjacent structures and utilities. If unsuitable or unstable subgrade materials are observed they shall be removed and replaced with trench stabilization stone per Civil Drawings and Geotechnical Report.

3.02 SHEETING, SHORING AND BRACING

- A. Sheeting and shoring shall be placed as may be necessary for the protection of the work and for the safety of personnel. Unless otherwise indicated, excavation shall be by open cut.
- B. Removal of fill may result in excavations adjacent to or near existing utilities and pavements. Adequate sheeting and shoring will be required to reduce the risk of settlements and damage to existing utilities and pavements. Underpinning or other methods of stabilization of soils beneath and adjacent to existing structures, pavements, and utilities should be considered to reduce the risk of damage. Contractor shall be responsible for costs of all sheeting, shoring, underpinning necessary to protect adjacent facilities and shall provide such at no additional cost to the Owner.
- C. Unsupported excavation sidewalls in areas near existing or proposed facilities shall not be permitted. Furthermore, systems that impart vibrations into the adjacent soils, such as sheet pile driving, shall not be used as they may disturb and damage existing adjacent facilities and structures.
- D. Pull all sheeting.
- E. When movable trench box is used below spring line of pipe, it shall be lifted prior to any forward movement to avoid pipe displacement.
- F. Sheeting and shoring shall be in accordance with OSHA and other applicable governmental agencies. The Contractor has sole responsibility for complying with the regulations.

3.03 EXCAVATION

- A. Trench Excavation
 - 1. Trenches shall be of the necessary width, depth, alignment and grade for proper laying of pipe as shown on the Plans. The banks of trenches shall conform to OSHA requirements and the Contractor is responsible for all safety requirements of said codes.
 - 2. The bottom of the trenches shall be accurately graded to provide uniform bearing and support for each section of the pipe. Bell holes and depressions for joints shall be dug after the trench bottom has been graded, and in order that the pipe rest on the prepared bottom for as nearly its full length as practicable, bell holes and depressions shall be only of such length, depth, and width as required for properly making the particular type of joint. Stones shall be removed as necessary to avoid point bearing.
 - a. Where unstable materials are encountered at trench bottom, the bottom of trench shall be over-excavated to a depth a minimum of 12" beneath the pipe invert elevation. Over-excavated area shall be back filled with compacted trench stabilization stone as per the Civil Drawings and the Geotechnical Report.
 - b. Except as hereinafter specified for wet or other unstable material, over-excavation shall be backfilled as and with materials specified for, backfilling the lower portion of trenches. Whenever wet or otherwise unstable material that is incapable of properly supporting the pipe is encountered in the bottom of the trench, such material shall be over-excavated to a depth to allow for construction of stable pipe bedding. The trench shall be backfilled to the proper grade with suitable approved materials.
 - c. The minimum trench width shall be sufficient to allow space for jointing, bedding and compacting. The maximum allowable trench width at a point 12" above the top of pipe (pipe envelope) shall be as follows:
 - 1) For pipes 6" to 10" in diameter the maximum trench width shall be 30".
 - 2) For pipes 12" in diameter and larger, the maximum trench width shall be the outside pipe diameter plus 24".
- B. Excavation for Utility Structures.
 - 1. Excavate for manholes and structures in the location and to the depth shown in Plans.
 - 2. Provide clearance around sidewalls of structure for construction operations. Excavation for manholes and similar structures shall be sufficient to leave at least 24" clear space between the outer surface of structure and the bank, trench box or shoring that may be used to hold and protect the banks.
 - 3. Excavation shall extend a minimum of 8" below the bottom of the structure or as shown on Plans.
 - 4. Place manhole and structure sections plumb and level.

3.04 BEDDING AND PIPE ENVELOPE

- A. Place pipe envelope material simultaneously on both sides of pipe to prevent displacement.

- B. Pipe envelope materials shall be of even consistency and free of boulders and clumps.
- C. Place material so that impact on pipe is minimized. Any pipe damaged shall be replaced by contractor at no expense to Owner.
- D. Bedding and pipe envelope for utilities shall be as shown on the plans and specified in the respective utility section.
- E. Bedding for utility structure shall be compacted 1" clean crushed stone meeting material requirements as per Civil Drawings and Geotechnical Report.

3.05 BACKFILLING AND COMPACTION

- A. Types of Backfill
 - 1. Backfill beneath proposed or future pavement, sidewalks and curb & gutter shall consist of Granular Backfill meeting material requirements as per Civil Drawings and Geotechnical Report.
 - 2. Backfill beneath landscaped and non-paved areas shall consist of in-situ materials.
- B. No frozen material shall be used for backfilling.
- C. Install a minimum cushion of 3' of backfill above pipe envelope before using heavy compacting equipment.
- D. Compaction
 - 1. Compaction of Granular Backfill fill placed below pavements, sidewalk and curb & gutter shall be compacted to 95% of the material's maximum standard Proctor dry density or as required by Geotechnical Report. A uniform moisture content will be required throughout the layers of fill material as required in Geotechnical Report.
 - 2. Contractor shall be required to provide all testing and observance required to assure that compaction requirements are met.
 - 3. Compaction tests shall be conducted at a frequency as required in Geotechnical Report.
 - 4. Tests, including the retesting of rejected materials and installed work, shall be done by the Geotechnical Engineer at the Contractor's expense.
- E. If Settlement should occur, succeeding any of the above backfilling methods, the Contractor shall scarify the surface of the fill material and place additional fill material in the same manner as herein described so that the surface elevation conforms to that shown on the contract drawings. No additional compensation shall be allowed for repairing filled areas where after-settlement occurs.

3.06 REMOVAL OF WATER

- A. At all times during the excavation period and until its completion and acceptance at final inspection, ample means and equipment shall be provided with which to remove promptly, and dispose of properly, all water entering any excavation or other parts of the work. The excavation shall be kept dry and groundwater levels shall be kept low enough to prevent a quicksand condition from ruining the trench bottom.
 - 1. No water shall be allowed to rise over or come in contact with concrete or masonry until the concrete and mortar have attained a set satisfactory to the Architect and, in any event, no sooner than twelve (12) hours after placing.
 - 2. Water pumped or drained from the work hereunder shall be disposed of in a suitable manner without damage to adjacent property, to other work under construction, or to street pavements or municipal parks or property. Water shall not be discharged onto streets without adequate protection of the surface at the point of discharge. No water shall be discharged into sanitary sewers. No water containing settleable solids shall be discharged into storm sewers.
- B. Any and all damage caused by dewatering the work shall be promptly repaired by the Contractor.
- C. Dewatering shall be done as required at no additional cost to the Owner.

3.07 FIELD QUALITY CONTROL

- A. Any testing required because of failure of backfill to meet specification requirements shall be paid for by the Contractor. Test reports shall be sent to the Contractor with copies to the Owner.
- B. If specified compaction rates are not attained, the Owner's representative may require the Contractor to utilize different compaction methods or lift thicknesses until compaction rates are achieved.

END OF SECTION 31 23 30

SECTION 32 13 73

CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL – PHASE 2 - CONTRACT #3

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Hot-applied joint sealants.
 - 2. Joint-sealant backer materials.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of joint sealant and accessory.

1.4 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS – PHASE 2 – CONTRACT #3

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 HOT-APPLIED JOINT SEALANTS

- A. Hot-Applied, Single-Component Joint Sealant: AASHTO, M153 OR M213.

2.3 JOINT-SEALANT BACKER MATERIALS

- A. Joint-Sealant Backer Materials: Non-staining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.
- B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION – PHASE 2 – CONTRACT #3

3.1 EXAMINATION

- A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

3.3 INSTALLATION OF JOINT SEALANTS

- A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of joint-sealant backings.
 - 2. Do not stretch, twist, puncture, or tear joint-sealant backings.
 - 3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.
- C. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:
 - 1. Place joint sealants so they fully contact joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

- D. Tooling of Non-sag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:
 - 1. Remove excess joint sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- E. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

- A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.
- B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

3.5 PAVING-JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Joints within concrete paving.
 - 1. Joint Location:
 - a. Expansion and isolation joints in concrete paving.
 - b. Contraction joints in concrete paving.
 - c. Any joint width equal to or greater than 1/8 inch.

END OF SECTION 32 13 73

SECTION 32 17 00

PAVEMENT MARKINGS

PART 1 GENERAL – PHASE 2 – CONTRACT #4

1.1 SUMMARY

- A. Section Includes
 - 1. Parking lot markings, including parking stalls and handicap symbols and access isles.

1.2 APPLICABLE PUBLICATIONS

- A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.
 - 1. Iowa Department of Transportation (IADOT), English Standard Specifications for Highway and Bridge Construction, Current Series.
 - 2. Iowa Department of Transportation Standard Specification 4183 – Traffic Paints and Pavement Markings.

1.3 SUBMITTALS

- A. Submit paint formulation for each type of paint.
- B. Submit source and acceptance test results in accordance with Iowa DOT Standard Specification 4183.
- C. Manufacturer's Certificate stating the product meets or exceeds the specified requirements.
- D. Submit manufacturer's warranty with date of application recorded.

1.4 JOB CONDITIONS

- A. Do not apply materials when surface or ambient temperatures are outside temperature limits specified by the paint manufacturer.
- B. Do not apply materials during any type of precipitation, when relative humidity is outside humidity limits specified by the paint manufacturer or the moisture content of the surface exceed those specified by the paint manufacturer.
- C. Do not apply materials when temperatures are expected to fall below 50°F for 24 hours after application.
- D. Protection – Erect signs and barricades for traffic control until markings are tack free.

PART 2 PRODUCTS AND MATERIALS – PHASE 2 – CONTRACT #4

2.1 PAINTED PAVEMENT MARKINGS

- A. The paint shall meet Iowa DOT Standard Specification 4183 and shall be fast drying, waterborne paint with colors indicated:
 - 1. Parking stall and access isle lines – Yellow.

2. Handicap Symbols – Yellow.

PART 3 EXECUTION – PHASE 2 – CONTRACT #4

3.1 EXISTING CONDITIONS

- A. Do not begin installation until surfaces have been properly prepared.

3.2 PREPARATION

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best results for the surface under project conditions.
- C. Clean surfaces prior to painting. Remove dust, dirt and other granular surface deposits by sweeping or blowing.
- D. Where oil and grease are present, scrub areas with several applications of detergents or degreasers and rinse thoroughly after each application.
- E. Spot location of final pavement markings as specified on the Plans by marking layout lines.
- F. Notify Owner after placing layout lines for approval before beginning painting application.

3.3 APPLICATION

- A. Agitate paint for manufacturer's recommended time period prior to application to ensure even distribution of paint pigment.
- B. Begin pavement markings as soon as practical after surface has been cleaned and dried.
- C. Apply in accordance with manufacturer's instructions using experienced technician that is thoroughly familiar with the equipment, materials and marking layouts.
- D. Apply uniform painted markings along approved layout lines and of the specified color. Apply paint in one coat to a minimum thickness of 15 mils.
- E. Prevent splattering and over spray when applying markings.
- F. Use the international Symbol of Accessible Parking Space Marking as specified in the MUTCD, figure 3B-22.

3.4 APPLICATION TOLERANCES

- A. Maximum variation from wet film thickness: 1 mil.
- B. Maximum variation from Wet paint line width: plus or minus 1/8 inch.

3.5 FIELD QUALITY CONTROL

- A. Inspect for incorrect locations, insufficient thickness, line width and insufficient bonding.
- B. Repair lines and symbols, which after application do not meet the tolerances specified or pass the field quality control inspection.

3.6 PROTECTION

- A. Protect painted markings and symbols from vehicular and pedestrian traffic until paint is dry and tack free. Follow manufacturer's recommendations or use minimum of 30 minutes.

END OF SECTION 32 17 00

SECTION 33 05 00

COMMON WORK RESULTS FOR UTILITIES

PART 1 - GENERAL – PHASE 1 – CONTRACT #1

1.1 RELATED DOCUMENTS

- A. Drawings, Details of Construction and General Provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to work specified in this section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Piping joining materials.
 - 2. Transition fittings.
 - 3. Piped utility demolition.
 - 4. Piping system common requirements.
 - 5. Equipment installation common requirements.
 - 6. Concrete bases.

1.3 DEFINITIONS

- A. Exposed Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions.
- B. Concealed Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.
- C. ABS: Acrylonitrile-butadiene-styrene plastic.
- D. CPVC: Chlorinated polyvinyl chloride plastic.
- E. PE: Polyethylene plastic.
- F. PVC: Polyvinyl chloride plastic.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
- B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

PART 2 - PRODUCTS – PHASE 1 – CONTRACT #1

2.1 PIPING JOINING MATERIALS

- A. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

2.2 TRANSITION FITTINGS

- A. Transition Fittings, General: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.
- B. AWWA Transition Couplings NPS 2 and Larger:
 - 1. Description: AWWA C219, metal sleeve-type coupling for underground pressure piping.
- C. Flexible Transition Couplings for Underground Non-pressure Drainage Piping:
 - 1. Description: ASTM C 1173 with elastomeric sleeve, ends same size as piping to be joined, and corrosion-resistant metal band on each end.

2.3 SLEEVES

- A. Mechanical sleeve seals for pipe penetrations by Division 22.

2.4 GROUT

- A. Description: ASTM C 1107, Grade B, non-shrink and nonmetallic, dry hydraulic-cement grout.
 - 1. Characteristics: Post hardening, volume adjusting, non-staining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
 - 2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
 - 3. Packaging: Premixed and factory packaged.

2.5 FLOWABLE FILL

- A. Description: Low-strength-concrete, flowable-slurry mix.
 - 1. Cement: ASTM C 150, Type I, portland.
 - 2. Density: 115- to 145-lb/cu. ft. (1840- to 2325-kg/cu. m)
 - 3. Aggregates: ASTM C 33, natural sand, fine.
 - 4. Admixture: ASTM C 618, fly-ash mineral.
 - 5. Water: Comply with ASTM C 94/C 94M.
 - 6. Strength: 100 to 200 psig (690 to 1380 kPa) at 28 days.

PART 3 - EXECUTION – PHASE 1 – CONTRACT #1

3.1 PIPED UTILITY DEMOLITION

- A. Refer to Section 02 41 00 "Demolition" for general demolition requirements and procedures.
- B. Disconnect, demolish, and remove piped utility systems, equipment, and components indicated to be removed.
 - 1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
- C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 PIPING INSTALLATION

- A. Install piping according to the following requirements and utilities Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Install piping as indicated unless deviations to layout are approved on the Coordination Drawings.
- C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- D. Install piping to permit valve servicing.
- E. Install piping at indicated slopes.
- F. Install piping free of sags and bends.
- G. Install fittings for changes in direction and branch connections.

3.3 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and utilities Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.
- E. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

3.4 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
 - 1. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment.
 - 2. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 - 3. Install dielectric fittings at connections of dissimilar metal pipes.

3.5 GROUTING

- A. Mix and install grout for equipment base bearing surfaces, pump and other equipment base plates, and anchors.
- B. Clean surfaces that will come into contact with grout.
- C. Provide forms as required for placement of grout.
- D. Avoid air entrapment during placement of grout.
- E. Place grout, completely filling equipment bases.
- F. Place grout on concrete bases and provide smooth bearing surface for equipment.
- G. Place grout around anchors.
- H. Cure placed grout.

END OF SECTION 33 05 00