



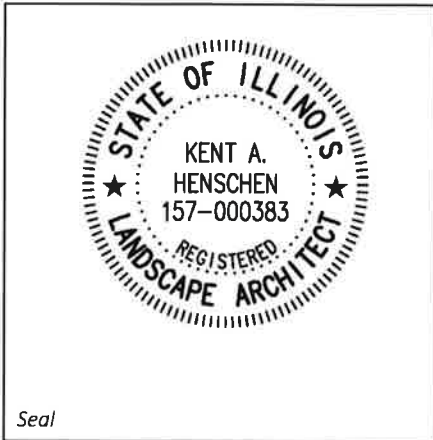
Project Manual

VOLUME 1



Rockford Public Library
 215 North Wyman Street
 Rockford, Illinois
 Project No. 142347/18-1406
 Date: May 3rd, 2021





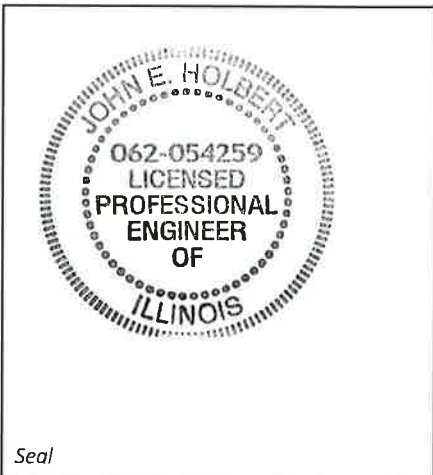
I hereby certify these plans and specifications were prepared by me or under my direct personal supervision and that I am a duly licensed professional engineer under the laws of the state of Illinois

Signature Kent A. Henschen Date 11/02/20

Name Kent A. Henschen

IL License No. 157-000383 Renewal Date 8/31/21

Landscaping divisions covered by this seal: 31, 32 & 33 (except sections noted by other disciplines)



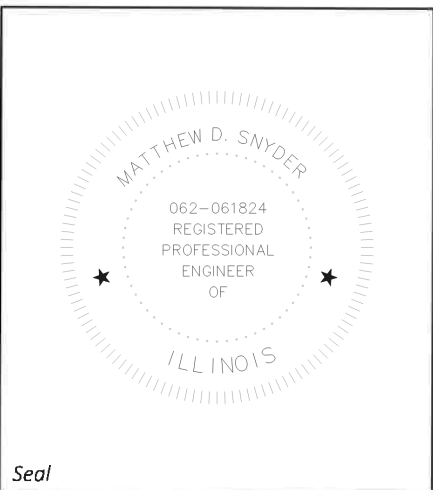
I hereby certify these plans and specifications were prepared by me or under my direct personal supervision and that I am a duly licensed professional engineer under the laws of the state of Illinois

Signature John E. Holbert Date 11.2.2020

Name JOHN. E. HOLBERT

IL License No. 062-054259 Renewal Date 11.30.2021

Mechanical & Plumbing Engineering divisions covered by this seal: 21, 22, & 23 (except sections noted by other disciplines), Division 21 is design build.



I hereby certify these plans and specifications were 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 Illinois

Signature Matthew Snyder Date 11/2/2020

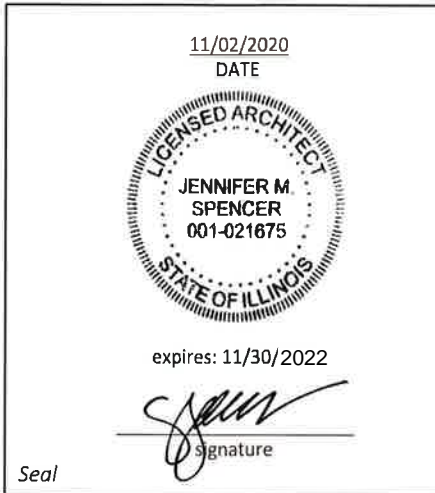
Name Matthew D. Snyder

IL License No. 062-061824 Renewal Date 11/30/2021

Electrical Engineering divisions covered by this seal: 26, 27, & 28 (except sections noted by other disciplines)

END OF SECTION 00 0107

SECTION 00 0107 – SEALS AND SIGNATURES



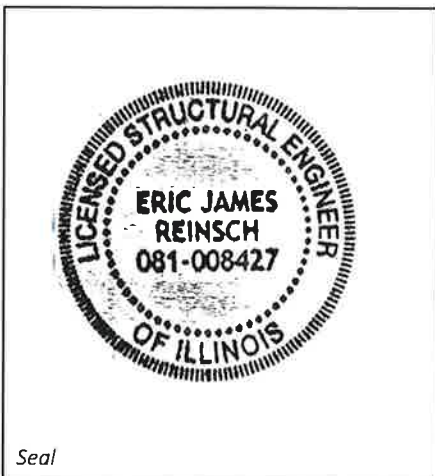
I hereby certify these plans and specifications were prepared by me or under my direct personal supervision and that I am a duly licensed professional architect under the laws of the state of Illinois.

Signature Date 11/02/20

Name Jennifer Spencer

IL License No. 001-021675 Renewal Date 11/30/2022

Architectural Divisions covered by this seal: 01, 033543, 04, 05, 06, 07, 08, 09, 10, 11, 12, & 14 (except sections noted by other disciplines)



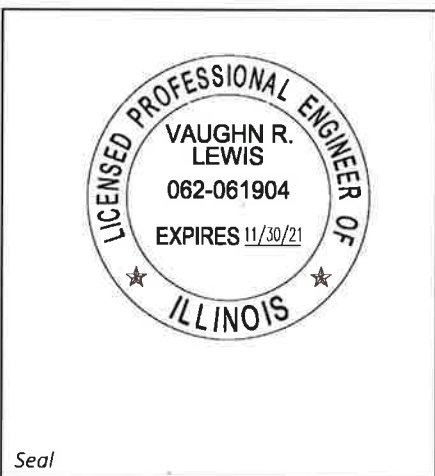
I hereby certify these plans and specifications were prepared by me or under my direct personal supervision and that I am a duly licensed professional engineer under the laws of the state of Illinois.

Signature Date 11/02/20

Name Eric J. Reinsch

IL License No. 081-008427 Renewal Date 11/30/2022

Structural Engineering divisions covered by this seal: 03, 042200, & 051223, 052100, 053100, & 054000 (except sections noted by other disciplines)



I hereby certify these plans and specifications were 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 Illinois.

Signature Date 11/02/20

Name Vaughn R. Lewis

IL License No. 062-061904 Renewal Date 11/30/21

Civil Engineering divisions covered by this seal: 31, 32, & 33 (except sections noted by other disciplines)

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ADVERTISEMENT FOR BIDS

LEGAL NOTICE REQUEST FOR BIDS

Rockford Public Library, Winnebago County,
214 North Church Street, Rockford, Illinois 61101.

The Rockford Public Library, Rockford, Winnebago County, Illinois, will receive bids for the procurement of earth work, deep foundations, structural steel, precast and concrete work for a replacement main library which will be situated at 215 North Wyman Street, Rockford. The remaining bid packages for this project will be forthcoming. Bid documents will be available at <https://www.dropbox.com/sh/3ntslm4yflgmina/AAAGPf4yjZ8IESGU2v11zjTea?dl=0> on Friday, May 21st, 2021.

A pre-bid meeting will be held on Thursday, May 27th, 2021 at 9:30 am. at Rockford Public Library's Nordlof Center, 118 North Main Street, Rockford.

Bids will be due on or before 2:00 p.m. on Wednesday, June 16th, 2021 and should be mailed to

Attention: Anthony Cortez, Director of Finance and IT
Rockford Public Library
PO Box 211
Rockford, IL 61105.

If delivering in person on June 16th, it should be delivered to

**Rockford Public Library's Nordlof Center
Second Floor Business Manager Office
118 North Main Street
Rockford.**

END OF ADVERTISEMENT FOR BIDS

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INVITATION TO BID / REQUEST FOR PROPOSAL

PROJECT Rockford Public Library (New Replacement Library)

PROJECT ADDRESS 215 N. Wyman, Rockford, IL 61101

OWNER Rockford Public Library

ARCHITECT OF RECORD Studio GWA (GWA)
200 Prairie St., Suite 201
Rockford, IL 61107
(815) 963-1900

LIBRARY DESIGN CONSULTANTS Library Design Consultant
Engberg Anderson (EA)
5600 N. River Rd.
Rosemont, IL 60018
(414) 944-9000

Civil & Landscape
Fehr Graham Engineering and Environmental
200 Prairie St., Suite 208
Rockford, IL 61107
(815) 394-4700

Structural
IMEG
1100 Warrenville Rd., Suite 400W
Naperville, IL 60563
(630) 527-2320

Plumbing & Fire Protection
IMEG
1100 Warrenville Rd., Suite 400W
Naperville, IL 60563
(630) 527-2320

Electrical & Technology
IMEG
1100 Warrenville Rd., Suite 400W
Naperville, IL 60563
(630) 527-2320

CONSTRUCTION MANAGER

Scandroli Construction
855 N. Madison St.
Rockford, IL 61107
(815) 962-4037

PROJECT SUMMARY

The project consists of a new three- story library facility with underground parking garage and waterfront improvements.

BONDS

A Bid Bond of 5% is required and the requirements for Payment and Performance Bonds will be described in an Addendum.

BID PACKAGES

BP 1 – RESERVED
BP 2 - Cast-in-Place Concrete
BP 3 - Structural Precast Concrete
BP 4 - Masonry
BP 5 - Steel, Joists & Deck
BP 6 - Metal Framing & Gypsum
BP 7 - Architectural Millwork
BP 8 - Roofing & Sheet Metal
BP 9 - Exterior Cladding Panels & Attachment
BP 10 - Doors, Frames & Hardware
BP 11 - Entrances, Curtain Wall & Windows
BP 12 - Ceramic Tiling
BP 13 - Acoustical Work
BP 14 - Resilient Flooring, Carpet & Base
BP 15 - Wall Coverings & Finishes
BP 16 - Specialties & Equipment
BP 17 - Elevators
BP 18 - Fire Suppression
BP 19 - Plumbing
BP 20 - HVAC
BP 21 - Electrical
BP 22 - Earthwork, Site Utilities and Asphalt Paving
BP 23 - Deep Foundations and Sheet Piling Removal
BP 24 - Landscaping & Pavers

OBTAINING BID DOCUMENTS

Bid documents can be **downloaded** free of charge at

<https://www.dropbox.com/sh/3ntslm4yflgmina/AAAGPf4yjZ8IESGU2v11zjTea?dl=0>

Documents will be available at additional locations to be described in Addendum One.

REQUESTS FOR INFORMATION

All project related correspondence and questions must be directed to the Architect, Construction Manager and Owner via a joint email to: eokeefe@studiogwa.com , al.kelchner@scandroliconstruction.com and ACortez@RockfordPublicLibrary.org at least seven (7) days prior to the date for receipt of bids

PRE-BID MEETINGS

Pre-Bid Meetings will be held at Nordlof Center Sullivan Theater, 118 N. Main St, Rockford IL for benefit of all prospective Bidders on **Thursday, May 27th for Bid Release 1 and Thursday June 10th for Bid Release 2.** Representatives from the Owner, Design Consultants and Construction Manager will be present to discuss technical aspects of the project.

SITE INSPECTIONS

A Pre-Bid Site inspection (one block away) will be held immediately after the Pre-Bid Meeting. Each Bidder should have a representative attend. No other formal inspection tours are anticipated. Bidders need to come prepared to gather all on-site information necessary for preparing their proposal. Personal Protective Equipment (PPE) will be required.

BID SUBMISSION

All bid proposals must be submitted on the provided Bid Form (See 00 41 23 Subcontractor Bid Form) to be considered. The bid and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be directed to **Anthony Cortez, Director of Finance and IT, Rockford Public Library, 118 N. Main St., Rockford, IL 61101** and identified with the Project name, the Bidder's name, address and the designated portion of the **Work** for which the Bid is submitted. The sealed envelope shall be enclosed in a separate envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

BID WITHDRAWAL

No bid may be withdrawn for a period of **ninety (90) days** after the bid opening without written consent of the Owner.

RESERVATION OF RIGHTS

The Owner reserves the right to waive any irregularities and/or reject any or all bids at its sole discretion, when such action is in its best interests and/or the best interests of the Project. See Project Manual 00 21 13 Instructions to Bidders.

END OF INVITATION TO BID / REQUEST FOR PROPOSALS

INSTRUCTIONS TO BIDDERS

1 DEFINITIONS

1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document G201_2017, or in other Contract Documents are applicable to the Bidding Documents.

1.3 Addenda are written, or graphic instructions issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections.

1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

1.7 An Allowance is a quantity of work or dollar amount established in lieu of additional requirements used to defer selection of actual materials and equipment to a later date when direction will be provided to Subcontractor.

1.8 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

1.9 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

1.10 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

2 BIDDER'S REPRESENTATIONS

2.1 The Bidder by submitting a Bid represents that:

2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted.

2.1.2 The Bid is made in compliance with the Bidding Documents.

2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

3 BIDDING DOCUMENTS

3.1 COPIES

3.1.1 Bidders may obtain complete sets of the Bidding Documents from the Virtual Plan rooms listed in the Invitation to Bid.

3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement of Invitations to Bid, or in supplementary instruction to bidders.

3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

3.2 INTERPRETATION OR CORRECTION OF THE BIDDING DOCUMENTS

3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report errors in writing to the Construction Manager who in turn will communicate the information to the Architect.

3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Document shall make an electronic written request jointly to the Architect, Construction Manager and Owner at least seven (7) days prior to the date for receipt of bids.

3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, correction and changes of the Bidding Documents made in any other manner will not be binding and Bidders shall not rely upon them.

3.3 SUBSTITUTIONS

3.3.1 Substitutions will only be considered for this project during the Bid phase.

3.4 ADDENDA

3.4.1 Addenda will be transmitted to all bidders known to have received a complete set of Bidding Documents are on file for that purpose.

3.4.2 The Construction Manager will electronically transmit copies of Addenda to all bidders.

3.4.3 Addenda will be issued no later than two (2) working days prior to the date for receipt of Bids except an Addendum withdrawing the request for bids or one which includes postponement of the date for receipt of Bids.

3.4.4 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

4.1 PREPARATION OF BIDS

4.1.1 Bids shall be submitted on the forms included within the Bidding Documents.

4.1.2 Not used.

4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

4.1.5 All requested Alternates as applicable to the **Work** of the Bidder shall be bid using the prepared bid form and will be considered an add to the Base bid total.

4.1.6 Where two or more Bids for designated portions of the Work have been submitted, the Construction Manager can refuse to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no stipulations on the bid form nor qualify the Bid in any other manner.

4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder, if requested shall provide evidence of legal authority to perform within the jurisdiction of the **Work**. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have current power of attorney attached certifying the agent's authority to bind the Bidder.

4.2 BID SECURITY

4.2.1 Bidders are to include a 5% bid bond or a cashier's check in the amount of at least 5% of the bid amount, including alternates.

4.3 SUBMISSION OF BIDS

4.3.1 All bid proposals must be submitted on the fillable Bid Form (See 00 41 01 Bid Form) to be considered.

The bid and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be directed to Anthony Cortez, Director of Finance and IT, Rockford Public Library, 118 N. Main St., Rockford, IL 61101 and identified with the Project name, the Bidder's name, address and the designated portion of the **Work** for which the Bid is submitted. The sealed envelope shall be enclosed in a separate envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

4.3.2 Bids received after the time and date indicated will be returned unopened.

4.3.3 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

4.3.4 Oral, telephonic, telegraphic, facsimile, or other electronically transmitted bids will not be considered.

4.4 MODIFICATION OR WITHDRAWAL OF BID

4.4.1 A Bid may not be modified, withdrawn, or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

4.4.2 Bids will be accepted only on the due date and before the cut-off time.

4.4.3 Not used.

4.4.4 Not used.

ARTICLE 5 CONSIDERATION OF BIDS

5.1 OPENING OF BIDS

Bid Proposals properly identified (labeled) and received on time will be opened publicly and read aloud. An abstract of the Bids will be made available to Bidders.

5.2 REJECTION OF BIDS

5.2.1 The Owner and Construction Manager shall have the right to reject any or all Bids. A Bid not accompanied by data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

5.3 ACCEPTANCE OF BID (AWARD)

5.3.1 It is the intent of Construction Manager to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Document and does not exceed the funds available. The Construction Manager and the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which in the Construction Manager's and Owner's judgment, is in the Construction Manager's and Owner's best interests.

5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bid Documents, and with the Construction Manager and Owner to determine the low Bid based on the sum of the Total Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

6.1.1 Bidders to whom award of a Contract is under consideration shall submit to the Construction Manager, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

6.2 OWNER'S FINANCIAL CAPABILITY

6.2.1 Not used.

6.3 SUBMITTALS

6.3.1 The Bidder shall as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Construction Manager in writing, if requested.

- a. A designation of the Work to be performed with the Bidder's own forces.
- b. Two (2) names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the **Work** and,
- c. Names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work
- d. Insurance certificates.
- e. Payment and Performance Bonds.

6.3.2 The Bidder will be required to establish to the satisfaction of the Construction Manager the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

6.3.3 Prior to the execution of the Contract, the Construction Manager will notify the Bidder in writing if it, the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If a reasonable objection to a proposed person or entity exists, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Construction Manager may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security, if applicable to the project will be forfeited.

6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ITEM 7 PERFORMANCE BOND AND PAYMENT BOND

7.1 BOND REQUIREMENTS

7.1.1 Not used.

7.1.2 If the furnishing of bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

7.1.3 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

7.2 TIME OF DELIVERY AND FORM OF BOND

7.2.1 Not used.

7.2.2 Not used.

7.2.3 Not used.

7.2.4 Not used.

ITEM 8 FORM OF AGREEMENT BETWEEN SUBCONTRACTOR AND CONSTRUCTION MANAGER

8.1 Please refer to Section 00 52 13.

END INSTRUCTIONS TO BIDDERS

PRE-BID MEETINGS AND INSPECTIONS

Pre-Bid Meetings

Pre-Bid Meetings will be held at Nordlof Center Sullivan Theater, 118 N. Main St, Rockford IL for benefit of all prospective Bidders on **Thursday, May 27th for Bid Release 1 and Thursday June 10th for Bid Release 2**. Representatives from the Owner, Design Consultants and Construction Manager will be present to discuss technical aspects of the project.

All Bidders are expected to be represented.

Site Inspection

A Pre-Bid Site inspection (one block away) will be held immediately after the Pre-Bid Meeting. Each Bidder should have a representative attend. No other formal inspection tours should be anticipated. Bidders should come prepared to gather all on-site information necessary for preparing their proposal. Personal Protective Equipment (PPE) will be required of all attendees.

It is the responsibility of the Bidders to thoroughly familiarize themselves with all conditions and matters, which may in anyway affect the Work or cost thereof.

No allowance shall be made on behalf of any contractor or subcontractor for errors due to its negligence in not being familiar with existing site and/or project conditions.

END PRE-BID MEETINGS AND INSPECTIONS

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**" @ FORM
(Bid Release 1)**

BID PACKAGES

Bid Packages in Release 1 include:

- BP 2 - Cast-in-Place Concrete
- BP 3 - Structural Precast Concrete
- BP 5 - Steel, Joists & Deck
- BP 22 – Earthwork, Site Utilities and Asphalt Paving
- BP 23 - Deep Foundations

INSTRUCTIONS

Bidder's proposal must be completed and submitted on this form to be considered for subcontract award. Fill all applicable blanks. Failure to follow these instructions may result in bid disqualification.

BID PACKAGE

[Insert Number]

[Insert Name of Work]

COST BREAKDOWN VALUES

Base Bid G: Garage

Base Bid L: Library

Base Bid R: Riverfront

BASE BID TOTAL

NOTE: Base Bids G, L & R are for accounting purposes only. Award will be made upon the basis of the BASE BID TOTAL plus any accepted ALTERNATES.

ALLOWANCES (Not Used)

ALTERNATES

At Owner's option, any of the following alternates may be included in this Subcontract for the stated amount and shall be performed in accordance with the Contract Documents. The stated amounts capture all costs to perform the work in its entirety including but not limited to incidentals, overhead, profit, bond premiums, and insurance.

Bidder provide dollar amounts applicable to its **Work**.

ALT #01: Roof Terraces ADD / DEDUCT

ALT #02: Additional Access Control ADD / DEDUCT

ALTERNATES (Cont'd)

- ALT #03: Site Furnishings ADD / DEDUCT _____
- ALT #04: Plaza Pavers ADD / DEDUCT _____
- ALT #05: Retaining / Soils ADD / DEDUCT _____
- ALT #06: Exterior Sectional Glass Doors ADD / DEDUCT _____
- ALT #07: Interactive Display Monitors ADD / DEDUCT _____
- ALT #08: Basement Floor Epoxy ADD / DEDUCT _____
- ALT #09: Youth Department Ceiling Clouds ADD / DEDUCT _____
- ALT #10: Light Fixtures ADD / DEDUCT _____

UNIT PRICES

The following unit prices shall be used when required by the Construction Manager for **all additions and/or deletions** to the contract quantities and shall be inclusive of all things necessary for the completion of the work in its entirety. Items covered by these Unit Prices shall be provided in accordance with the Contract Documents and in quantities and locations during normal working hours and during the normal sequence of construction as directed by the Construction Manager. Unit Prices hold firm through 12/31/21.

Additional length of driven piles _____ \$/per foot

Subtracted length of driven piles _____ \$/per foot

Soil excavation _____ \$/per cubic yard

Obstruction removal and Rock excavation _____ \$/hr.

Full driven pile _____ \$/each

BIDDER'S ACKNOWLEDGEMENTS

Bidder's authorized representative by submitting this signed Bid proposal represents that:

Bidder has received Addendum 1 through _____.

Bidder has read and understands the Bidding Documents and the Bid is made in accordance them.

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ALLOWANCES, UNIT PRICES AND ALTERNATES

ALLOWANCES

See 01 21 00 - Allowances for details and 00 41 23 Subcontractor Bid Form (In Bid Form Folder).

Allowance is a quantity of work or dollar amount established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Subcontractor. If necessary, additional requirements will be issued by Change Order.

Types of allowances include: Lump-sum, Unit-cost, Quantity, Contingency, Testing and inspecting.

UNIT PRICES

See 01 22 00 - Unit Prices for details and 00 41 23 Subcontractor Bid Form (in Bid Form Folder).

The price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification.

ALTERNATES

See 01 23 00 - Unit Prices for details and 00 41 23 Subcontractor Bid Form (In Bid Form Folder).

A sum stated in addition to the Base Bid for which Bidder offers to perform Work described as the alternate. The Owner may select all, none or any combination of alternates.

END ALLOWANCES, UNIT PRICES AND ALTERNATES

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SUBSTITUTION FORMAT

Substitution requests apply only to bidding and will not be considered during construction.

Complete the following on company letterhead, attach and submit with Bid Form. See Specification Section *01 25 00 Substitution Procedures* for further information.

1. Reason why specified product or fabrication or installation method cannot be provided.
2. List of any changes or revisions to design to accommodate proposed substitution.
3. Comparison of significant qualities (performance, weight, size, durability, visual effect, sustainable design characteristics, and warranties).
4. Provide annotated copy of applicable Specification Section.
5. Provide Product Data, including drawings and descriptions of products and fabrication and installation procedures.
6. Certificates and qualification data, where applicable.
7. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
8. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
9. Impact upon project's construction schedule if proposed substitution is accepted.

END SUBSTITUTION FORM

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100 YEARS AND BUILDING

STANDARD AGREEMENT BETWEEN CONSTRUCTION MANAGER AND SUBCONTRACTOR

TABLE OF ARTICLES

- 1. AGREEMENT
- 2. SCOPE OF WORK
- 3. SUBCONTRACTOR’S RESPONSIBILITIES
- 4. CONSTRUCTION MANAGER’S RESPONSIBILITIES
- 5. PROGRESS SCHEDULE
- 6. SUBCONTRACT AMOUNT
- 7. CHANGES
- 8. PAYMENT
- 9. INDEMNITY, INSURANCE, AND BONDS
- 10. SUSPENSION, NOTICE TO CURE, AND TERMINATION
- 11. DISPUTE MITIGATION AND RESOLUTION
- 12. MISCELLANEOUS
- 13. SUBCONTRACT DOCUMENTS

ARTICLE 1 AGREEMENT

Job Number: _____ Agreement Number: _____

This Agreement is made this Day [insert day] of Month in the year [insert year], by and between

CONSTRUCTION MANAGER, Scandroli Construction Company
855 North Madison Street
Rockford, Illinois 61107

and the

SUBCONTRACTOR, Company Name
Address
City, State Zip

Telephone Number _____

Fax Number _____

for services in connection with the Subcontract Work for the following:

PROJECT Name
Address
City, State Zip

Owner is (Owner Name), (Address, City, State Zip), and the Design Professional is (Name, Address, City, State Zip)



ARTICLE 2 SCOPE OF WORK

2.1 PARTIES RELATIONSHIP Each Party agrees to act on the basis of mutual trust, good faith, and fair dealing. The Parties shall each endeavor to promote harmony and cooperation, and perform in an economical and timely manner.

2.1.1 ETHICS Each Party shall perform with integrity. Each shall: (a) avoid conflicts of interest; and (b) promptly disclose to the other Party any conflicts that arise. Each Party warrants that it has not and shall not pay nor receive any contingent fees or gratuities to or from the other Party, including its agents, officers, employees, subcontractors or others for whom they may be liable, to secure preferential treatment.

2.2 SUBCONTRACT WORK Construction Manager contracts with Subcontractor as an independent contractor to provide all labor, materials, equipment, and services necessary to complete the Subcontract Work in accordance with, and reasonably inferable from, the Subcontract Documents, and consistent with the Progress Schedule, as may change from time to time. Subcontractor shall perform the Subcontract Work under Construction Managers general direction and in accordance with the Subcontract Documents.

2.3 CONSTRUCTION MANAGERS WORK Construction Managers Work is the construction and services required of Construction Manager to fulfill its obligations pursuant to its agreement with Owner (the Work). The “Subcontract Work” is a portion of the Construction Managers Work.

2.4 SUBCONTRACT DOCUMENTS The Subcontract Documents include this Agreement, the prime agreement, special conditions, general conditions, specifications, drawings, addenda issued and acknowledged before execution of this Agreement, amendments, laboratory testing that are Contract Documents, other documents listed in this Agreement, and modification issued in accordance with this agreement. Construction Manager shall provide to Subcontractor, before the execution of this Agreement, copies of the existing Subcontract Documents. Subcontractor shall provide copies of applicable portions of the Subcontract Documents to its proposed subcontractors and suppliers. Nothing shall prohibit Subcontractor from obtaining copies of the Subcontract Documents from Construction Manager at any time after the Subcontract Agreement is executed.

2.4.1 ELECTRONIC DOCUMENTS If Owner requires that Owner, Design Professional, Construction Manager and Subcontractors exchange documents and data in electronic or digital form, before any such exchange. Owner, Design Professional, and Construction Manager shall agree on and follow ConsensusDocs 200.2 or a written protocol addendum governing all exchanges, which specifies: (a) the definition of documents and data to be accepted in electronic or digital form or to be transmitted electronically or digitally; (b) management and coordination responsibilities; (c) necessary equipment, software, and services; (d) acceptable formats, transmission methods, and verification

procedures; (e) methods for maintaining version control; (f) privacy and security requirements; and (g) storage and retrieval requirements. Subcontractor shall provide whatever input is needed to assist Construction Manager in developing the protocol and shall be bound by the requirements of the written protocol. Except as otherwise agreed upon in writing, the Parties shall each bear their own costs as identified in the protocol. In the absence of a written protocol, use of documents and data in electronic or digital form shall be at the sole risk of the recipient.

2.5 CONFLICTS in the event of a conflict between this ConsensusDocs 750 Standard Agreement as modified and the other Subcontract Documents, the ConsensusDocs 750 shall govern.

2.6 DEFINITIONS

2.6.1 “Agreement” means this amended ConsensusDocs 750 Agreement Between Construction Manager and Subcontractor, as modified by the Parties, and exhibits and attachments made part of this agreement upon its execution.

2.6.1.1 The exhibits to the Agreement are as follows:

Exhibit A: Scope of Work

Exhibit B: Schedules and Logistics Plan (If applicable) or Completion Dates

2.6.2 “Business Day” means all Days, except weekends and official federal or state holidays where the Project is located.

2.6.3 The term “Day” shall mean calendar day.

2.6.4 “Interim Directive” is a written order containing Work instructions or directing the Subcontractor to proceed with the Subcontract work in question. An Interim Directive may also be referenced in the Contract Documents as a construction Change Directive or other equivalent directive, and shall be treated as an Interim Directive.

2.6.5 “Law” means a federal, state or local law, ordinance, code, rule or regulation applicable to the Subcontract Work with which a Party must comply that is enacted as the Agreement date.

2.6.6 The “Parties” are collectively Construction Manager and Subcontractor.

2.6.7 A “Subcontract Change Order” is a written order signed by The Parties after execution of this Agreement, indicating changes in the scope of the Subcontract Work, the Subcontract Amount or Subcontract Time, including substitutions proposed by Subcontractor and accepted by Construction Manager.

2.6.8 “Subcontract Time” means the time period on the Progress Schedule between commencing and completing the Subcontract Work.

2.6.9 “Worksite” means the geographical area of the Project location as identified in ARTICLE 1 where the Work is to be performed.

ARTICLE 3 SUBCONTRACTOR’S RESPONSIBILITIES

3.1 INCORPORATION OF SUBCONTRACT DOCUMENTS AND PRIME CONTRACT With respect to the Subcontract work to be performed by Subcontractor hereunder, Subcontractor shall be bound to Construction Manager by each and all of the terms of the Subcontract Documents, and to assume toward Construction Manager all of the duties, obligations and responsibilities that Construction Manager, by the Prime Contract, assumes towards Owner (or General Construction Manager or Construction Manager or Design/Builder as the case may be). Construction Manager shall have the same rights and remedies as against Subcontractor as Owner (or General Construction Manager or Construction Manager or Design/Builder as the case may be) under the Prime Contract has against Construction Manager with the same force and effect as though every such duty obligation, responsibility, right, or remedy were set forth herein in full.

3.1.1 INCONSISTENT PROVISIONS The Agreement and the Subcontract Documents are intended to supplement and complement each other and shall, where possible, be thus interpreted. Any inconsistency between this Agreement, the Subcontract Documents and the Prime Contract shall be resolved in favor of the provision most restrictive to Subcontractor.

3.1.2 INTERPRETATION OF CONSTRUCTION DOCUMENTS The Subcontract Work is to be performed and furnished under the direction and to the satisfaction of Owner, Construction Manager (if any), General Construction Manager (if any), Construction Manager and Architect. Construction Manager and Subcontractor agree to obtain a written decision from the Architect as to the construction, meaning and intent of the Construction Documents as a condition precedent to resolving a Dispute under (ARTICLE 16)

3.2 RESPONSIBILITIES Subcontractor shall be responsible, at Subcontractor’s expense, to do all of the following: (a) completely finish all Subcontract Work within the Subcontract time and in strict accordance and full compliance with the Subcontract Documents and any schedules issued by Construction Manager; (b) comply with all applicable requirements of all laws, ordinances, codes, rules and regulations, and decisions of all Governmental Authorities having jurisdiction over Owner, Construction Manager, the Site, the Project or the Subcontract Work - (“Legal Requirements”); including, but not limited to, any prevailing wage legal requirements that may apply and, in that regard, Subcontractor is responsible for ascertaining the applicability of any federal, state, and/or local prevailing wage requirements and obligations, and complying with the same (“Legal Requirements”); (c) accomplish the Subcontract Work to the satisfaction of Construction Manager without interference with the work which may be in progress by

Owner, Construction Manager, General Construction Manager (if any), other subcontractors, and other persons occupying the site; (d) furnish all necessary information, shop drawings, details, samples, brochures, etc. for Owner or Architect approval as may be required; (e) timely obtain and pay for all permits, licenses, inspection fees necessary to complete the Subcontract Work; and (f) not perform any Additional Work without written authorization from Construction Manager. All construction equipment shall be modern and substantial, and of adequate size and capacity to safely and efficiently handle the work for which it is used.

3.2.1 LABOR HARMONY Subcontractor has identified the following collective bargaining agreements to which Subcontractor is signatory and which may be applicable to the Work to be performed by the Subcontractor under this Agreement.

Subcontractor acknowledges and agrees that it is in good standing with respect to the collective bargaining agreement(s) named above, and any entities, including benefit funds, that are parties to or beneficiaries of such agreements. Subcontractor further agrees to honor all collective bargaining agreements to which Subcontractor is signatory and which are applicable to the Subcontract Work, particularly with respect to any and all contributions that are required to be made to any health, welfare, pension, training, or other fund. Subcontractor agrees that it will indemnify and hold Construction Manager harmless, and be obligated to pay all of Construction Manager's attorneys' fees and costs, with respect to any claims, demands, or causes of action brought against Construction Manager due to Subcontractor's alleged failure to comply with any obligations under any applicable collective bargaining agreement.

Subcontractor further agrees to employ only persons on the Subcontract Work who will work at all times in harmony with other persons employed on the Project. Subcontractor shall not cause or contribute to any labor disharmony on the Project, including, engaging in a work stoppage. If there is any such labor disharmony which, in the judgment of Construction Manager, will cause or threaten to cause delay in the progress of the Project, then Construction Manager has the right to immediately declare Subcontractor in default and exercise any and all rights provided for in the Agreement which Construction Manager feels are necessary to complete the Subcontract Work. The cost of completion, including all expenses, attorneys' fees, and costs incurred in dealing with any labor dispute, shall be deducted from the price of the Subcontract Work to the detriment of Subcontractor.

Neither Subcontractor, nor any of its employees, shall aid or participate in any unfair labor practice, nor shall Subcontractor or any of its employees engage in or honor any unlawful or unprotected work stoppages, strikes, picketing, protests, or other unlawful or unprotected demonstrations or disturbances to the detriment of the Project. Subcontractor agrees that it and

its employees shall honor all reserved/neutral gate or reserved time systems established by Construction Manager and shall follow all instructions of Construction Manager related to the assignment of specific gate(s) for the use of Subcontractor and its employees, visitors, and deliveries on the Project. Neither Subcontractor nor its employees shall refuse to enter and/or perform Subcontract Work at the Project when a gate has been assigned for the use of Subcontractor and when such assigned gate is not the situs of lawful primary picketing, regardless of whether other gates at the Project are the situs of lawful primary picketing, and regardless of any bannering, handbilling, or other non-picketing demonstrations or messaging taking place anywhere at or near the Project. Subcontractor will fully compensate, indemnify and hold Construction Manager harmless for all claims, delays, or other costs or expenses, including but not limited to liquidated damages assessed against the Construction Manager that arise out of, or are related to, Subcontractor's participation in such unlawful or unprotected labor practices. Moreover, breach by Subcontractor of any single provision of this section, (section 3.2.1) shall subject Subcontractor to: (1) be deemed in breach of this Agreement and (2) immediate removal from the Project (at Construction Manager's sole discretion, and without regard to any other limitation that may exist under this Agreement), with the obligation that Subcontractor shall bear any additional costs (over and above what was to be paid to Subcontractor) associated with completion of the Work the Subcontractor was to perform.

3.3 INCONSISTENCIES AND OMISSIONS Subcontractor shall examine and compare the drawings, specifications, other Subcontract Documents, and information furnished by Owner relative to the Subcontract Work. Such examination and comparison shall be solely for the purpose of facilitating the Subcontract Work and not for the discovery of errors, inconsistencies, or omissions in the Subcontract Documents nor for ascertaining if the Subcontract Documents are in accordance with the Laws. Subcontractor shall not have liability for errors, omissions, or inconsistencies discovered under this subsection unless Subcontractor knowingly fails to report a recognized problem to Construction Manager. Should Subcontractor discover any errors, inconsistencies or omissions in the Subcontract Documents, Subcontractor shall promptly report such discoveries to Construction Manager in writing. Following receipt of written notice, Construction Manager shall promptly instruct Subcontractor as to the measures to be taken, and Subcontractor shall comply with Construction Manager's instructions. If Subcontractor performs work knowing it to be contrary to Laws without notice to Construction Manager and advance approval by appropriate authorities, including Construction Manager, Subcontractor shall assume responsibility for such work and bear all associated costs, charges, fines, penalties, fees, and expenses necessarily incurred to remedy the violation. Subcontractor may be entitled to additional costs or time because of clarifications or instructions arising out of Subcontractor's reports described in this section. Nothing in this section shall relieve Subcontractor of responsibility for its own errors, inconsistencies, and omissions.

3.4 WORKSITE VISITATION Before commencing the Subcontract Work, Subcontractor shall examine and compare the Subcontract Documents, relevant field measurements made by Subcontractor or shared by Construction Manager, and any visible conditions at the Worksite affecting the Subcontract work. If Subcontractor discovers any errors, omissions, or

inconsistencies in the Subcontract Document or between its Worksite observations and the Subcontract Documents, such discrepancies shall be promptly reported to Construction Manager.

3.5 INCREASED COSTS OR TIME Subcontractor may assert a claim if Construction Manager's clarifications or instructions in response to requests for information are believed to require additional time or cost. If Subcontractor fails to perform the review and comparisons required in §3.3 and §3.4, to the extent Construction Manager is held liable to Owner because of Subcontractor's failure, Subcontractor shall pay the costs and damages to Construction Manager that would have been avoided if Subcontractor had performed those obligations.

3.6 COMMUNICATIONS Except as otherwise provided in the Subcontract Documents or for emergencies, Subcontractor shall direct Project-related communications to Construction Manager.

3.7 SUBMITTALS

3.7.1 Subcontractor promptly shall submit for approval to Construction Manager all shop drawings, samples, product data, manufacturers' literature, and similar submittals required by the Subcontract Documents. Submittals shall be submitted in electronic form if required. Subcontractor shall be responsible to Construction Manager for the accuracy and conformity of its submittals to the Subcontract Documents. Subcontractor shall prepare and deliver its submittals to Construction Manager in a manner consistent with the Progress Schedule and in such time and sequence so as not to delay Construction Manager or others in the performance of the Work. Subcontractor's submittals shall identify in writing for each submittal all changes, deviations, or substitutions from the requirements of the Subcontract Documents. The approval of any Subcontractor submittal shall not be deemed to authorize changes, deviations, or substitutions in the requirements of the Subcontract Documents unless express written approval is obtained from the Construction Manager and Owner authorizing such change, deviation, or substitution. Such approval shall be promptly memorialized in a Subcontract Change Order within fourteen (14) Days following approval by Construction Manager and, if applicable, provide for an adjustment in the Subcontract Amount or Subcontract time if the owner has approved the adjustment and the adjustment is reflected in the contract price and/or time of the prime contract. If the Subcontract Documents do not contain submittal requirements pertaining to the Subcontract Work, Subcontractor agrees upon request to submit in a timely fashion to Construction Manager for approval any shop drawings, samples, product data, manufacturers' literature, or similar submittals as may reasonably be required by Construction Manager, Owner, or Design Professional.

3.7.2 Construction Manager, Owner, and Design Professional are entitled to rely on the adequacy, accuracy, and completeness of any professional certifications required by the Subcontract Documents concerning the performance criteria of systems, equipment, or materials, including all relevant calculations and any governing performance requirements.

3.8 DESIGN DELEGATION

3.8.1 If the Subcontract Documents specify that Subcontractor is responsible for the design of a particular system or component for Project incorporation, then all design and performance criteria shall be specified. Subcontractor shall not be responsible for the adequacy of such performance and design criteria. Subcontractor shall be responsible for conformance of its design with the information given and the design concept expressed in the Subcontract Documents. As required by the Law, Subcontractor shall procure design services and necessary certifications from licensed design professionals. The signature and seal of Subcontractor's design professional shall appear on all drawings, calculations, specifications, certifications, shop drawings, and other submittals related to the Subcontract Work designed or certified by Subcontractor's design professional. Construction Manager shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by Subcontractor's design professional.

3.8.2 If Subcontractor's design professional is an independent professional, the design services shall be procured pursuant to a separate agreement between Subcontractor and the design professional. The agreement between Subcontractor and Subcontractor's design professional shall not include any limitation of liability, except to the extent that consequential damages are waived pursuant to §5.4.1, or exclusion from participation in the multiparty proceedings requirement of §11.4. Subcontractor's design professional(s) is _____. Subcontractor shall notify Construction Manager in writing if it intends to change its procured design professional.

3.9 COORDINATION Subcontractor shall: (a) cooperate with Construction Manager and others whose work may interface with the Subcontract Work, (b) specifically note and immediately advise Construction Manager of any such interface with the Subcontract Work, and (c) participate in preparing coordination drawings and work schedules in congested areas.

3.10 SUBCONTRACTOR'S REPRESENTATIVE Subcontractor's authorized representative is _____. This person shall possess full authority to receive and act upon instructions, orders, or directions. If Subcontractor changes its representative, or the representative's authority, Subcontractor shall immediately notify Construction Manager in writing.

3.11 TESTS AND INSPECTIONS Subcontractor shall schedule all required tests, approvals, and inspections of the Subcontract Work at appropriate times so as not to delay the progress of the Work or other work related to the Project. Subcontractor shall give proper written notice to all required Parties of such tests, approvals, and inspections. Except as otherwise provided in the Subcontract Documents, Subcontractor shall bear all expenses associated with test, inspections, and approvals required of Subcontractor by the Subcontract Documents, which shall be conducted by an independent testing laboratory or entity approved by Construction Manager and Owner. Required certificates of testing, approval, or inspection shall, unless otherwise required

by the Subcontract Documents, be secured by Subcontractor and promptly delivered to Construction Manager.

3.12 **WARRANTIES** Subcontractor warrants that all materials and equipment shall be new unless otherwise specified, of good quality, in conformance with the Subcontract Documents, and free from defective workmanship and materials. Upon request by Construction Manager, Subcontractor shall furnish satisfactory evidence of the quality and type of materials and equipment furnished. Subcontractor further warrants that the Subcontract Work shall be free from material defects not intrinsic in the design or materials required in the Subcontract Documents. Subcontractor's warranty does not include remedies for defects or damages caused by normal wear and tear during normal usage, use for a purpose for which the Project was not intended, improper or insufficient maintenance, modifications performed by others, or abuse. Subcontractor's warranties shall commence on the date of Substantial Completion of the Work or a designated portion.

3.13 **CLEANUP**

3.13.1 Subcontractor shall at all times during its performance of the Subcontract Work keep the Worksite clean and free from debris resulting from the Subcontract Work. Before discontinuing the Subcontract Work in an area, Subcontractor shall clean the area and remove all its rubbish and its construction equipment, tools, machinery, waste, and surplus materials. Subcontractor shall make provisions to minimize and confine dust and debris resulting from its construction activities. Subcontractor shall not be held responsible for unclean conditions caused by others.

3.13.2 If Subcontractor fails to commence compliance with cleanup duties within two (2) Business Days after written notification from Construction Manager of non-compliance, Construction Manager may implement appropriate cleanup measures without further notice and shall deduct the reasonable costs from any amounts due or to become due Subcontractor in the next payment period.

3.14 **SAFETY PROGRAMS** Subcontractor is required to perform the Subcontract Work in a safe and reasonable manner. Subcontractor shall prevent against injury, loss, or damage to persons or property by taking reasonable steps to protect: (a) employees and other persons at the Worksite; (b) materials and equipment stored on or off the Worksite for performing the Subcontract Work; and (c) all property and structures located at the Worksite and adjacent.

3.14.1 Subcontractor shall give all required notices and comply with all applicable rules, regulations, orders, and other lawful requirements established to prevent injury, loss, or damage to persons or property.

3.14.2 Subcontractor shall implement appropriate safety programs pertaining to the Subcontract Work and the Project, including establishing safety rules, posting appropriate warnings and notices, erecting safety barriers, and establishing proper notice procedures

to protect persons and property at the Worksite and adjacent to the Worksite from injury, loss, or damage.

3.14.3 Subcontractor shall exercise extreme care in carrying out any of the Subcontract Work which involves explosive or other dangerous methods of construction or hazardous procedures, materials, or equipment. Subcontractor shall use properly qualified individuals or entities to carry out the Subcontracted Work in a safe and reasonable manner so as to reduce the risk of bodily injury or property damage.

3.14.4 Damage or loss not insured under property insurance and to the extent caused by the negligent or intentionally wrongful acts or omissions of Subcontractor, or anyone for whose acts Subcontractor may be liable and/or anyone working at or near the project site under the direction of the Subcontractor, shall be promptly remedied by Subcontractor. Damage or loss to the extent caused by the negligent or intentionally wrongful acts or omissions of Construction Manager, or anyone for whose acts Construction Manager may be liable, shall be promptly remedied by Construction Manager.

3.14.5 Subcontractor is required to designate an individual at the Worksite in the employ of Subcontractor who shall act as Subcontractor's designated safety representative with a duty to prevent accidents. Unless otherwise identified by Subcontractor in writing to Construction Manager, the designated safety representative shall be Subcontractor's project superintendent. Such safety representative shall attend Worksite safety meetings as requested by Construction Manager.

3.14.6 Subcontractor has an affirmative duty not to overload the structures or conditions at the Worksite and shall take reasonable steps not to load any part of the structures or Worksite so as to give rise to an unsafe condition or create an unreasonable risk of bodily injury or property damage. Subcontractor shall have the right to request, in writing, from Construction Manager loading information concerning the structures at the Worksite.

3.14.7 Subcontractor shall give prompt written notice to Construction Manager of any accident involving bodily injury any property damage exceeding five hundred dollars (\$500.00) in value, or any failure that could have resulted in serious bodily injury, whether or not such an injury was sustained.

3.14.8 Establishment of a safety program by Construction Manager shall not relieve Subcontractor or other parties of their safety responsibilities. Subcontractor shall establish its own safety program implementing safety measures, policies, and standards conforming to those required or recommended by governmental and quasi-governmental authorities having jurisdiction and by Construction Manager and Owner, including, but not limited to, requirements imposed by the Subcontract Documents and those requirements outlined in this paragraph below. Subcontractor shall comply with the reasonable recommendations of insurance companies having an interest in the Project, and shall stop any part of the Subcontract Work which Construction Manager deems unsafe until corrective measures satisfactory to Construction Manager shall have been

taken. Construction Manager's failure to stop Subcontractor's unsafe practices does not relieve Subcontractor of its responsibility. Subcontractor shall notify Construction Manager immediately following a reportable incident under applicable rules, regulations, orders, and other lawful requirements, and promptly confirm the notice in writing. A detailed written report shall be furnished if requested by Construction Manager. To the fullest extent permitted by Law, each Party to this Agreement shall indemnify the other Party from and against fines or penalties imposed as a result of safety violations, but only to the extent that such fines or penalties are caused by its failure to comply with applicable safety requirements. This indemnification obligation does not extend to additional or increased fines that result from repeated or willful violations not caused by Subcontractor's failure to comply with applicable rules, regulations, orders, and other lawful requirements. Safety concerning and at the Project Site is of paramount importance. Subcontractor shall be responsible for the prevention of accidents to workmen engaged upon or in the vicinity of the Subcontract Work Subcontractor shall give all notices required by and shall comply with all applicable Legal Requirements, and requirements that Construction Manager may establish during the progress of construction, that bear on the safety of persons or property or their protection from damage, injury or loss. As required by the progress of the Subcontract Work and by all conditions of the Project Site, Subcontractor shall construct and maintain all safeguards reasonably necessary for safety and protection, including the following: (a) posting warnings, such as danger signs, against hazards; (b) promulgating safety regulations for the Subcontract Work; and, (c) notifying owners and users of adjacent properties and utilities as Subcontractor deems necessary or is required by law so to do. As part of Subcontractor's safety responsibilities, Subcontractor shall conduct all meetings and training seminars required by the Occupational Safety and Health Administration ("OSHA") for its employees and subcontractors and take all safety precautions as required by OSHA. When so ordered, Subcontractor shall stop any part of the Subcontract Work which Construction Manager deems unsafe until corrective measure satisfactory to Construction Manager have been taken, and Subcontractor Shall not have any right to nor attempt to make any claim for damages which may result from such stoppages. Should the Subcontractor neglect to take such corrective measures, Construction Manager may do so at the cost and expense of the Subcontractor and may deduct the cost thereof from any payments due or to become due to the Subcontractor. Failure on the part of Construction Manager to stop unsafe practices shall in no way relieve the Subcontractor of its responsibility therefore.

3.15 PROTECTION OF THE WORK Subcontractor shall take necessary precautions to properly protect the Subcontract Work and the work of others including, but not limited to other subcontractors, the owners, other contractors or subcontractors from damage caused by Subcontractor's operations. Should Subcontractor cause damage to the Subcontract Work or property of Owner, Construction Manager, or others, Subcontractor shall promptly remedy such damage to the satisfaction of Construction Manager, or Construction Manager may, after forty-eight (48) hours' written notice to Subcontractor, remedy the damage and deduct its cost from

any amounts due or to become due Subcontractor, unless such costs are recovered under applicable property insurance.

3.16 EMERGENCIES In an emergency affecting the safety of persons or property, Subcontractor shall act to prevent threatened damage, injury, or loss. Any change in the Subcontract Amount or the Progress Schedule from actions of Subcontractor in an emergency situation shall be determined as provided in ARTICLE 7.

3.17 PERMITS AND TAXES Subcontractor shall give timely notices required by Law pertaining to the Subcontract Work, and is responsible for all permits, fees, licenses, assessments, inspections, testing, and taxes necessary to complete the Subcontract Work in accordance with the Subcontract Documents.

3.18 HAZARDOUS MATERIALS Subcontractor shall have the same rights and obligations as Construction Manager does under the prime agreement or Law regarding hazardous materials, provided that the hazardous materials affect the Subcontract Work's area or originate with Subcontractor.

3.19 SAFETY DATA SHEETS (SDS) Subcontractor shall submit to Construction Manager all SDS required by law for materials or substances necessary for the performance of the Subcontract Work. SDS sheets obtained by Construction Manager from other subcontractors or sources shall be made available to Subcontractor by Construction Manager.

3.20 LAYOUT RESPONSIBILITY AND LEVELS Construction Manager shall establish principal axis lines of the building and Worksite, and benchmarks. Subcontractor shall lay out and be strictly responsible for the accuracy of the Subcontract Work and for any loss or damage to Construction Manager or others by reason of Subcontractor's failure to lay out or perform Subcontracted Work correctly. Subcontractor shall exercise prudence so that the actual final conditions and details shall result in alignment of finish surfaces.

3.21 CORRECTION OF COVERED SUBCONTRACT WORK

3.21.1 UNCOVERING OF SUBCONTRACT WORK

3.21.1.1 If required in writing by Construction Manager, Subcontractor must uncover any portion of the Subcontract Work which has been covered by Subcontractor in violation of the Subcontract Documents or contrary to a directive issued to Subcontractor by Construction Manager. Upon receipt of a written directive from Construction Manager, Subcontractor shall uncover such work for Construction Manager's or Owner's inspection and restore the uncovered Subcontract Work to its original condition at Subcontractor's time and expense.

3.21.1.2 Construction Manager may direct Subcontractor to uncover portions of the Subcontract Work for inspection by Owner, Owner's Lenders or Construction Manager at any time. Subcontractor is required to uncover such work whether or not

Construction Manager or Owner had requested to inspect the Subcontract Work before it being covered. Except as provided by the subsection immediately above, this Agreement shall be adjusted by Subcontract Documents, provided Construction Manager had not previously instructed Subcontractor to leave the work uncovered. If Subcontractor uncovers work pursuant to a directive issued by Construction Manager, and such work upon inspection does not comply with the Subcontract Documents, Subcontractor shall be responsible for all costs and time of uncovering, correcting and restoring the work so as to make it conform to the Subcontract Documents. If Construction Manager or some other entity for which Subcontractor is not responsible caused the nonconforming condition, Construction Manager shall be required to adjust this Agreement by Subcontract Change Order for all such costs and time.

3.21.2 CORRECTION OF WORK

3.21.2.1 If the Design Professional or Construction Manager rejects the Subcontract Work or the Subcontract Work is not in conformance with the Subcontract Documents Subcontractor shall promptly correct the Subcontract Work whether it had been fabricated, installed, or completed. Subcontractor shall be responsible for the costs of correcting such Subcontract Work, any additional testing, inspections, and compensation for services and expenses made necessary by the defective Subcontract Work.

3.21.2.2 In addition to Subcontractor's obligations under this §3.21, Subcontractor agrees to promptly correct, after receipt of written notice from Construction Manager, all Subcontract Work which proves to be defective in workmanship or materials within a minimum period of one year from the date of substantial completion of the Subcontract Work or for a longer period of time as may be required by specific warranties in the Subcontract Documents including, but not limited to the prime contract. Substantial completion of the Subcontract Work, or of a designated portion, occurs on the date when construction is sufficiently complete in accordance with the Subcontract documents so that Owner can occupy or utilize the Project, or a designated portion, for the use for which it is intended, without unapproved disruption. If, during the requisite time period referenced in this paragraph, Construction Manager fails to provide subcontractor with prompt written notice of the discovery of defective or nonconforming Subcontract Work, Construction Manager shall neither have the right to require Subcontractor to correct such Subcontract Work nor the right to make a claim for breach of warranty. If Subcontractor fails to correct defective or nonconforming Subcontract Work within a reasonable time after receipt of notice from Construction Manager, Construction Manager may correct such Subcontracted Work pursuant to §10.1.1.

3.21.3 Subcontractor's correction of Subcontract Work pursuant to this section shall not extend the one-year period for the correction of Subcontract Work, but if Subcontract Work is first performed after Substantial Completion, the one-year period for corrections shall commence when that Subcontract Work portion is substantially complete.

Subcontractor's obligation to correct Subcontract Work within one year does not limit the enforcement of Subcontractor's other obligations with regard to the Agreement and the Subcontract Documents.

3.21.4 If Subcontractor's correction or removal of Subcontract Work destroys or damages other completed or partially completed work or existing buildings, Subcontractor shall be responsible for destroyed or damaged work correction costs.

3.21.5 If portions of Subcontract Work which do not conform with the requirements of the Subcontract Documents are neither corrected by Subcontractor nor accepted by Contractor, Subcontractor shall remove such Subcontract Work from the Project Worksite if so directed by Construction Manager.

3.22 MATERIALS OR EQUIPMENT FURNISHED BY OTHERS If the scope of the Subcontract Work includes installation of materials or equipment furnished by others, Subcontractor is responsible for exercising proper care in receiving, handling, storing, and installing such items, unless otherwise provided in Subcontract Documents. Subcontractor shall examine the items provided and report to Construction Manager in writing any items it may discover that do not conform to requirements of the Subcontract Documents. Subcontractor shall not proceed to install nonconforming items without further instructions from Construction Manager. Loss or damage due to acts or omissions of Subcontractor shall, upon two (2) Business Days' written notice to Subcontractor, be deducted from any amounts due or to become due Subcontractor.

3.23 SUBSTITUTIONS No substitutions shall be made in the Subcontract Work unless permitted in the Subcontract Documents, and only upon Subcontractor first receiving all approvals required under the Subcontract documents for substitutions.

3.24 USE OF CONSTRUCTION MANAGER'S EQUIPMENT Subcontractor, its agents, employees, subcontractors, or suppliers shall use Construction Manager's equipment only with the express written permission of Construction Manager's designated representative and in accordance with Construction Manager's terms and conditions for such use. If Subcontractor or any of its agents, employees, subcontractors, or suppliers utilize any of Construction Manager's equipment, including machinery, tools scaffolding, hoists, lifts, or similar items owned, leased, or under the control of Construction Manager, Subcontractor shall indemnify and be liable to Construction Manager as provided in ARTICLE 9 for any loss or damage (including bodily injury or death) which may arise from such use, except to the extent that such loss or damage is caused by the negligence of Construction Manager's employees operating Construction Manager's equipment.

3.25 WORK FOR OTHERS Until final completion of the Subcontract Work, Subcontractor agrees not to perform any work directly for Owner or any tenants, or deal directly with Owner's representatives in connection with the Subcontract work, unless otherwise approved in writing by Construction Manager.

3.26 SYSTEMS AND EQUIPMENT STARTUP With the assistance of Owner's maintenance personnel and Construction Manager, Subcontractor shall direct the check-out and operation of systems and equipment for readiness, and assist in their initial startup and the testing of the Subcontract Work.

3.27 COMPLIANCE WITH LAWS Subcontractor agrees to comply with the Law at its own cost. Subcontractor shall be liable to Construction Manager and Owner for all loss, cost, and expense attributable to any acts or omissions by Subcontractor, its employees, subcontractors, suppliers, and agents resulting from the failure to comply with the Law, including any fines, penalties, or corrective measures, except as provided in §3.14.8. However, liability under this section shall not apply if prior approval by appropriate authorities and Construction Manager is received.

3.27.1 To the extent Construction Manager received reimbursement or additional time from Owner under the prime agreement, the Subcontract Amount or Progress Schedule shall be equitably adjusted for changes in the law enacted after the date of this Agreement, including taxes, affecting the performance of the Work.

3.28 CONFIDENTIALITY To the extent the prime agreement provides for the confidentiality of any of Owner's proprietary or otherwise confidential information disclosed in connection with the performance of this Agreement, Subcontractor is equally bound by Owner's confidentiality requirements.

3.29 ROYALTIES, PATENTS, AND COPYRIGHTS Subcontractor shall pay all royalties and license fees which may be due on the inclusion of any patented or copyrighted materials, methods, or systems selected by Subcontractor and incorporated in the Subcontract Work. Subcontractor shall defend, indemnify, and hold Construction Manager and Owner harmless from all suits or claims for infringement of any patent rights or copyrights arising out of such selection. Subcontractor shall be liable for all loss, including all costs, expenses, and attorneys' fees, but shall not be responsible for such defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Subcontract Documents.

3.30 SUBCONTRACTOR'S EXPERIENCE Subcontractor warrants that it has investigated the nature of the Subcontract Work and has examined the Subcontract Documents, the building codes and other requirements of law applicable to the Project and the Subcontract Work, and warrants that Subcontractor possesses the required experience, skills, qualified employees and equipment to complete the Subcontract Work in a proper and timely manner, as required by the Subcontract Documents.

3.31 SUBCONTRACTOR'S LICENSES AND AUTHORIZATIONS Subcontractor represents that it is fully licensed by the state where the Project is located and authorized to perform the Subcontract Work in the state where the Project is located. Subcontractor shall also be responsible for and correct, at its own cost and expense, any violations of the permits, licenses, and Legal Requirements resulting from or in connection with the performance of the Subcontract

Work. Subcontractor shall at any time and upon demand furnish such proof as Construction Manager may require showing such compliance and the correction of such violations.

ARTICLE 4 CONSTRUCTION MANAGER'S RESPONSIBILITIES

4.1 **CONSTRUCTION MANAGER'S REPRESENTATIVE** Construction Manager's authorized representative is **SCC Project Managers Name**. Construction Manager's representative shall be the only person Subcontractor shall look to for instructions, orders, or directions, except in an emergency. If Construction Manager changes its representative, Construction Manager shall promptly notify Subcontractor in writing.

4.2 **CONSTRUCTION MANAGER APPLICATION FOR PAYMENT** Upon request, Construction Manager shall give Subcontractor a copy of the most current Construction Manager's application for payment reflecting the amounts approved or paid by Owner for the Subcontract Work performed to date.

4.3 **INFORMATION OR SERVICES** Subcontractor is entitled to request through Construction Manager any information or services required for Subcontractor's performance of the Subcontract Work which is under Owner's control. Subcontractor also is entitled to request through Construction Manager any information necessary to give notice of or enforce mechanic's lien rights and, where applicable, stop notices. This information shall include Owner's interest in the real property on which the Project is located and the recorded legal title. To the extent Construction Manager receives such information or services, Construction Manager shall provide them to Subcontractor in a timely manner. Construction Manager, however, does not warrant the accuracy or completeness of the information provided by Owner. To the extent Owner provides any warranty of Owner provided information, Construction Manager agrees to permit Subcontractor to prosecute a claim in the name of Construction Manager for the use and benefit of Subcontractor, pursuant to §5.3.2.

4.4 **TIMELY COMMUNICATIONS** Construction Manager shall transmit to Subcontractor, with reasonable promptness, all submittals, transmittals, and written approvals relative to the Subcontract Work. Unless otherwise specified in the Subcontract Documents, if communications are not through Subcontractor, Construction Manager shall inform Subcontractor of the communications Construction Manager has with Subcontractor's subcontractors and suppliers. Upon specific written request of the subcontractor, Construction Manager shall provide to Subcontractor a copy of Construction Manager's payment bond on the Project upon the Subcontract Work commencing. Upon specific written request of the Subcontractor, Construction Manager shall provide to Subcontractor a copy of the Builder's Risk Insurance Certificate issued on the Project promptly after Construction Manager receives it.

4.5 **USE OF SUBCONTRACTOR'S EQUIPMENT** Construction Manager, its agents, employees, other subcontractors, or suppliers shall use Subcontractor's equipment only with the express written permission of Subcontractor's designated representative and in accordance with Subcontractor's terms and conditions for such use. If Construction Manager or any of its agents, employees, or suppliers utilize any of Subcontractor's equipment, including machinery, tools,

scaffolding, hoists, lifts, or similar items owned, leased, or under the control of Subcontractor, Construction Manager shall indemnify and hold harmless Subcontractor as provided in ARTICLE 9 for any loss or damage which may arise from such use, except to the extent that such loss or damage is caused by the negligence of Subcontractor's employees operating Subcontractor's equipment.

ARTICLE 5 PROGRESS SCHEDULE

5.1 TIME IS OF THE ESSENCE Time is of the essence with regard to the obligations of the Subcontract Documents.

5.2 SCHEDULE Subcontractor shall provide Construction Manager with any scheduling information proposed by Subcontractor for the Subcontract Work. In consultation with Subcontractor, Construction Manager shall prepare the schedule for performance of the Work ("Progress Schedule") with information provided by Subcontractor and shall revise and update such schedule, as necessary, as the Work progresses. The Progress Schedule binds each Party and all subsequent changes and additional details shall be submitted to Subcontractor promptly and reasonably in advance of the required performance. Construction Manager shall have the right to determine and, if necessary, make reasonable changes to the time, order, and priority in which various portions of the Work shall be performed and all other matters relative to the Subcontract Work. To the extent such changes increase Subcontractor's time and costs, Subcontractor may seek equitable adjustment in the Subcontract Amount or Subcontract Time in accordance with the Subcontract Documents.

5.3 DELAYS AND EXTENTIONS OF TIME

5.3.1 OWNER CAUSED DELAY Subject to §5.3.2, if the commencement or progress of the Subcontract Work is delayed without the fault or responsibility of Subcontractor, the Subcontract Time shall be extended by Subcontract Change Order and the Subcontract Amount equitably adjusted to the extent permission is obtained from the Owner by Construction Manager under the Subcontract Documents which includes, but is not limited to the prime contract, and the Progress Schedule shall be revised accordingly.

5.3.2 CLAIMS RELATING TO OWNER Subcontractor agrees to initial all claims for which Owner is or may be liable in the manner and within the time limits provided in the Subcontract Documents for like claims by Construction Manager upon Owner and in sufficient time for Construction Manager to initiate such claims against Owner in accordance with the Subcontract Documents. At Subcontractor's request and expense to the extent agreed upon in writing, Construction Manager agrees to permit Subcontractor to prosecute a claim in the name of Construction Manager for the use and benefit of Subcontractor in the manner provided in the Subcontract Documents for like claims by Construction Manager upon Owner.

5.3.3 CONSTRUCTION MANAGER CAUSED DELAY Nothing in this article precludes Subcontractor's recovery of delay damages caused by Construction Manager.

5.3.4 CLAIMS RELATING TO CONSTRUCTION MANAGER Subcontractor shall give Construction Manager written notice of all claims not included in §5.3.2 within fourteen (14) Days of Subcontractor's knowledge of the facts giving rise to the claim. Thereafter, Subcontractor shall submit written documentation of its claim, including appropriate supporting documentation, within twenty-one (21) Days after giving notice, unless the Parties agree upon a longer period of time. Construction Manager shall respond in writing denying or approving, in whole or in part, Subcontractor's claim no later than fourteen (14) Days after receipt of Subcontractor's documentation of claim. Construction Manager's failure to respond shall be deemed a denial of Subcontractor's claim. All unresolved claims, disputes, and other matters in question between the Parties not relating to claims included in §5.3.2 shall be resolved as provided for in ARTICLE 11.

5.4 WAIVER OF CONSEQUENTIAL DAMAGES

5.4.1 In no event shall Subcontractor be entitled to lost profits, loss of anticipated profits, consequential, indirect, punitive, special or incidental damages resulting from any breach by Construction Manager of this Agreement. Subcontractor hereby waives any claim for any such damages. The provisions of this subsection shall also apply to and survive this Agreement.

5.5 LIQUIDATED DAMAGES

5.5.1 If the Subcontract Documents provide for liquidated damages or other damages for delay beyond the completion date set forth in the Subcontract Documents that are not specifically addressed as a liquidated damage item in this Agreement, and such damages are assessed, Construction Manager may assess a share of the damages against Subcontractor in proportion to Subcontractor's share of the responsibility for the damages. However, the amount of such assessment shall not exceed the amount assessed against Construction Manager. This section shall not limit Subcontractor's liability to Construction Manager for Construction Manager's actual damages caused by Subcontractor.

ARTICLE 6 SUBCONTRACT AMOUNT

6.1 As full compensation for performance of this Agreement, Construction Manager agrees to pay Subcontractor in current funds for the satisfactory performance of the Subcontract Work subject to all applicable provisions of this Agreement:

6.1.1 the fixed-price total of _____ dollars (\$) inclusive of the following accepted alternates and their respective dollar amounts. The contract amount is subject to additions and deductions as provided for in the Subcontract Documents;



6.1.2 alternates and unit prices in accordance with the following alternates and unit prices and estimated quantities.

The following alternates may be included in this Subcontract for the stated amount and shall be performed in accordance with the Contract Documents. The stated amounts capture all costs to perform the work in its entirety including but not limited to incidentals, overhead, profit, bond premiums, and insurance.

| | |
|--|---------|
| ALT 01: ROOF TERRACES | \$00.00 |
| ALT 02: ADDITIONAL ACCESS CONTROL | \$00.00 |
| ALT 03: SITE FURNISHINGS | \$00.00 |
| ALT 04: PLAZA PAVERS | \$00.00 |
| ALT 05: RETAINING / SOILS | \$00.00 |
| ALT 06: EXTERIOR SECTIONAL GLASS DOORS | \$00.00 |
| ALT 07: INTERACTIVE DISPLAY MONITORS | \$00.00 |
| ALT 08: BASEMENT FLOOR EPOXY | \$00.00 |
| ALT 09: YOUTH DEPARTMENT CEILING CLOUDS | \$00.00 |
| ALT 10: LIGHT FIXTURES | \$00.00 |

The following unit prices shall be used when required by the Construction Manager for **all additions and/or deletions** to the contract quantities and shall be inclusive of all things necessary for the completion of the work in its entirety. Items covered by these Unit Prices shall be provided in accordance with the Contract Documents and in quantities and locations during normal working hours and during the normal sequence of construction as directed by the Construction Manager. Unit Prices hold firm through 12/31/2022.

| UNIT PRICES | ADD | DEDUCT |
|---------------------------|------------|---------------|
| Wall Type C01 – Non Rated | SF _____ | _____ |
| Wall Type C02 - Non Rated | SF _____ | _____ |
| Wall Type C03 – 1 Hr. | SF _____ | _____ |
| Wall Type C04 – 1 Hr. | SF _____ | _____ |
| Wall Type C05 – 2 Hr. | SF _____ | _____ |
| ACCESS DOORS | | |
| Install only Access Doors | EA _____ | _____ |

DOORS AND FRAMES



Install only Primed 3'x7' Machined Hollow Metal Frame EA _____

Install only Pre-finished, Machined 3'x7' Wood Door w/hdw EA _____

The fixed-price, unit prices, or time and material rates and process are referred to as the Subcontract Amount.

ARTICLE 7 CHANGES

7.1 CHANGE ORDERS There shall be no change in the Subcontract Work or adjustments in the Subcontract Price or Subcontract Time except by written change order signed by Owner, Architect, Construction Manager and Subcontractor. The Construction Manager will issue an RFQ (Request for Quote) through the Change Event module in Procore, the Construction Manager's web-based document control software. An RFQ is not an instruction to either stop work in progress or to execute the proposed change.

Within five (5) consecutive calendar days, (or more if agreed upon by Construction Manager) after receipt of RFQ, Subcontractor shall submit a written quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

The amount of any Change Order shall be added to or deducted from the Subcontract Price. The Date of Substantial Completion and/or Date of Final Completion may be equitably adjusted in the Change Order at Construction Manager's sole discretion in order to compensate for any material impact on Subcontractor's ability to finish by the original Date of Substantial Completion and/or Date of Final Completion.

7.1.1 NOTICE AND WAIVER Should Subcontractor believe that any event, condition (including unforeseen site conditions), or circumstance has caused a change in the Subcontract Price or Subcontract Time, Subcontractor must submit to Owner and Construction Manager a properly executed Change Order Request Form within five (5) Days after Subcontractor knew or should have known of such event, condition (including unforeseen site conditions), or circumstance. Subcontractor's failure to comply with this timely, written notice requirement shall constitute Subcontractor's waiver of any right to make a claim or bring a Dispute for any additional compensation or adjustment to the Subcontract Price or the Subcontract Time.

7.2 INTERIM DIRECTIVES Construction Manager may issue a written Interim Directive directing Subcontractor to proceed with the Subcontract Work in question. If such Interim directive is issued as a result of Owner's issuance of an Interim Directive, then the applicable provision of the prime agreement shall govern. Otherwise, Subcontractor shall separately submit its costs for the resulting change beginning with its next regularly scheduled application for payment submitted after the issuance of the Interim Directive. If there is a cost dispute, Construction Manager shall pay Subcontractor fifty percent (50%) of its actual (incurred or committed) cost to perform the Subcontract Work. In such event, the Parties reserve their rights as to the disputed amount. Construction Manager's payment does not prejudice its right to be

reimbursed should it be determined that the disputed work was within the scope of the Subcontract Work. Subcontractor's receipt of payment of the disputed work does not prejudice its right to receive full payment for the disputed Subcontract Work should it be determined that the disputed Subcontract Work is not within scope. Undisputed amounts may be included in applications for payment and shall be paid in accordance with the Subcontract Documents.

When the Parties agree upon an adjustment in Subcontract Amount or Subcontract Time, such agreement shall be reflected in a Subcontract change Order, and the payments to date shall be adjusted to reflect the Subcontract Change Order. If no agreement is reached, the Parties shall resolve the matter as provided in ARTICLE 11.

7.3 CONCEALED OR UNKNOWN SITE CONDITIONS If a condition encountered at the Worksite is (a) a subsurface or other physical condition materially different from those indicated in the Subcontract documents, or (b) an unusual or unknown physical condition materially different from conditions ordinarily encountered and generally recognized as inherent in the Subcontract Work provided for in the Subcontract documents, Subcontractor shall stop affected Work after the condition is first observed and give prompt written notice of the condition to the Construction Manager. Subcontractor shall not be required to perform any Work relating to the condition without the written mutual agreement of the Parties. Any change in the Contract Price or the Contract time as a result of the condition, including a dispute about its existence or nature, shall be determine as provided in ARTICLE 7.

7.4 ADJUSTMENTS IN SUBCONTRACT AMOUNT An adjustment in the Subcontract Amount resulting from a Subcontract change Order shall be determined by one of the following methods:

7.4.1 mutual acceptance of an itemized lump sum;

7.4.2 unit prices as indicated in the Subcontract Documents or as subsequently agreed to by the Parties; or

7.4.3 costs as determined in the Subcontract documents or in a manner otherwise acceptable to the Parties, and a mutually acceptable fixed or percentage fee.

7.5 SUBSTANTIATION OF ADJUSTMENT If Subcontractor does not respond promptly or disputes the method of adjustment, the method and the adjustment shall be determined by Construction Manager on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in the case of an increase in the Subcontract Amount, an allowance for overhead and profit of the percentage provided in §7.6 or if none is provided, as mutually agreed upon by the Parties. Subcontractor may contest the reasonableness of any adjustment determined by Construction Manager. Subcontractor shall maintain Construction Manager's review and approval of an appropriately itemized and substantiated accounting of the following items attributable to the Subcontract Change Order.

7.5.1 labor costs, including Social Security, health, welfare, retirement, and other fringe benefits as normally required, and state workers' compensation insurance;

7.5.2 costs of materials, supplies, and equipment, whether incorporated in the Subcontract Work or consumed, including transportation costs;

7.5.3 costs of renting machinery and equipment other than hand tools;

7.5.4 costs of bond and insurance premiums, permit fees, and taxes attributable to the change; and

7.5.5 costs of additional supervision and field office personnel services necessitated by the change.

7.6 Adjustments shall be based on net change in Subcontractor's reasonable cost of performing the changed Subcontract Work plus, in case of a net increase in cost, an agreed upon sum for

7.6.1 Each Subcontractor involved, for work performed by that Subcontractor's own forces, **ten percent (10%) of the cost.**

7.6.2 For each Subcontractor involved, for work performed by the Subcontractor's Subcontractors, **five percent (5%) of the amount due the Sub-Subcontractor.**

7.6.3 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 Subcontractors. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also.

7.6.4 The Subcontractor's labor rates as provided in the subcontract documents will be solely used to determine the Subcontractor's labor costs including labor costs for changes in the work. The Subcontractor's labor rates shall exclude Contractor's overhead and profit. The Subcontractor shall not receive any additional fees for adjustments of the subcontract amount other than those referenced in paragraph 7.6 above.

7.7 **NO OBLIGATION TO PERFORM** Subcontractor shall not be obligated to perform changes in the Subcontract Work until a Subcontract change Order has been executed or written instructions have been issued in accordance with §7.1 or §7.8.

7.8 **INCIDENTAL CHANGES** Construction Manager may direct Subcontractor to perform incidental changes in the Subcontract Work which do not involve adjustments in the Subcontract Amount or the Subcontract time. Incidental changes shall be consistent with the scope and intent of the Subcontract Documents. Construction Manager shall initiate an incidental change in the Subcontract Work by issuing an Interim Directive to Subcontractor, which shall be carried out promptly and is binding on the Parties.

ARTICLE 8 PAYMENT

8.1 SCHEDULE OF VALUES As a condition precedent to payment, Subcontractor shall provide a schedule of values satisfactory to Construction Manager ~~not more than fifteen (15) Days from the date of execution of this Agreement.~~ one month prior to the Subcontractor's first application for payment.

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

1. Arrange schedule of values consistent with requirements of Procure.
2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Do NOT separate breakdown amounts into labor and material except for Stored Materials. A written request for Stored Materials with amounts must be submitted to the Construction Manager for approval prior to creating the Schedule of Values.

8.1.2 CONSTRUCTION MANAGER'S OBLIGATION TO PAY SUBJECT TO EXPRESS CONDITION PRECEDENT Notwithstanding anything to the contrary in this Agreement or the Subcontract Documents, the obligation of Construction Manager to make payments to Subcontractor under this Agreement, whether a progress payment, final payment or change orders to the Subcontract Work, is subject to the express condition precedent of receipt of payment by Construction Manager from Owner (or the party Construction Manager entered into the Prime Contract with, if such party is not Owner) for Subcontractor's Subcontract Work. If Construction Manager has provided payment or performance bonds or a combination payment and performance bond, the obligation of Construction Manager and its surety under any of those bonds to make any payment (whether a progress payment, final payment or change orders) to a claimant on that bond is similarly subject to the express condition precedent of payment therefore by Owner (or the party Construction Manager entered into the Prime Contract with, if such party is not Owner) to Construction Manager.

8.2 PROGRESS PAYMENTS

8.2.1 APPLICATIONS On or before the 20th day of each month unless the date in the prime contract supersedes this date, but no more than once per month, the Subcontractor shall submit an invoice to Construction Manager and such invoice shall include the following documents: (a) Subcontractor's Application for Payment shall be submitted in the form as required by Exhibit E inclusive of the schedule of values to be submitted in triplicate; (b) Partial Waivers of Lien of Subcontractor and all of its subcontractors and suppliers which must be provided in triplicate; (c) any other documentation reasonably requested by Construction Manager to confirm Subcontractor's request for payment

(collectively, "Progress Payment Documentation"). "Application for Payment" means Subcontractor's certified request for payment for completed portions of the Subcontract Work. Prior to receiving Final Payment, Subcontractor agrees to furnish the same documentation described above in triplicate and all final waivers of lien shall be furnished in advance; (d) if Subcontractor is obligated to provide design services pursuant to §3.8, Subcontractor's applications for payment shall show its design professional's fee and expenses as a separate cost item; (e) the executed close out documents attached hereto as exhibit G and any documents required within exhibit A must be submitted to the Construction Manager before final payment case be issued to the Subcontractor; (f) if the required submittals outlined in this agreement and the subcontract documents are not submitted under the provisions of this contract and the subcontract documents then payment shall be withheld as outlined in the subcontract documents.

8.2.2 RETAINAGE The rate of retainage shall be FIVE percent (5%), which is equal to the percentage retained from Construction Manager's payment by Owner for the Subcontract Work.

8.2.3 TIME OF APPLICATION Subcontractor shall submit progress payment applications to Construction Manager no later than the 20th Day of each month as stated in §8.2.1.

8.2.4 STORED MATERIALS Unless otherwise provided in the Subcontract Documents, applications for payment may include materials and equipment not yet incorporated in the Subcontract Work but delivered to and suitably stored on or off the Worksite including applicable insurance, storage, and costs incurred transporting the materials to an off-site storage facility. Approval of payment applications for such store items on or off the Worksite shall be conditioned upon submission by Subcontractor of bills of sale and required insurance or such other procedures satisfactory to Owner and Construction Manager and Construction Manager's interest including transportation to the Worksite.

8.2.5 TIME OF PAYMENT Progress payments to Subcontractor for satisfactory performance of the subcontract Work shall be made within fourteen (14) Days provided that Subcontractor has complied with all of the obligations of §8.2.1 after receipt by Construction Manager of payment from Owner for the subcontract work.

8.2.6 PAYMENTS WITHHELD Construction Manager may reject a Subcontractors application for payment in whole or in part or withhold amounts from a previously approved Subcontractor application for payment, as may reasonably be necessary to protect Construction Manager from loss or damage for which Construction Manager may be liable and without incurring an obligation for late payment interest based upon:

8.2.6.1 Subcontractor's repeated failure to perform the Subcontract Work as required by this Agreement;

8.2.6.2 except as accepted by the insurer providing builders Risk or other property insurance covering the Project, loss or damage arising out of or relating to this Agreement and caused by Subcontractor to Owner, Construction Manager, or others to whom Construction Manager may be liable;

8.2.6.3 Subcontractor's failure to properly pay for labor, materials, equipment, or supplies furnished in connection with the Subcontract Work, provided that Construction Manager is making payments to Subcontractor for that portion of the Subcontract Work in accordance with this Agreement;

8.2.6.4 rejected or defective Subcontract Work which has not been corrected in a timely fashion;

8.2.6.5 reasonable evidence of delay in performance of the Subcontract Work such that the Work will not be completed within the Subcontract Time, and that the unpaid balance of the Subcontract Amount is not sufficient to offset the liquidated damages or actual damages that may be sustained by Construction Manager as a result of the anticipated delay caused by Subcontractor;

8.2.6.6 reasonable evidence demonstrating that the unpaid balance of the Subcontract Amount is insufficient to cover the cost to complete the Subcontract Work; and

8.2.6.7 uninsured third-party claims involving Subcontractor or reasonable evidence demonstrating that third-party claims are likely to be filed unless and until Subcontractor furnishes Construction Manager with adequate security in the form of a surety bond, letter of credit, or other collateral or commitment sufficient to discharge such claims if established.

8.2.6.8 no later than five (5) Days after receipt of an application for payment, Construction Manager shall give written notice to Subcontractor, at the time of disapproving or nullifying all or part of an application for payment, stating its specific reasons for such disapproval or nullification, and the remedial actions to be taken by Subcontractor in order to receive payment. When the above reasons for disapproving or nullifying an application for payment are removed, payment will be promptly made for the amount previously withheld.

8.2.7 SUBSTANTIAL COMPLETION

8.2.7.1 Upon substantial completion of the Subcontract Work or a designated portion thereof, Construction Manager shall assume responsibility for security and protection of the Subcontract Work pending the achievement of Substantial Completion of the Project. However, acceptance of the Subcontract Work for the purpose of allowing succeeding Work to proceed shall not result in the commencement of the warranty period of the Subcontract Work unless otherwise provided in the prime agreement.

8.2.7.2 Unless otherwise provided for in the prime agreement, partial Owner occupancy or use of completed portions of the Subcontract Work shall constitute Substantial Completion of that portion of the Subcontract Work and the warranty period applicable to the Subcontract Work shall commence upon the achievement of Substantial Completion of the Project and acceptance by Owner under the terms of the prime agreement.

8.3 FINAL PAYMENT

8.3.1 APPLICATION Upon acceptance of the Subcontract Work by Owner and Construction Manager and receipt from Subcontractor of evidence of fulfillment of Subcontractor's obligations in accordance with the Subcontract Documents and the subsection below, Construction Manager shall incorporate Subcontractor's application for final payment into Construction Manager's next application for payment to Owner without delay, or notify Subcontractor if there is a delay and the reasons for the delay.

8.3.2 REQUIREMENTS Before Construction Manager shall be required to incorporate Subcontractor's application for final payment into Construction Manager's next application for payment, Subcontractor shall submit to Construction Manager:

- (a) An Affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Subcontract Work have been paid, satisfied, or are to be paid with the proceeds of final payment, so as not to encumber Owner's property, Construction Manager, or Construction Manager's surety;
- (b) As-built drawings, manuals, copies of warranties, startup and testing required in §3.26, and all close-out documents and satisfaction of close-out procedures if required by the Subcontract Documents;
- (c) Release of any liens, conditioned on final payment being received, and in such form as may be required by the Subcontract Documents;
- (d) Consent of surety to final payment, if required;
- (e) A report of any outstanding known and unreported accidents or injuries experienced by Subcontractor at the Worksite;
- (f) Other data, if required, such as receipts and releases.

8.3.3 TIME OF PAYMENT Final payment of the balance due in the Subcontract Amount shall be made to Subcontractor within five (5) Days after receipt by Construction Manager of final payment from Owner for such Subcontract Work.

8.3.4 FINAL PAYMENT DELAY If Owner or its designated agent does not issue a certificate for final payment or if Construction Manager does not receive such payment

for any cause which is not the fault of Subcontractor, Construction Manager shall promptly inform Subcontractor in writing.

8.3.5 WAIVER OF CLAIMS Final payment shall constitute a waiver of all claims by Subcontractor relating to the Subcontract Work, but shall in no way relieve Subcontractor of liability for the obligations assumed under §3.20 and §3.21, or for faulty or defective work or services discovered after final payment, nor relieve Construction Manager for claims made in writing by Subcontractor as required by the Subcontract Documents before its application for final payment as unsettled at the time of each payment.

8.4 LATE PAYMENT INTEREST Progress payments or final payment due and unpaid under this Agreement shall bear interest from the date payment is due at the prevailing statutory rate at the place of the Project. However, if Owner fails to timely pay Construction Manager as required under the prime agreement through no fault or neglect of Construction Manager, and Construction Manager fails to timely pay Subcontractor as a result of such non-payment, Construction Manager's obligation to pay Subcontractor interest on corresponding payments due and unpaid under the this Agreement shall be extinguished by Construction Manager promptly paying to Subcontractor Subcontractor's proportionate share of the interest, if any, received by Construction Manager from Owner on such late payments.

8.5 CONTINUING OBLIGATIONS Provided Construction Manager is making payments in accordance with this Agreement, Subcontractor shall reimburse Construction Manager for costs and expenses for any claim, obligation or lien asserted before or after final payment in made that arise from the performance of the Subcontract Work. Subcontractor shall reimburse Construction Manager for costs and expenses including attorneys' fees and costs and expenses incurred by Construction Manager in satisfying, discharging, or defending against any such claims, obligation, or lien, including any action brought or judgment recovered. If the Law or bond requires Subcontractor to take any action before the expiration of the reasonable time for payment reference in in order to preserve or protect Subcontractor's rights with respect to mechanic's lien or bond claims, then Subcontractor may take that action before the expiration of the reasonable time for payment and such action will not: (a) create the reimbursement obligation recited above, (b) be in violation of this Agreement, or (c) be considered premature for purposes of preserving and protecting Subcontractor's rights.

8.6 PAYMENT USE RESTRICTION Payments received by Subcontractor shall be used to satisfy the indebtedness owned by Subcontractor to any person furnishing labor or materials, or both, for use in performing the Subcontract Work through the most current period applicable to progress payments received from Construction Manager before it is used for any other purpose. In the same manner, payments received by Construction Manager for the Subcontract Work shall be dedicated to payment to Subcontractor. This applies to this Agreement only, and is not for the benefit of third parties. Moreover, this section does not restrict commingling funds nor require separate accounts for deposits. Nothing in this section creates a fiduciary duty on the Parties, nor creates any tort cause of action or liability for breach of trust, punitive damages, or other equitable remedy or liability for alleged breach.

8.7 PAYMENT VERIFICATION If Construction Manager has reason to believe that Subcontractor is not complying with payment terms in this Agreement, Construction Manager may contact Subcontractor's Subcontractors and suppliers to ascertain whether they are being paid by Subcontractor in accordance with this Agreement.

8.8 PARTIAL LIEN WAIVERS AND AFFIDAVITS As a prerequisite for payments, Subcontractor shall provide, in a form satisfactory to Owner and Construction Manager, partial lien and claim waivers in the amount of the application for payment and affidavits covering its subcontractors and suppliers for completed Subcontract Work. Such waivers shall be conditional upon payment. In no event shall Subcontractor be required to provide an unconditional waiver of lien or claim, before receiving payment or in an amount in excess of what it has been paid.

8.9 SUBCONTRACTOR PAYMENT FAILURE Upon payment by Construction Manager, Subcontractor shall promptly pay its subcontractors and suppliers the amounts to which they are entitled. If Construction Manager has reason to believe that labor, material, or other obligations incurred in the performance of the Subcontract work are not being paid, Construction Manager may give written notice of a potential claim or lien to Subcontractor and may take any steps deemed necessary to assure that progress payments are utilized to pay such obligations, including but not limited to the issuance of joint checks. If upon receipt of notice, Subcontractor does not (a) supply evidence to the satisfaction of the Construction Manager that payment owed has been paid; or (b) post a bond indemnifying Owner, Construction Manager, Construction Manager's surety, if any, and the premises from a claim or lien, Construction Manager shall give the right to withhold from any payments due or to become due to Subcontractor a reasonable amount to protect Construction Manager from any and all loss, damage, or expense including attorneys' fees that may arise out of or relate to any such claim or lien.

8.10 SUBCONTRACTOR ASSIGNMENT OF PAYMENTS Subcontractor shall not assign any payment due or to become due under this Agreement, without the written consent of Construction Manager, unless the assignment is intended to create a new security interest within the scope of ARTICLE 9 of the Uniform Commercial Code. Should Subcontractor assign all or any part of any payment due or to become due under this Agreement to create a new security interest or for any other purpose, the instrument of assignment shall contain a clause to the effect that the assignee's right in and to any money due or to become due to Subcontractor shall be subject to the claims of all persons, firms, and corporations for services rendered or materials supplied for Subcontract Work.

8.11 PAYMENT NOT ACCEPTANCE Payment to Subcontractor does not constitute or imply acceptance of any portion of the Subcontract Work.

ARTICLE 9 INDEMNITY, INSURANCE, AND BONDS

9.1 INDEMNITY

9.1.1 INDEMNITY In addition to the indemnification obligations outlined above, Subcontractors shall indemnify, hold harmless and defend Construction Manager, Design

Professional, Owner, and their agents, consultants, and employees (the “Indemnitees”) for all claims, suits, demands, damages, losses and expenses of any kind for bodily injury and property damage other than the Work itself that may arise from the performance of the Subcontract Work, including reasonable attorneys’ fees, costs, and expenses, that arise from the performance of the Work, but only to the extent caused by the negligent or intentionally wrongful acts or omissions of Subcontractor, Subcontractor’s subcontractors, or anyone employed directly or indirectly by any of them or by anyone for whose acts any of them may be liable. Subcontractor shall be entitled to reimbursement of any defense cost paid above the Subcontractor’s percentage of liability for the underlying claim to the extent attributable to the negligent or intentionally wrongful acts or omissions of the indemnitees.

9.1.2 NO LIMITATION ON LIABILITY In any claim against the Indemnitees by any employee of Subcontractor, anyone directly or indirectly employed by Subcontractor or anyone for whose acts Subcontractor may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Subcontractor under workers’ compensation acts, disability benefit acts or other employee benefit acts.

9.2 INSURANCE

9.2.1 SUBCONTRACTOR’S INSURANCE Before commencing the Subcontract Work, and as a condition precedent to payment, Subcontractor shall purchase and maintain insurance that will protect it from the claims arising out of its operations under this Agreement, whether the operations are by Subcontractor, or any of its consultants or subcontractors or anyone directly or indirectly employed by any of them for whose acts Subcontractor may be liable. Construction Manager utilizes myCOI to track and verify Subcontractor’s insurance coverage, so that Subcontractor does not have to spend time requesting, collecting or delivering a Certificate of Insurance (COI) to Construction Manager. Upon Construction Manager’s receipt of this executed Agreement, Subcontractor will receive an email from registration@mycoitracking.com. Subcontractor must follow the instructions contained in the email and complete the online registration. Upon completion of registration, myCOI will request proof of insurance directly from Subcontractor’s insurance agent(s). In addition to other terms and conditions contained herein, Subcontractor shall not commence work and no payments shall be made to Subcontractor, unless Subcontractor is registered with myCOI and a compliant COI has been received.

9.2.2 MINIMUM LIMITS OF LIABILITY Subcontractor shall procure and maintain in force Workers’ Compensation Insurance, Employers’ Liability Insurance, Business Automobile Liability Insurance, and Commercial General Liability Insurance (CGL) with insurance companies licensed in the jurisdiction in which the Project is located and acceptable to Construction Manager, which acceptance shall not be unreasonably withheld, at least the limits of liability as set forth in the table in paragraph 9.2.3.1.

9.2.3 PROFESSIONAL LIABILITY INSURANCE

9.2.3.1 If required by §3.8, Subcontractor shall require its design professional(s) to maintain professional liability insurance with a company reasonably satisfactory to Construction Manager, including contractual liability insurance against the liability assumed, and including coverage for any professional liability caused by consultants of its design professional. Said insurance shall have specific minimum limits as set forth:

| Type of Insurance | Minimum Requirement |
|--|--|
| Professional Liability (Errors and Omissions) if providing professional services | Enter \$ Amount per claim and aggregate (per year) |
| Commercial General Liability | Enter \$ Amount each occurrence Enter \$ Amount general aggregate Enter \$ Amount personal/advertising per occurrence Enter \$ Amount products/completed operations aggregate Enter \$ Amount damage to rented premises Enter \$ Amount medical expense |
| Comprehensive Automobile Liability | Enter \$ Amount combined single limit |
| Employer's Liability | Enter \$ Amount all coverages |
| Worker's Compensation | Statutory coverage |
| Umbrella/Excess | Enter \$ Amount over primary insurance |
| Automobile Liability | Covering: all owned, non-owned and hired vehicles for not less than \$1,000,000 Combined Single Limit |
| Bodily Injury by Accident | Enter \$ Amount Each Accident |

Project # _____ . It is agreed Scandrol Construction Co. and (Owner) _____ are added as additional insureds on and above liability policies primary/non-contributory basis, General Liability form CG2010 10/01 and CG 2037 10/01 apply. It is further agreed that a waiver of subrogation applies to the General Liability and Workers Compensation policies in favor of the additional insureds.

The professional liability insurance shall contain prior acts coverage sufficient to cover all subcontract services rendered by the design professional. Said insurance shall be continued in effect with an extended period of two years following final payment to the design professional. The Professional Liability Insurance shall contain a retroactive date providing prior acts coverage sufficient to cover all Services

performed by the Subcontractor's design professional for this Project. Coverage shall be continued in effect for two year(s) following Substantial Completion. Subcontractor shall pay the self-insured retention and deductible. .

9.2.3.2 Subcontractor shall require its design professional to furnish to Subcontractor and myCOI, before the design professional commences its services, a copy of its professional liability policy evidencing the coverages required in this subsection. No policy shall be cancelled or modified without thirty (30) Days' prior written notice to Subcontractor and Construction Manager.

9.2.4 NUMBER OF POLICIES Commercial General Liability Insurance (CGL) and other liability insurance may be arranged under a single policy for the full limits required or by a combination of underlying policies with the balance provided by an Excess or Umbrella Liability Policy.

9.2.5 CANCELLATION, RENEWAL, AND MODIFICATION To the extent commercially available to Subcontractor from its current insurance company, insurance policies required under §9.2.1 shall contain a provision that the insurance company or its designee must give Construction Manager written notice transmitted in paper or electronic format: (a) thirty (30) Days before coverage is nonrenewed by the insurance company and (b) within ten (10) Business Days after cancelation of the coverage by the insurance company. Before commencing the Work and upon renewal or replacement of the insurance policies, Subcontractor shall furnish myCOI with certificates of insurance until two years after substantial Completion or longer if required by the Contract Documents. In addition, if any insurance policy required under §9.2.1 is not to be immediately replaced without lapse in coverage when it expires, exhausts its limits or is to be cancelled. Subcontractor shall give Construction Manager prompt written notice upon actual or constructive knowledge of such condition.

9.2.6 CONTINUATION OF COVERAGE Subcontractor shall continue to carry Completed Operations Liability Insurance for at least two years after final payment to Construction Manager. Before commencing the Work, Subcontractor shall furnish myCOI with certificates evidencing the required coverages.

9.2.7 BUILDER'S RISK POLICY INSURANCE Upon Subcontractor's written request, Construction Manager shall provide Subcontractor with a copy of the Builder's Risk policy of insurance or any other property or equipment insurance in force for the Project and procured by Owner or Construction Manager. Construction Manager shall advise Subcontractor if a Builder's Risk policy of insurance is not in force.

9.2.8 WAIVER OF SUBROGATION The Parties waive all rights against each other, other than the rights to contribution and indemnity, Owner and Design Professional and any of their respective consultants, subcontractors, sub-subcontractors, suppliers, agents and employees, for damages caused by perils to the extent covered by the proceeds of the insurance provided in §9.2.7, except such rights as they may have to the insurance

proceeds and such rights as they may have for the failure to obtain and maintain any Project Builders Risk Coverage that they may have been obligated to provide in the prime agreement. Subcontractor shall require similar waivers from its subcontractors.

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

9.2.10 ADDITIONAL GENERAL LIABILITY COVERAGE Construction Manager shall/ shall not require Subcontractor to purchase and maintain additional liability coverage, primary to Construction Manager's coverage pursuant to the subsection immediately above. If required, the additional liability coverage required of Subcontractor shall be:

9.2.10.1 ADDITIONAL INSURED. Construction Manager, owner and architect shall be named as an additional insured on Subcontractor's CGL, specified, or ongoing operations and completed operations, excess/umbrella liability, commercial automobile liability, and any required pollution liability, but only with respect to liability for bodily injury, property damage, or personal and advertising injury to the extent caused by the negligent acts or omissions of Subcontractor, or those acting on Subcontractor's behalf, in the performance of Subcontract Work or Construction Manager at the Worksite. The Insurance of the Subcontractor shall be primary and non-contributory to any insurance available to the Additional Insureds.

9.2.10.2 OCP. Subcontractor shall provide an Owners' and Construction Managers' Protective Liability Insurance ("OCP") policy with limits equal to the limits on CGL specified, or limits as otherwise required by Construction Manager.

Any documented additional costs in the form of a surcharge associated with procuring additional general liability coverage in accordance with this subsection shall be paid by Construction Manager directly or costs may be reimbursed by Construction Manager to Subcontractor by increasing the Subcontract Amount to correspond to the actual cost required to purchase and maintain the coverage. Before commencing the Subcontract Work, Subcontractor shall provide either a copy of the OCP policy, or a certificate and endorsement evidencing that Construction Manager has been named as an additional insured, as applicable.

9.3 BONDS

9.3.1 Performance and Payment Bonds are / **are not** required of Subcontractor. Such bonds shall be issued by a surety admitted in the state in which the Project is located and must be acceptable to Construction Manager. Construction Manager's acceptance shall not be withheld without reasonable cause. The penal sum of the Payment Bond and Performance Bond shall each be in the original full Subcontract Amount.



9.3.2 If Subcontractor shall fail to promptly provide any required bonds, Construction Manager may terminate this Agreement and enter into a subcontract for the balance of the Subcontract work with another subcontractor. All Construction Manager costs and expenses incurred by Construction Manager as a result of said termination shall be paid by Subcontractor.

9.3.3 PAYMENT BOND REVIEW Construction Manager has / **has not** provided Owner a payment bond.

Sample

ARTICLE 10 SUSPENSION, NOTICE TO CURE, AND TERMINATION

10.1 FAILURE OF PERFORMANCE AND TERMINATION

10.1.1 NOTICE TO CURE A DEFAULT If Subcontractor persistently fails to supply enough qualified workers, proper materials, or equipment to maintain the Progress Schedule, or fails to make prompt payment to its workers, subcontractors, or suppliers, or disregards a Law or orders of any public authority having jurisdiction, fails to comply with the provisions of section 3.2.1 of this agreement, or otherwise is guilty of a material breach of provision of this Agreement, Subcontractor shall be deemed in default of this Agreement. If Subcontractor fails within three (3) Business Days after written notification to commence and continue satisfactory correction of the default with diligence and promptness, then Construction Manager shall give a second notice to Subcontractor and surety, if any, to correct the default within a two (2) Business Day period. If Subcontractor fails to promptly commence and continue satisfactory correction of the default following receipt of such second notice, Construction Manager without prejudice to any other rights or remedies, shall have the right to any or all of the following remedies:

10.1.1.1 supply workers, materials, equipment, and facilities as Construction Manager deems necessary for the completion of the Subcontract Work or any part which Subcontractor has failed to complete or perform after written notification, and charge Subcontractor costs and expenses, including reasonable overhead, profit, and attorneys' fees that are due or to become due. Subcontractor shall be liable for the payment of any amount by which such expense may exceed the unpaid balance of Subcontract Amount. At Subcontractor's request, Construction Manager shall provide a detailed accounting of the costs to finish the Subcontract Work;

10.1.1.2 contract with one or more additional subcontractors to perform such part of the Subcontract Work as Construction Manager determines will provide the most expeditious completion of the Work, and charge the cost to Subcontractor as provided under the subsection above;

10.1.1.3 withhold any payments due or to become due Subcontractor pending corrective action in amounts sufficient to cover losses and compel performance to the extent required by and to the satisfaction of Construction Manager. In the event of an emergency affecting the safety of persons or property, Construction Manager may proceed as above without notice, but Construction Manager shall give Subcontractor notice promptly after the fact as a precondition of cost recovery; or

10.1.1.4 terminate the Agreement by written notice.

10.1.2 USE OF SUBCONTRACTOR’S EQUIPMENT If Construction Manager performs work under this article, either directly or through other subcontractors, Construction Manager or other subcontractors shall have the right to take and use any materials or supplies for which Construction Manager or other subcontractors have paid and located at the Worksite for the purpose of completing any remaining Subcontract Work. Construction Manager and others performing work under this article shall also have the right to use construction tools and equipment located on the Worksite and belonging to the Subcontractor and its subcontractors for the purpose of completing the remaining Work, but only after Subcontractor’s written consent, which shall not be unreasonably withheld. If Construction Manager uses the tools and equipment in accordance with this subsection, Construction Manager shall indemnify and hold harmless Subcontractor in connection with Construction Manager’s use of such tools and equipment unless the subcontractor is negligent in the maintenance of such equipment. Immediately upon completion of the Subcontract Work, any remaining materials, implements, equipment, appliances, or tools not consumed or incorporated in performance of the Subcontract Work, and furnished by, belonging to, or delivered to the Project by or on behalf of Subcontractor, shall be returned to Subcontractor in substantially the same condition as when they were taken, normal wear and tear expected.

10.2 BANKRUPTCY

10.2.1 TERMINATION ABSENT CURE If Subcontractor files a petition under the Bankruptcy code, this Agreement shall terminate if: (a) Subcontractor or Subcontractor’s trustee rejects the Agreement, (b) a default has occurred, and Subcontractor is unable to give adequate assurance of required performance; or (c) Subcontractor is otherwise unable to comply with the requirements for assuming this Agreement under the applicable provisions of the Bankruptcy Code.

10.2.2 INTERIM REMEDIES If Subcontractor is not performing in accordance with the Progress Schedule at the time a petition in bankruptcy is filed, or at any subsequent time, Construction Manager, while awaiting the decision of Subcontractor or its trustee to reject or to assume this Agreement and provide adequate assurance of its ability to perform, may avail itself of such remedies under this article as are reasonably necessary to maintain the Progress Schedule. Construction Manager may offset against any sums due or to become due Subcontractor all costs incurred in pursuing any of the remedies provided including, but not limited to, reasonable overhead, profit, and attorneys’ fees. Subcontractor shall be liable for the payment of any amount by which costs incurred may exceed the unpaid balance of the Subcontract Amount.

10.3 SUSPENSION BY OWNER FOR CONVENIENCE Should Owner suspend the Work or any part which includes the Subcontract Work for the convenience of Owner and such suspension is not due to any act or omission of Construction Manager, or any other person or entity for whose acts or omissions Construction Manager may be liable, Construction Manager shall notify Subcontractor in writing and, upon receiving notification, Subcontractor shall

immediately suspend the Subcontract Work. Only to the extent provided for under the prime agreement and to the extent Construction Manager recovers such on Subcontractor's behalf, the Subcontract Amount and the Subcontract Time shall be equitably adjusted by Subcontract Change Order for the cost of delay resulting from any such suspension.

10.4 TERMINATION BY OWNER Should Owner terminate its contract with Construction Manager or any part which includes the Subcontract Work, Construction Manager shall notify Subcontractor in writing within three (3) Business Days of the termination and, upon written notification, this Agreement shall be terminated and Subcontractor shall immediately stop the Subcontract Work, follow all of Construction Manager's instructions, and mitigate all costs. In the event of Owner termination, Construction Manager's liability to Subcontractor shall be limited to the extent of Construction Manager's recovery on Subcontractor's behalf under the Subcontract Documents, except as otherwise provided in this Agreement.

10.5 CONTINGENT ASSIGNMENT OF THIS AGREEMENT Construction Manager's contingent assignment of this Agreement to Owner, as provided in the prime agreement, is effective when Owner has terminated the prime agreement for cause and has accepted the assignment by notifying Subcontractor in writing. This contingent assignment is subject to the prior rights of surety that may be obligated under Construction Manager's bond, if any. Subcontractor consents to such assignment and agrees to be bound to the assignee by the terms of this Agreement, provided that the assignee fulfills the obligations of Construction Manager.

10.6 SUSPENSION BY CONSTRUCTION MANAGER Construction Manager may order Subcontractor in writing to suspend all or any part of the Subcontract Work for such period of time as may be determined to be appropriate for the convenience of Construction Manager. Phased Work or interruptions of the Subcontract Work for short periods of time shall not be considered suspension. Subcontractor, after receipt of Construction Manager's order, shall notify Construction Manager in writing in sufficient time to permit Construction Manager to provide notice to Owner in accordance with the prime agreement of the effect of such order upon the Subcontract Work. The Subcontract Amount or Subcontract Time shall be adjusted by Subcontract Change Order for any increase in time or cost of performance of this Agreement caused by such suspension. No claim under this section shall be allowed for any costs incurred more than fourteen (14) Days before Subcontractor's notice to Construction Manager. Neither the Subcontract Amount nor the Progress Schedule shall be adjusted for any suspension, to the extent that performance would have been suspended, due in whole or in part to the fault or negligence of Subcontractor or by a cause for which Subcontractor would have been responsible. The Subcontract Amount shall not be adjusted for any suspension to the extent that performance would have been suspended by a cause for which Subcontractor would have been entitled only to a time extension under this Agreement.

10.7 WRONGFUL EXERCISE If Construction Manager wrongfully exercises any option under this article, Construction Manager shall be liable to Subcontractor solely for the reasonable value of Subcontract Work performed by Subcontractor before Construction Manager's wrongful action.

10.8 TERMINATION BY SUBCONTRACTOR If the Subcontract Work has been stopped for thirty (30) Days because Subcontractor has not received progress payments or has been abandoned or suspended for an unreasonable period of time not due to the fault or neglect of Subcontractor, then Subcontractor may terminate this Agreement upon giving Construction Manager five (5) Days' written notice. Upon such termination, Subcontractor shall be entitled to recover from Construction Manager payment for all Subcontract Work satisfactorily performed by not yet paid for, including reasonable attorneys' fees related to termination, costs, and expenses. However, if Owner has not paid Construction Manager for the satisfactory performance of the Subcontract Work through no fault or neglect of Construction Manager, and Subcontractor terminates this Agreement under this article because it has not received corresponding progress payments, Subcontractor shall be entitled to recover from Construction Manager, within a reasonable period of time following termination, payment for all Subcontract Work executed and for any proven loss, cost, or expense in connection with the Work, including all demobilization costs plus . Construction Manager's liability for any other damages claimed by Subcontractor under such circumstances shall be extinguished by Construction Manager pursuing said damages and claims against Owner on Subcontractor's behalf as provided for in §10.3 and §10.4.

ARTICLE 11 DISPUTE MITIGATION AND RESOLUTION

11.1 WORK CONTINUATION AND PAYMENT Subcontractor shall continue to Subcontract Work and maintain the Progress Schedule during any dispute mitigation or resolution procedure. If Subcontractor continues to perform, Construction Manager shall continue to make payments in accordance with this Agreement.

11.2 DISPUTES BETWEEN THE PARTIES If the dispute resolution provisions between Construction Manager and Owner in the Subcontract Documents does not permit consolidation or joinder with disputes of third parties, such as Subcontractor, or if such dispute is only between the Parties, then the Parties shall submit the dispute to the dispute resolution procedures set forth in the section below.

11.3 CONSTRUCTION MANAGER-SUBCONTRACTOR DISPUTE MITIGATION AND RESOLUTION

11.3.1 DIRECT DISCUSSIONS If the Parties cannot reach resolution on a matter relating to or arising out of the Agreement, the Parties shall endeavor to reach resolution through good faith direct discussions between the Parties' representatives, who shall possess the necessary authority to resolve such matter and who shall record the date of first discussions. If the Parties' representatives are not able to resolve such matter within five (5) Business Days, the Parties' representatives shall immediately inform senior executives of the Parties in writing that a resolution could not be reached. Upon receipt of such notice, the senior executives of the Parties shall meet within five (5) Business Days to endeavor to reach resolution. If the matter remains unresolved after fifteen (15) Days from the date of first discussion, the Parties shall submit such matter to the dispute resolution procedures selected in this ARTICLE 11.

11.3.2 **MEDIATION** If direct discussions pursuant to the subsection immediately above do not result in resolution of the matter, the Parties shall endeavor to resolve the matter by mediation. The mediation shall be convened within thirty (30) working Days of the matter first being discussed and shall conclude within forty-five (45) working Days of the matter being first discussed. Either party may terminate the mediation at any time after the first session by written notice to the non-terminating Party and to the mediator. The costs of the mediation shall be shared equally by the Parties. The Parties choose mediation through:

- the current Construction Industry Mediation Rules of the American Arbitration Association (AAA) and administered by AAA.
- the current Mediation Guidelines of JAMS and administered by JAMS
- the current rules and administration by _____.

If no box is checked the default is AAA rules and administration.

11.3.3 **BINDING DISPUTE RESOLUTION** If the matter is unresolved after submission of the matter to mitigation procedure or to mediation, except as provided in §11.4, the Parties shall submit the matter to the binding dispute resolution procedure selected below:

11.3.3.1 **ARBITRATION**

The Parties choose binding arbitration for any claim or dispute arising out of or relating to this Agreement. **EACH PARTY WAIVES THEIR RIGHT TO BE HEARD IN A COURT OF LAW**, with or without a jury. Arbitration does not involve a judge or jury. Instead, an arbitrator with the power to award damages and other appropriate relief will decide claims and disputes. An arbitrator's award shall be final and binding upon the Parties, and judgment may be entered upon it in any court having jurisdiction.

11.3.3.2 Neither Party may commence arbitration if the claim or cause of action would be barred by the applicable statute of limitation had the claim or cause of action been filed in a state or federal court. Receipt of a demand for arbitration by the person or entity administering the arbitration shall constitute the commencement of legal proceedings for the purposes of determining whether a claim or cause of action is barred by the applicable statute of limitations. If, however, a state or federal court exercising jurisdiction over a timely filed claim or cause of action orders that the claim or cause of action be submitted to arbitration, the arbitration proceeding shall be deemed commenced as of the date the court action was filed, provided that the Party asserting the claim or cause of action files its demand for arbitration with the person or entity administering the arbitration within thirty (30) Days after the entry of such order.

11.3.3.3 The arbitration shall use the following rules:

- the current AAA Construction Industry Arbitration Rules and AAA administration. AAA Construction Fast Track Rules shall apply to all two-party cases when neither Party's disclosed claim or counterclaim exceeds \$250,000. If arbitration is selected but no rules are selected, then this subsection shall apply by default;
- the current JAMS Engineering and Construction Arbitration Rules and Procedures and administered by JAMS; or
- the current arbitration rules of _____ and administered by _____.

11.3.3.4 LITIGATION

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

If not indicated in §11.3.3 through §11.3.4, then litigation is the default and not arbitration.

11.3.4 COSTS The costs of any binding dispute resolution procedure and reasonable attorneys' fees shall be borne by the non-prevailing Party, as determined by the adjudicator of the dispute.

11.3.5 VENUE The project location shall serve as the venue.

11.4 MULTIPARTY PROCEEDING All parties necessary to resolve the matter agree to be parties to the same dispute resolution proceeding, if possible. To the extent disputes between the Parties involve in whole or in part disputes between Construction Manager and Owner, disputes between Subcontractor and Construction Manager shall be decided by the same tribunal and in the same forum as disputes between Construction Manager and Owner.

11.5 NO LIMITATION OF RIGHTS OR REMEDIES Except as expressly waived, this article does not limit any rights or remedies which Subcontractor may possess under lien laws or payment bonds.

ARTICLE 12 MISCELLANEOUS

12.1 EXTENT OF AGREEMENT Except as specifically provided, this Agreement is for the exclusive benefit of the Parties, and not for the benefit of any third party. This Agreement represents the entire and integrated agreement between the Parties, and supersedes all prior negotiations, representations, or agreements, either written or oral.

12.2 ASSIGNMENT OF SUBCONTRACT WORK Except as provided in §8.10, Subcontractor shall neither assign the whole nor any part of the Subcontract Work without prior written approval of Construction Manager.

12.3 GOVERNING LAW The Law in effect at the location of the Project shall govern this Agreement.

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

12.5 NOTICE Unless changed in writing, a Party's address indicated in ARTICLE 1 shall be used when delivering notice to a physical address. Except for Agreement termination and as otherwise specified in the Contract Documents, notice is effective upon transmission by any effective means, including U.S. postal service and overnight delivery service.

12.6 NO WAIVER OF PERFORMANCE Either Party's failure to insist upon any performance of any of the terms, covenants, or conditions of this Agreement, or to exercise any of its rights, shall not be construed as a waiver or relinquishment of term, covenant, condition, or right with respect to further performance.

12.7 TITLES Titles given to articles and sections of this Agreement are for ease of reference only and shall not be relied upon or cited for any other purpose.

12.8 JOINT DRAFTING The Parties expressly agree that this Agreement was jointly drafted, and that they both had opportunity to negotiate its terms and to obtain the assistance of counsel in reviewing its terms before execution. Therefore, this Agreement shall be construed neither against nor in favor of either Party, but shall be construed in a neutral manner.

ARTICLE 13 SUBCONTRACT DOCUMENTS

13.1 INTERPRETATION OF SUBCONTRACTOR DOCUMENTS

13.1.1 The drawings and specifications are complementary. If Work is shown only on one but not on the other, Subcontractor shall perform the Subcontract Work as though fully described on both consistent with the Subcontract Documents and reasonably inferable from them.

13.1.2 In case of conflicts between drawings and specifications, the specifications shall govern. In any case of omissions or errors in figures, drawings, or specifications, Subcontractor shall immediately submit the matter to Construction Manager for clarification by Owner. Subject to an equitable adjustment in Subcontract Time or Subcontract Amount pursuant to ARTICLE 7 or ARTICLE 11, Owners clarifications are final and binding.

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

13.1.4 Unless otherwise specifically defined in this Agreement, any terms that have well-known technical or trade meanings shall be interpreted in accordance with their well-known meanings.

13.1.5 **ORDER OF PRECEDENCE** In case of any inconsistency, conflict, or ambiguity among the Subcontract Documents, the documents shall govern in the following order: (a) Subcontract Change Orders and written amendments to this Agreement; (b) this Agreement; (c) subject to §13.1.2, the drawings (large scale governing over small scale), specifications and addenda issued before the execution of this Agreement; (d) information furnished by Owner that is identified as a Subcontract Document; (e) other documents listed in this Agreement. Among categories of documents having the same order of precedence, the term or provision that includes the latest date shall control.

13.1.6 **CONTRACT DOCUMENTS CONSIST OF**

This Agreement
Exhibits



CONSTRUCTOR SCANDROLI CONSTRUCTION COMPANY

BY: _____ NAME: _____ TITLE: _____

WITNESS: _____ NAME: _____ TITLE: _____

SUBCONTRACTOR _____

BY: _____ NAME: _____ TITLE: _____

WITNESS: _____ NAME: _____ TITLE: _____

END OF DOCUMENT

Sample

APPLICATION FOR PAYMENT

1. In order to expedite the process of the monthly pay application, Scandroli Construction will use Procore construction management software for this project to effectively manage and process payments. Subcontractors/Material Suppliers (Vendors) will have access to the invoicing module of Procore's web-based application to submit a Schedule of Values (SOVs) and monthly applications for an integrated approach to managing the project.
2. All Scandroli Construction Subcontractors are required to login to Procore construction management program at least 30 days prior to the first billing period cut-off date. If you have not previously logged in or do not have a login to Procore, please contact Chris Braconier chris.braconier@scandroli.com for additional information.
3. Subcontractors are required to enter their SOVs into Procore at least 30 days prior to the first billing cycle. Coordinate line items in the SOVs with items required to be indicated as separate activities in Scandroli Construction's construction schedule. Use Project Manual table of contents as a guide to establish line items for the SOV. Provide at least one line item for each Specification Section. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Do NOT separate breakdown amounts into labor and material except for Stored Materials. A written request for Stored Materials with amounts must be submitted to Scandroli Construction for approval prior to creating the SOV. Once approved the Vendor will receive a notice to invoice.
4. To facilitate the preparation of the monthly pay request to the Architect/Owner, the Subcontractor shall submit within Procore their dollar amounts or percentages complete for the work that the Subcontractor considers completed. After an agreement has been reached between the project manager and Subcontractor, Scandroli Construction will attempt to collect percentages requested. If the percentages approved by the Architect/Owner are different from that submitted by the Subcontractor, Scandroli Construction will communicate this information to the vendor. Any back up information that is available to support the amount being requested is highly recommended.
5. When a Subcontractor's invoice is presented for final payment, Scandroli Construction shall require unconditional final lien releases from all sub-vendors before releasing any funds. If at any time Scandroli Construction has reasonable doubt of a vendor's ability to pay his sub-vendors in full, Scandroli Construction reserves the right to require prior lien releases or to issue joint checks regardless of the amounts involved.
6. If a Subcontractor has more than one contract subcontract agreement or purchase order with Scandroli Construction for any project, separate invoices, schedule of values, and waivers shall be submitted for each agreement.
7. Any additional billing information requested by the Owner, Architect, or Scandroli construction shall be submitted as requested.
8. To collect retention money due, vendors must submit a separate invoice in order for Scandroli Construction to process the amount for payment. A statement of account contract verification will be sent out verifying final contract amounts, this will need to be signed and returned.

9. All payment applications, with projections through the end of the month, need to be submitted by the 20th of the month. Once the draw closes, you will not be included for funds disbursement for that month.

END OF APPLICATION FOR PAYMENT

SALES TAX FORM

The Illinois Sales Tax Exemption Certificate is enclosed (two pages).

END OF SALES TAX FORM

Verify that all of your Illinois Sales Tax Exemption Certificate information is correct

- ✓ **If not, contact us immediately.**
- ✓ **Do not discard** - your Illinois Sales Tax Exemption Certificate is an important tax document that authorizes you to purchase tangible personal property for use or consumption tax-free.

OFFICIAL DOCUMENT

State of Illinois - Department of Revenue

OFFICIAL DOCUMENT

Illinois Sales Tax Exemption Certificate



ILLINOIS STATE LIBRARY

300 S 2ND ST FL 5
SPRINGFIELD IL 62701-1703

Sales Tax Exemption Certificate

Issue date:

02/10/2020

Expiration date:

03/01/2025

Sales Tax Exemption

E99889684

Organization type:

Governmental

This entity is authorized under the Retailers' Occupation Tax Act to purchase tangible personal property for use or consumption tax-free.



ILLINOIS REVENUE

HMC

Director

OFFICIAL DOCUMENT - DO NOT DESTROY



OFFICE OF THE SECRETARY OF STATE

JESSE WHITE • Secretary of State and State Librarian

ILLINOIS STATE LIBRARY
Gwendolyn Brooks Building
300 South Second Street
Springfield, Illinois 62701-1796

Sales Tax Exemption Identification Number Verification Rockford Public Library

Every five years the Illinois State Library is issued a sales tax exemption identification number on behalf of all public libraries in Illinois.

**This confirms that the: Rockford Public Library
214 North Church Street
Rockford, Illinois 61101-1004**

is a division of state government and as such, is an authorized user of Tax Exemption Identification Number **E99889684**.

The above stated tax-exempt number, issued in February, 2020, is effective through March 1, 2025.

If you have any questions please contact the Illinois State Library, Library Development Group at 1-800-665-5576 extension 2.

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Bill of Sale

Seller

Purchaser

| | |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Project:

Contract/Subcontract, dated: _____

1. In consideration of the payment of \$_____, Seller does grant, sell, transfer, and deliver to Purchaser the materials referenced and described on the invoices listed below which are attached hereto and incorporated by reference herein.

| | | |
|-------|-------|-------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |

2. Purchaser shall have all right and title to the materials in itself, its successors, and assigns. Seller warrants that it is the lawful owner of the materials and that such materials are free and clear of all liens, claims, security interests, or other encumbrances, and that it has good right to sell the materials and will warrant and defend the right of Purchaser in and to said materials against all claims and demands of all persons or other legal entities.

3. Seller agrees that the materials described in paragraph 1 above shall be stored by the Seller at the following location(s):

a) At Project Site-Value: _____

b) At Location (address): _____
Value: _____

4. As long as the materials described in paragraph 1 are in the Seller's possession, the risk of loss or damage to said materials shall remain with Seller.

5. Seller shall at all times keep the materials described in paragraph 1 above free of all taxes, liens, claims, security interests and other encumbrances, and any sums of money that may be paid by Purchaser in release or discharge thereof shall be payable to Purchaser by Seller upon Purchaser's demand. Seller shall not use the materials described above in any manner other than to store or as is called for by the Trade Contract/Subcontract.

6. Seller warrants that all materials described in paragraph 1 above which are not stored on the Project Site have been insured for the full value of such material against all loss, damage, or destruction due to fire, theft, and all types of physical damage, in a sum and by policies adequate at all times to protect the interest of Purchaser hereunder and otherwise satisfactory to Purchaser. Insurance coverage for materials stored at the location designated in 3b above is evidenced by the insurance certificate attached hereto.

7. Seller hereby confirms that it will deliver in accordance with the Trade Contract/Subcontract the materials and that the cost of delivery has already been included in the Trade Contract/Subcontract price and, therefore, no additional charge is to be made for such delivery or for the storage of materials.

8. The parties hereto agree that the acceptance of title under the Bill of Sale shall in no way be construed as an acceptance of the materials as being in accordance with the plans and specifications and other contract documents between the parties, nor as a waiver by Purchaser of any obligation of Seller under the Trade Contract/Subcontract and other contract documents.

9. Purchaser is hereby granted the full license right and authority to enter upon the lands of Seller at any reasonable time or times during the continuance of this Agreement for the purpose of inspection and removal of the material belonging to the Purchaser under this Bill of Sale. For the purposes of this paragraph, this agreement shall continue until all of said materials which are the property of Purchaser are removed from the site and land of Seller.

IN WITNESS WHEREOF, the Seller hereto has caused this Bill of Sale to be executed by its duly authorized representative effective this

_____ day of _____, _____
Day Month Year (Seller)

_____ *Attest Title*

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REQUEST FOR INFORMATION FORM

Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents **during the bidding phase**, Bidder shall prepare and submit an RFI in a prompt manner electronically by a **joint e-mail to the following three individuals**:

Architect, Erin O'Keefe: EOkeefe@studiogwa.com

Construction Manager, Al Kelchner: al.kelchner@scandroli.com

Owner, Anthony Cortez: acortez@rockfordpubliclibrary.org

During the construction phase, the Construction Manager will use Procore, web-based software, for document control including the processing of Requests for Information (RFI) with content as specified (See also 01 31 00). Further instructions will be provided to the successful bidders at the preconstruction conference.

END REQUEST FOR INFORMATION FORM

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SUPPLEMENTARY GENERAL CONDITIONS OF THE CONTRACT

The Subcontractor shall provide all labor, material, equipment, and supervision as required to complete all work items under the Contract Scope Exhibit (hereafter referred to as the "Work") in accordance with the Contract Documents which include these Supplementary General Conditions as they apply directly to the Work of any subject location under the Construction Manager Subcontractor Agreement.

It is understood that this **Contract Scope Exhibit** indicates the general scope of the project, and as such, does not necessarily indicate or describe all work required for the full performance and completion of the Work. Subcontractor, therefore, must comprehend the full scope of work and anticipate all work reasonably inferable in the contract documents. Time is of the essence.

GENERAL INFORMATION

1. Include all applicable taxes, shipping tariffs, interstate commerce-related expenses, customs costs, duties, material escalation, equipment escalation, labor escalation, and currency differentials through project completion as applicable.
2. ALL items, accessories or devices that are inferable or necessary to provide a complete and fully operational system shall be provided for such systems, whether they are specifically called for by the specifications or the drawings.
3. The Work shall be furnished and installed in accordance with the Drawings and Specifications prepared by the Project's Design Team and accepted by the Owner. Any deviations from said Drawings and Specifications shall require prior written approval from the Owner or responsible Design Consultant. Any corrective work required because of unapproved deviations is the responsibility of the Subcontractor. The responsible Subcontractor shall not perform any additional or unit price work without prior notifications to the Construction Manager, AND without authorization from the Construction Manager.
4. When requirements cited in the specification conflict with each other or with other Contract Documents, the most stringent shall govern work.
5. Fire safing / smoke sealing of penetrations made after the completion of the finished walls shall be by the Subcontractor who made the penetration.
6. Subcontractor is responsible to provide for the procurement and payment of all permits and City fees as well as miscellaneous street permits all as required for the completion of its work. The Base Building permit and any right of way closure permits indicated on the logistics plan only will be furnished by Construction Manager. Comply with all governing agency's requirements including environmental requirements. Subcontractor shall ensure that the means and methods utilized in the performance of the work follow all applicable codes.
7. No construction activities will take place before 7 AM. Construction hours of operation are 7 AM to 5 PM. Work outside of hours stated will require Construction Manager's written authorization.
8. All temporary work installed by Subcontractor will be removed by Subcontractor unless directed otherwise.
9. Commencement of work by Subcontractor shall represent acceptance of existing conditions and temperature/moisture requirements. If something is deemed unacceptable, Subcontractor will notify Construction Manager's Field Superintendent immediately, prior to the start of work.

10. Submit a Project Emergency Response Plan and (if requested by Construction Manager).
11. Subcontractor to include all escalation costs as required for the completion of the Work.
12. Subcontractor will comply with local and state code requirements.
13. Furnish flagmen and maintain traffic control as required for the proper completion of the Work.
14. Maintain traffic control as required for the proper completion of the Work. Do not close or obstruct streets, sidewalks, or other public thoroughfares unless all municipal permits have been obtained and perform operations to minimize interference with the use thereof. Streets, sidewalks, or other public thoroughfares shall not be used for storage of materials unless approved by Construction Manager.
15. Maintain streets and sidewalks free of all mud and debris caused by Subcontractor's field operation to the satisfaction of both Construction Manager and the applicable municipal authorities daily. Delivery trucks shall be scraped clean prior to exit from construction site.
16. Employ appropriate and proper methods and procedures to minimize noise, dust, fumes, visibility, and any other nuisance arising from construction activities.
17. Provide all movable barricades, signalmen and certified flagmen as necessary for the proper and safe execution of Subcontractor's Work.
18. A line item for Submittals must be shown on the Subcontractors Schedule of Values for approval by the Construction Manager.
19. Shop drawing submittals shall be sent electronically to the Construction Manager. All submittal items must be identified according to Division 1 requirements and reviewed first by the Subcontractor for completeness and adherence to the Project Documents to ensure approval during first review. If returned for revisions, re-submittals must be made without delay to the work.
20. Submittals are to be completed in a timely manner to allow for fabrication of all material. Subcontractors are to include in the transmittal the specification section that the submittal / submittal package is referencing. Submittal approval should be understood as a release to begin fabrication.
21. Submit an electronic and hard copy of Operation & Maintenance (O&M) Manuals, as-builts, and all specified documentation and literature for all equipment and building systems in the scope in accordance with requirements found in the Project's specifications.
22. It is understood that modifications may be required to the details shown on the Contract Documents. However, the Architect's concept, i.e., profiles, reveals, sight lines, floor closures, dimensioning, proportioning, quality, and performance standards, etc., in which the intent is schematically indicated in the Contract Documents, must be maintained throughout.
23. Field repair of damaged materials is to be completed in accordance with the manufacturer's recommendations, and only in instances when allowed by the Architect/Engineer, Owner, and Construction Manager. Subcontractor will not be responsible for the repair of damage by others.
24. Subcontractor is responsible for the design, furnishing and installation of all components required to support its work, including but not limited to backup structural shapes, miscellaneous metal, connection hardware, reinforcing materials, and separator material. Subcontractor understands that only the structural steel, structural concrete and miscellaneous steel shown on the Structural Drawings will be provided by others. Components in exposed areas will be required to be submitted to the Architect for approval.
25. All embeds/sleeves/box-outs larger than 18" in either direction shall be laid out on the floor deck by Subcontractor requiring the opening and placed by the concrete Subcontractor. Any openings smaller than

18" in either direction shall be laid out and installed by Subcontractor requiring the opening. Subcontractor includes all layout, coring, setting of sleeves, cutting of metal deck, etc. required for the Scope of Work. During construction should Construction Manager decide that the concrete Subcontractor will set specific sleeves, embeds or box-outs it is still Subcontractor's responsibility to confirm these are correctly placed during the concrete pour. Any cost associated with box-out, embeds and sleeves that are placed incorrectly, will be assumed by Subcontractor.

26. Subcontractor shall furnish, in a timely manner, all required anchors and/or supports, along with approved, detailed setting plans so that embedded items may be properly incorporated into the building's structural system. Subcontractor will provide resources to perform periodic inspections of anchor embeds prior and after installation of work. Embeds requiring recess into the structure will be provided by Subcontractor with Styrofoam block out material which will then be removed later by Subcontractor. Failure to provide such items or information at such time as required so as not to delay work will not relieve Subcontractor of the responsibility for proper anchoring and fastening of the work.
27. Coring of floor slabs is prohibited without prior approval from the Structural engineer. Any coring request is to be preceded by sonar/x-ray locating of reinforcing steel performed/paid for by Subcontractor. All anchors drilled into the slab whether from below or above must be approved by the structural engineer for non-interference with the reinforcing steel. Unless approved otherwise, maximum anchor depth into the concrete slabs is $\frac{3}{4}$ ".
28. Subcontractor includes preparation of work areas to allow for safe and efficient execution of work, including removal of water, ice, snow, etc. Subcontractor also includes preparation of all substrates, embedded plates/inserts including removal of minor debris, etc. as required for the proper installation of Subcontractor's work. Subcontractor shall be responsible for verifying the acceptability of all work of other trades as related to the proper completion of work included within the Subcontract prior to commencement.
29. Subcontractor is responsible to be aware of other Subcontractor's work and understands that prior to beginning work, coordination and agreement with the Construction Manager and other Subcontractors as to work area availability is its responsibility.
30. Subcontractor includes removal of all foreign objects and/or debris caused by Subcontractor, such as stickers, sealants, installation markings, erection grime, etc., upon completion of installation. No product name, number plates, engravings, watermarks, tattoos, or other graphic indications are to be visible in the finished work performed under the Subcontract.
31. Field measurements, if required by Subcontractor, will be held to a minimum so as not to delay the Work. Construction Manager shall be advised immediately both verbally and in writing, of any major deviations.
32. Temporary power in the form of 120-volt, single phase for small tools and temporary light on typical floors shall be supplied by the prime Electrical Subcontractor at locations designated by Construction Manager at no cost to Subcontractor after the utility company has provided the temporary service. Every Subcontractor is responsible for coordinating all temporary electric required for its work, such as temporary generators, until temporary power is delivered to the project. Additional electrical connections, hot taps and/or supplemental/task lighting required for operation of Subcontractor's equipment shall be the financial responsibility of the Subcontractor.
33. Temporary water will be provided by the plumbing Subcontractor once the water tap connection has been made. Subcontractor will provide any water required prior to the date. Subcontractor may, at their own expense, coordinate with the AHJ (Agency having jurisdiction) for hydrant tap if required. Consumption charges shall be responsibility of the Owner.

34. Separate Men and Women's Temporary toilet facilities shared by all Subcontractors will be provided at locations designated by Construction Manager.
35. Coordination and cost of any connections for Subcontractor's temporary facilities, equipment and supplemental lighting shall be at its expense.
36. Only fire-retardant treated wood will be permitted for use in all circumstances including temporary installations of shanties, protection, etc.
37. Provide an adequate labor work force as required daily to thoroughly clean up all the debris associated with Subcontractor's work. All rubbish/debris resulting from Subcontractor's operation shall be deposited by Subcontractor into "dumpster type" rubbish containers provided by the Construction Manager located outside of the building- Construction Manager shall be responsible for removal and disposal of "dumpster type" rubbish containers. Subcontractor acknowledges the project waste management program and will follow the requirements of the program.
 - a.) If Subcontractor cannot provide appropriate labor to bring debris to directed pickup location on floor, Construction Manager use its labor to dispose of waste from Subcontractor's gondolas with Construction Manager's labor force. Costs for Construction Manager's labor to perform such work will be charged to the Subcontractor.
 - b.) Clean up of Subcontractor's work, as directed by the Construction Manager must be completed within twenty-four (24) hours of a written notice. Subcontractor will be subject to a back charge for clean-up work performed by others on his behalf.
38. All work areas shall be swept clean once each day and all traces of food, dirt, debris, and dirty clothing removed.
39. No alcohol, drugs, firearms, graffiti, profanity, or verbal abuse will be permitted anywhere on the project.
40. Subcontractor shall provide minor pumping of rainwater and/or water seepage, unless otherwise directed by the Construction Documents, to complete its Work and maintain the construction progress schedule unless.
41. Subcontractor shall provide for the protection of material during the entire operation, including, but not limited to, transporting, on-site storing, installation, and final adjustment. Subcontractor is responsible for temporary protection of its material at all times, including protection of pallets and protection of stocked and distributed materials prior to installation of those materials. Subcontractor shall replace, with no increase to its Subcontract Amount, all material damaged by Subcontractor. Subcontractor shall not be responsible for damage to material caused by the negligence of others. However, Subcontractor's temporary protection system shall sufficiently safeguard against all foreign material and incidental debris that can reasonably be expected for closely coordinated work on a large-scale construction project. Costs or damage incurred because of Subcontractor's failure to adequately protect its own material shall be the sole responsibility of Subcontractor. Include all temporary protection of materials as required to maintain manufacturer's warranty and guarantee.
42. No parking for Subcontractors or their employees will be allowed within the project boundaries.
43. Verify all elevations and dimensions of adjacent or supporting surfaces, finishes, and or connecting systems prior to commencing work. If existing adjacent work, substructures, or surfaces do not conform to the construction documents, Subcontractor shall notify the Construction Manager in writing of the unacceptable conditions and the required correction before proceeding with the work. Proceeding with the work constitutes acceptance of existing conditions and substructures.

44. Provide material and workmanship warranties for a minimum of one (1) year from the date of project substantial completion or in accordance with the terms and conditions of the Contract Documents.
45. All field/extra work tickets (electronic or paper) must be submitted for Construction Manager's Field Superintendent verification daily. Any field/extra tickets submitted after twenty-four (24) hours of the event that caused the claim/request will be considered null and void. Construction Manager's Field Superintendent's signature on a ticket verifies only that the work was performed by the Subcontractor. Construction Manager's Project Manager will review signed tickets and determine if the work performed is in addition to the Subcontract Work.
46. Pricing for ticket work must be submitted to Construction Manager's Project Manager within five (5) days of ticket signing to avoid nullification of the claim.
47. Mark-up for change orders is ten percent (15%) total for combined overhead and profit on self-performed work and five percent (5%) total combined overhead and profit on all tiers of Subcontractors to Subcontractor.
48. No work shall be performed on a field/extra work ticket basis unless pre-approved in writing by the Construction Manager's Project Manager. Copies of all field/extra work tickets either signed by Field Superintendent or not shall be sent directly to the Construction Manager's Project Manager, on a weekly basis. Construction Manager's Field Superintendent will review tickets only for time and material spent, and not for contractual scope review.
49. Construction Manager's Field Superintendent is the only representative authorized to sign field/extra work tickets as a verification of time and materials only. Construction Manager's Project Manager will establish whether the work signed for is extra to the Subcontract and the value of the extra work. Acceptance of any item or work by the Construction Manager shall mean that item is installed and/or received. Only the Owner and/or Architect can execute final acceptance.
50. It is understood that prior to making any substitution and/or modifications to any part of the Contract Documents, written approval must be received from the Architect/Engineer. Should the Architect/Engineer NOT approve proposed design modifications, Subcontractor will be required to proceed in accordance with the Contract Documents at no additional cost. Further, it is understood that any proposed modification to the design must be coordinated through the Construction Manager so as not to adversely affect the work of any other trades
51. Upon receipt of a written direction from Construction Manager's Field Superintendent, the Subcontractor will redirect his personnel to immediately work in a different area.

COORDINATION WITH OTHER TRADES

52. Subcontractor and/or its Construction Managers/vendors shall interface and establish a liaison with appropriate governmental authority and/or utility companies as necessary and appropriate for completion of their work and services.
53. Subcontractor shall fully coordinate its Scope of Work with all other trades that are proceeding concurrently at the site, so that these trades are not caused unnecessary delay or additional work because of Subcontractor's operations.
54. Subcontractor shall perform out of sequence work if required by Construction Manager to permit the coordination of the work of the other Subcontractors.

55. Subcontractor is aware that other trades will be working on-site and coordination with other trades is required. Coordinate the on-site placement of material and/or tools and equipment with Construction Manager's Field Superintendent so as not to impede any other Subcontractors' operations that are working concurrently on the site. Subcontractor may be required by the Construction Manager to move its materials and equipment several times at no additional cost. The designated storage place shall be kept neat and clean and all damages thereto or to its surroundings shall be repaired by Subcontractor at no additional cost. Subcontractor and all other Subcontractors will cooperate fully with each other, including reasonable premium time, if necessary, to ensure full coordination of the construction to achieve properly phased construction. Attendance at preconstruction meetings as necessary to confirm sequence, coordination, and schedule is included.
56. Subcontractor shall coordinate with the Construction Manager and, others to ensure a full understanding of the scope of work. All work indicated or referenced by the architectural drawings to be concealed or passing through finished spaces must be contained within walls, shafts, ceilings, floors, and soffits. No work shall be installed on surface or exposed unless indicated or agreed to by the Architect. No increase to the contract amount shall be allowed due to drawing or construction revisions that may be required because of improper or incomplete coordination between the Subcontractors. The Subcontractor shall transmit in a timely manner, potential conflicts, or adjustments to all required soffits, furring of walls and other architectural requirements to Construction Manager. No change to the work or increase to the contract amount will be allowed for additional soffits, furring of walls or requirements required by the Subcontractor unless approved by the Owner. The Subcontractor shall confirm that all rooms and/or shafts are adequate for the work and other work sharing the rooms and/or shafts.
57. The Owner shall employ the services of a testing agency to perform all required shop and field inspections and testing in accordance with the Contract Documents. All other testing and inspection required by the Contract Documents are the responsibility of the Subcontractor. Subcontractor shall be responsible for all testing agency coordination through the Construction Manager (or otherwise as may be directed by Construction Manager) to ensure that all required testing and inspections are performed. Perform all required testing in the presence of the Construction Manager and or the Construction Manager's designated representative, and if required by the Contract Documents the Architect, Engineer, and the Owner. Prepare and issue a quality control and quality assurance program in accordance with the Contract Documents and acceptable to the Architect, Owner, and Construction Manager.
58. Subcontractor shall coordinate and cooperate in all respects, during every phase of Subcontractor's performance of the work, with Owner, Construction Manager, Architect, other Subcontractors, utility provider and any public authority or third party who may be employed or engaged in activity on or near the site in relation to the project. Subcontractor recognizes and acknowledges that its coordination and cooperation obligations are essential terms of the Subcontract, and shall include, without limitation, making work areas available to other Subcontractors and occasional disruptions to Subcontractor's performance of the Work. Subcontractor acknowledges and recognizes that the performance by others involved in the project of their respective work or the application of the clause may delay Subcontractor in the performance of its Work or render the performance thereof more costly than if Subcontractor was not bound by the provisions of this clause. Subcontractor hereby agrees that it shall have no basis for any claims for an increase in the price for any alleged additional costs, expenses or damages of whatsoever nature, and Subcontractor hereby waives any and all rights it may have to assert any such claim or cause of action against Owner and/or Construction Manager caused by or arising out of the aforesaid site conditions or any conditions arising off-site in relation to the project or the general coordination and cooperation responsibilities of Subcontractor.

59. Subcontractor recognizes and acknowledges that certain areas of the Project may be designated by the Construction Manager as restricted areas to which access by Subcontractor may be limited or prohibited. Subcontractor also recognizes and acknowledges that such designated areas may interfere with the orderly plan and schedule of its operations and performance of the Work. Accordingly, Subcontractor shall not assume there will be unrestricted access to or use of any area and must, prior to the commencement of the Work and as the Work progresses, assure to its satisfaction the access and other conditions affecting the Work.
60. It is understood that significant coordination throughout all phases of work (monthly, weekly, daily, hourly) will be required. This will include intermittent cooperation as necessary to coordinate with related trades.

SCHEDULE

61. The actual construction start date will depend upon the receipt of building permits, Owner's authorization to proceed. Subcontractor will be ready to proceed with its work before or on these dates.
62. Time is of the essence in the execution of the Work of this Subcontract. Equipment, labor, and materials must be always provided in sufficient quantities to meet Constructor's Job Progress Schedule (hereinafter "Schedule"). Subcontractor shall take whatever steps necessary, including additional manpower, equipment, overtime, shifts, etc., at its sole cost and expense, to perform its work in a time frame and sequence to meet the Schedule dates or durations.
63. Subcontractor will be responsible for the detailed scheduling and phasing of its work, including provisions for adequate manpower, as required by the overall project schedule, coordination with preceding or subsequent trades, weather, and other field conditions, unless otherwise directed by the Construction Manager. The effects of improper coordination by Subcontractor with the other trades shall not be a cause for delay or loss of productivity claims by Subcontractor.
64. Subcontractor is to provide the necessary resources to adhere to the milestone dates and durations of the mutually agreed upon schedule as provided by the Construction Manager. Subcontractor will add installation crews at the direction of the Construction Manager if required due to schedule deviations. Includes all overtime necessary to maintain job schedule under normal conditions as referenced in the above schedule durations due to work requirements, Subcontractor's negligence, or inability to properly staff the project.
65. Subcontractor shall be responsible for all direct and indirect overtime necessary to maintain job schedule due to its non-performance. Mutually agreed upon acceleration cost may be required.
66. Promptly submit to Construction Manager a schedule in Critical Path Method ("CPM") format showing the order of precedence in which Subcontractor proposes to carry out the work; the inter-dependence, relationship, duration, and critical path of all tasks to be undertaken in the performance of the work; all float time ("the Work Schedule"). The Work Schedule shall be developed from and shall be consistent with the Project Schedule and shall incorporate all milestones shown thereon. Float-time identified within the Work Schedule belongs to Construction Manager. Accordingly, Construction Manager may direct that float-time be utilized productively to advance performance of the associated task or event or other work involved in the project without any increase in the price or an extension of time to perform the work, including any milestone. Construction Manager's approval of the Work Schedule or any revisions thereto shall not be interpreted as an agreement that the Work or any task or event can be completed within the time allotted or within the time specified in the Subcontract, nor alter or waive Subcontractor's obligation

to fully complete the work or any part thereof in accordance with the Project Schedule, milestones and within the subcontract time for completion.

67. All punch list and corrective work shall proceed immediately upon substantial completion of work in any given area and to a schedule instructed by the Construction Manager.

COORDINATION WITH OTHER TRADES

68. Subcontractor shall correctly coordinate the installation of its Work with all Contract Documents and other trades, including Fire Protection, Plumbing, HVAC, Electrical, Site Utility, Structural, Architectural, and/or any other trade involved, to establish routes, clearances, elevations, duct, piping, conduit, fitting, fixture, and equipment locations, etc.
69. Access panels are to be installed by the Drywall Subcontractor. Subcontractor must quantify and locate (during coordination) all access panels required for this scope of work. Any access panels required, but not identified prior to award of Drywall Subcontract, shall be furnished, and installed by drywall Construction Manager at the sole expense of Subcontractor, including any costs associated with drywall patching/rework.
70. The Electrical Subcontractor shall be provided with all wiring diagrams and/or any other special information, which may be required for the proper hook-up of equipment.
71. All MEP/FP Subcontractors must agree on one consistent sealant and fire safing / smoke sealing manufacturer and second tier Subcontractor to use throughout the duration of the project. Agreement of a consistent manufacturer and installer will not result in any change in Subcontract price.
- a. Fire safing / smoke sealing products must also serve as a waterproofing product.
 - b. Fire safing / smoke sealing product must be installed within three floors of the working structural deck.
 - c. All penetrations in areas governed by IDPH jurisdiction shall be completed per IDPH and local code requirements including documentation and labeled with corresponding UL Assembly posted directly adjacent to the penetration.
72. All disciplines shall be governed by the following priority and right-of-way rules. In general, priority shall be arranged in this order:
- a. Lighting fixtures.
 - b. Air inlets and outlets and sheet metal ductwork.
 - c. Plumbing waste lines, downspouts, vents, and draining.
 - d. Sprinkler piping.
 - e. Water lines and gas lines.
 - f. Electrical conduit.
 - g. Control air lines in conduit.
 - h. Right-of-way:
 - 1. Lines with pitch shall have the right of way over those that do not pitch.
 - 2. Lines whose elevations cannot be changed shall have the right of way over lines whose

elevations can be changed.

3. Duct has right-of-way over small pipes that need not pitch.

73. Openings larger than 18" in both directions will be set in the field by the Concrete Subcontractor. Each individual Subcontractor will be responsible for laying out the location of openings. Setting openings smaller than the above will be the responsibility of the Subcontractor requiring the opening.
74. Masonry penetrations must be coordinated with the mason and other trades. Sleeves for pipe penetrations through masonry are to be furnished to the Masonry Subcontractor, along with dimensioned layout drawing for installation at time of wall construction. Duct, louver, and access panel penetration information to be provided to Masonry Subcontractor on a dimensioned layout drawing. Fire safing / smoke sealing of penetrations through masonry partitions are by Subcontractor penetrating the wall.
75. All services shall be maintained as close to the underside of the slab construction as practical. The intent is to ensure that tenant ceilings can be installed to a maximum dimension above finished floor with sufficient clearance for installation of light fixtures.
76. Temporary use of permanent equipment during the construction process does not commence the warranty or guarantee period of the equipment. All warranties and guarantees begin at Substantial Completion.
77. All concrete housekeeping pads for Subcontractor's equipment shown on the Contract Documents shall be by the concrete Subcontractor. Housekeeping pads and bases not shown on the Contract Documents and required for Subcontractor's equipment support shall be by Subcontractor. Any required grouting of equipment bases is included in Subcontractor's Work.
78. All work is to be enclosed in existing drywall ceiling or walls unless specifically allowed thru formal approval by the Construction Manager.
79. At the conclusion of work, submit record documents including as-built drawings. Provide PDF and AutoCAD files of drawings on disk and submit 6 sets of blackline drawings. Provide all equipment operating maintenance manuals as indicated in the Contract Documents, which are to be submitted through the Construction Manager to the Architect/Engineer and Owner for their final records.

LOGISTICS

80. Subcontractor acknowledges receipt of the Construction Manager's Site and EH&S Logistic plan(s).
81. Subcontractor understands that some work will be left out due to logistics coordination. Therefore, Subcontractor must include for additional mobilizations in the Work, which are separate from additional mobilizations for deliveries, field measurements, and punch list remediation.
82. All deliveries to be coordinated through Construction Manager's field personnel. Any deliveries that are not, and that impede upon other operation/and deliveries, will be turned away for redelivery at no extra cost to Construction Manager, Architect or Owner. Subcontractor will have to redeliver so as not to delay original installation schedule. Subcontractor must have a full-time foreman onsite to coordinate field activities and/or equipment deliveries
83. Attention is called to existing utilities. Notify all utilities running to or through the property at least 72 hours (not including Saturdays, Sundays, and legal holidays) prior to commencement of construction operations. The Subcontractor shall take all necessary precautions for the protection of utilities. The Subcontractor shall be responsible for any damage or destruction of utilities resulting from neglect, misconduct, or omission in the manner or method of execution of non-execution of the Work or caused by defective work or the use of unsatisfactory materials. Whenever any damage or destruction of a utility occurs because of the

Subcontractor's work, the Subcontractor will immediately notify the utility company. Any costs incurred due to the above shall be paid by the Subcontractor.

84. It is understood that scheduling, coordination, accessibility, etc. may require temporary omissions of portions of Subcontractor's Work at locations required by the Construction Manager. All patching, repairs, fill-in, and "comeback" as related to the proper completion of Subcontractor's operation shall be completed at the direction of the Construction Manager and will be included as part of this Subcontract, including but not limited to vertical hoist bays and other areas designated by the Construction Manager.
85. Provide all layout and engineering as required to properly coordinate and complete Subcontractor's work. The Construction Manager will provide only the following layout work:
- a) A licensed surveyor shall be employed by the Construction Manager to establish the initial property lines and grades for the building and site area.
 - b) After exact property lines and grades have been established, initial working points will be provided in the form of two (2) building north-south control lines, two (2) building east-west control line and four (4) elevation reference point per level by the Concrete Subcontractor's surveyor for each phase of the work. All other layout or engineering required for the proper completion of Subcontractor's work shall be the responsibility of Subcontractor.
 - c) Subcontractor will report any discrepancies arising in locating its work immediately to the Construction Manager. Subcontractor's Work that is determined to be deficient or out-of-tolerance will be responsible for the costs of surveying and layout verification. If Subcontractor reports a discrepancy that is inaccurate or incorrect, it will be responsible for the costs of verification.
 - d) Exterior perimeter slab edges will be set from theoretical column center lines and not actual column center lines to allow slab edges to be true and plumbed.
 - a) Lifting of hoisting picks over and above adjacent properties, buildings or structures is not permitted at any time and Subcontractor shall be responsible for repairing/reconstruction, at no additional cost, any damage done to any adjacent property, building or structure, resulting from its operations
86. Subcontractor is responsible for all temporary attachments to, and the load imposed on the permanent structure by items such as, but not limited to, scaffolding, cranes, rigging, temporary anchors, temporary bracing, etc. Submit engineered calculations and drawings showing loads imposed on the structure, as well as calculations demonstrating that the proper capacities exist or will exist with addition of shoring, supplemental support, or reinforcement. Costs for any additional shoring, supplemental support or reinforcing shall be the sole responsibility of the Subcontractor.
87. There will be no on-site material storage, unless agreed to in writing by the Construction Manager's Field Superintendent, except for pre-stocking areas on each floor. Such storage place shall be kept neat and clean and all damages thereto or to its surrounding shall be repaired by Subcontractor at no additional cost. Live loads must comply with limits as defined by the Structural Engineer. Submit drawings showing layout of window panel pallets, drywall, and any other excessive loads imposed on the floors. Submit engineered calculations and drawings showing equipment loads, landing area and layout of proposed material stocking and loads imposed on the floors, as well as calculations demonstrating that the proper capacities either exist or will exist after the addition of shoring and/or supplemental support steel or reinforcing. Costs of shoring and supplemental support steel shall be the responsibility of the Subcontractor. Any on-site placement of material and/or equipment must be coordinated with Construction Manager's Field Superintendent and not

impede any other Subcontractor's operations that are working concurrently on the site. Subcontractor has been made aware of and agrees with the placement of construction-site barricades/gate openings, hi-drive units, leave-outs, tower cranes, and material and personnel hoisting facilities as related to the proper coordination and completion of its work.

88. Subcontractor is to coordinate the on-site placement of any of its material and/or equipment with the Construction Manager's Field Superintendent so as not to impede any other Subcontractors' operations that are working concurrently on the site. Long-term material storage on-site is not permitted.
89. Subcontractor shall be responsible for the structural integrity of the building during its material stockpiling operation and material distribution along with temporary shoring/bracing or support that may be required. Subcontractor shall not be responsible for the structural design of the building; however, Subcontractor is responsible for design of any shoring, bracing or support
90. Subcontractor understands that materials stored on-site may be required to be moved several times at Subcontractor's expense.
91. Subcontractor has reviewed the project site and is fully cognizant of all the job site conditions and/or existing structures as related to the coordination and installation of the work. Subcontractor has been made aware of and agrees with the placement of construction-site barricades/gate openings, hi-drive units, leave-outs, cranes, and material and personnel hoisting facilities as related to the proper coordination and completion of its work.
92. Subcontractor will cooperate with the Construction Manager by delivering and/or removing his materials and equipment from the site during off hours, if required, at no extra cost to this Subcontract.
93. All employees shall attend a safety orientation. Orientations will last no more than one hour. The orientation will be held daily (or as required) at the site as scheduled by the Construction Manager. Upon completion of safety orientation, all new employees shall obtain a numbered hardhat sticker. This sticker and ID Card must always be displayed. New employee safety orientation is not transferrable. All workers performing work on the project site involved in an incident are subject to alcohol and drug testing.

END SUPPLEMENTARY CONITIONS OF THE CONTRACT

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INSURANCE REQUIREMENTS

In these Insurance Requirements the phrase "Owner" refers to the Owner named on page 1 of the Invitation to Bid / Proposal and "Construction Manager" refers to the Construction Manager also named on page 1 of the Invitation to Bid / Proposal. Subcontractor shall provide insurance as follows:

1. Workers Compensation and Employers Liability
 - a. Statutory Workers Compensation (including occupational disease) in accordance with the laws of the state in which the work is performed, including the Other States Endorsement.
 - b. Employers Liability Insurance with \$1,000,000 in limits for each of the following exposures: bodily injury by accident (each accident); bodily injury by disease (policy limit); bodily injury by disease (each employee)
 - c. Waiver of Subrogation in favor of all parties referenced in 2f below.
2. Commercial General Liability ("CGL") with a combined single limit for Bodily Injury, Personal and Advertising Injury and Property Damage of at least \$1,000,000 per occurrence and \$2,000,000 per aggregate. The general aggregate limit shall apply on a per project basis.

In addition to the foregoing, the terms and conditions of the CGL coverage (both primary and umbrella/excess policies) shall be provided through the use of ISO Coverage Form CG-00-01-1001 or its equivalent, and shall encompass at least the following:

 - a. X, C and U hazards, where applicable;
 - b. Independent Contractors;
 - c. Blanket Written Contractual Liability covering all Indemnity Agreements, including AIA 201 General Conditions of the Contract for Construction § Article 3.18 "Indemnity".
 - d. Products Liability and Completed Operations, with the provision that coverage shall extend for a period of at least thirty-six (36) months from Project completion or for any longer period if required elsewhere in the Contract Documents (such longer period shall take precedence);
 - e. CGL coverage written on an occurrence form;
 - f. Endorsement naming the following as Additional Insureds:

Rockford Public Library, Scandroli Construction Company, its affiliates, Studio GWA, Engberg Anderson Architects, Fehr Graham Engineering & Environmental and IMEG.

Coverage for all Additional Insureds shall include coverage for liability arising out of the Subcontractor's ongoing and completed operations performed for such Additional Insureds, including coverage for the negligence of the Additional Insureds.

Acceptable Additional Insured endorsements includes ISO Form CG 2010 1185 or the use of both ISO forms 2010 1001 and 2037 1001 together. Endorsement wording that states that coverage will be excess of any other policies for which the parties to be named as Additional Insureds (per paragraph f above) have additional insured status is likewise unacceptable. A copy of the additional insured endorsement shall be provided to Contractor for approval prior to commencement of work.

 - g. Waiver of Subrogation in favor of all Additional Insureds.
 - h. Policy to be primary and noncontributory as respects the coverage afforded the Additional Insureds.
3. Commercial Automobile Liability (including all owned, leased, hired and non-owned automobiles) with a combined single limit for Bodily Injury and Property Damage of at least \$1,000,000 per occurrence. Parties referenced in 2f above shall be covered as Additional Insureds.
4. Commercial Umbrella Liability Insurance with limits of at least \$5,000,000 per occurrence and in the

aggregate, and providing coverage in excess of required limits specified above for Employers Liability, General Liability, and Commercial Automobile Liability. Such coverage will apply on a primary and non-contributory basis and will not seek contribution from Contractor or any other party for which Contractor is required to provide additional insured coverage under this agreement.

5. A Certificate of Insurance indicating coverages applicable to the Project and providing for thirty (30) days written notice prior to cancellation, non-renewal or material modification in any policy must be submitted and approved prior to commencement of work.

A Certificate of Insurance, when submitted constitutes a warranty by Subcontractor that:

- a. The general aggregate limit applies on a per project basis.
- b. Blanket Contractual Liability under the Commercial General Liability Policy has been endorsed to cover the Indemnitees specified in [insert contract Article] of the Contract between the Owner and the Contractor.
- c. The Commercial General Liability Policy names as Additional Insureds: Rockford Public Library, Scandroli Construction Company, its affiliates, Studio GWA, Engberg Anderson Architects, Fehr Graham Engineering & Environmental and IMEG their respective officers, agents, servants, employees and partner, their parent and affiliates (to the extent applicable) and any other entity as required in the Owner/Contractor Agreement.
- d. With respect to the Commercial Umbrella/Excess Liability Insurance, the following policies are scheduled as primary:
Commercial General Liability
Automobile Liability
Employers Liability
- e. The insurance policies for all Subcontractor's insurance shall include a waiver of subrogation as follows: "It is agreed that in no event shall these insurance companies have any right of recovery against Scandroli Construction Company, its affiliates, Studio GWA, Engberg Anderson Architects, Fehr Graham Engineering & Environmental and IMEG their respective officers, agents, servants, employees and partner, or any other additional insured as required in the Owner/Contractor Agreement."
- f. The insurance policies shown are endorsed to be primary and non-contributory as respects any other insurance available to any Additional Insured.

The reverse side of the certificate must list each of the above items a through f.

6. All insurance must be placed with insurers: (i) licensed in the State where the Project is located; and (ii) with a minimum A. M. Best Financial Strength rating of "A- (Excellent)" and Financial Size category of at least "VIII".
7. The Subcontractor shall secure, pay for, and maintain Property Insurance necessary for protection against loss of owned, borrowed, or rented capital equipment and tools, including any tools owned by employees, and any tools, equipment, staging, towers, and forms owned, borrowed or rented by the Contractor. The requirement to secure and maintain such insurance is solely for the benefit of the Contractor. Failure of the Contractor to secure such insurance or to maintain adequate levels of coverage shall not obligate Owner or Construction Manager or their agents and employees or any other additional insured as required in the Owner/Contractor Agreement for any losses, and Scandroli Construction Company, its affiliates, Studio GWA, Engberg Anderson Architects, Fehr Graham Engineering & Environmental and IMEG their respective agents and employees and any other additional

insured as required in the Owner/Contractor Agreement shall have no such liability. The property insurance shall include a Waiver of Subrogation in favor of all parties required to be named as Additional Insureds under the Contract Documents.

8. Should the Subcontractor engage a Subcontractor, Subcontractor shall be responsible to ensure that the Sub-subcontractor maintains insurances in like form and amounts and shall provide evidence of same if requested.
9. The insurances maintained by Subcontractor shall not limit any of Subcontractor's indemnity obligations or other obligations under the Contract.
10. Limits of Insurance: Subcontractor's insurance coverage shall apply for the full amount of any loss up to each respective policy limit of liability and shall not be limited to the minimum required limits of this subcontract. In specifying minimum requirements herein, neither Owner nor Construction Manager assert or recommend this insurance as adequate to Subcontractor's requirements.
11. Subcontractor is solely responsible to inform itself of types of insurance or additional limits it may need beyond these minimum requirements to protect itself from loss, damage, or liability. Failure of the Owner or Construction Manager to identify deficiencies in any insurance provided by Subcontractor shall not relieve Subcontractor from any insurance obligations.
12. Coverage provided on a claims-made basis are not acceptable.
13. Deductibles / Claim Denials: Subcontractor shall be responsible, at no additional cost to Owner or Construction Manager for the payment of any deductibles or self-insured retentions in connection with the insurances required by this agreement, both for itself as well as any Additional Insureds. Any self-insured retention in excess of \$25,000.00 must be declared at the time the Subcontractor submits its bid and must be specifically approved by the Owner. Any policy deductibles in excess of \$100,000.00 must be similarly declared to and approved by the Owner as well.
14. Waiver of Claim / Waiver of Subrogation : Subcontractor waives its right to recover from Owner or Construction Manager and all parties that Subcontractor is required to name as Additional Insureds on its policies for all claims required to be covered by the insurance policies required under this agreement. All insurance required under this agreement shall include a waiver of subrogation by the insurer in favor of all parties that Subcontractor is required to name as Additional Insureds.
15. No Waiver of Insurance Requirements: It is expressly agreed between Owner and Subcontractor that any failure on the part of the Owner or Construction Manager to require or verify complete and timely performance of its obligations under the insurance requirements by Subcontractor shall not constitute a waiver of any right of Owner or Construction Manager to require compliance by Subcontractor with the insurance requirements, and or to seek damages resulting from Subcontractor's failure to comply.

MANAGING THE INSURANCE PROCESS

The Construction Manager uses a company named "*myCOI*" to manage project insurances.

myCOI:

- once an executed subcontract is entered into Procore will work directly with a Subcontractor's insurance agent to obtain a compliant certificate including an accurate additional insured clause,
- will track and verify that a Subcontractor's certificate of insurance meets project requirements.
- contact a Subcontractor's insurance agents through the "*myCOI Agent Portal*" and receive a properly executed certificate including required renewals.

- will send insurance cancellation notices, premiums past due notices, etc. to Scandroli Construction and the Subcontractor will be required to update its insurance obligations accordingly and provide **myCOI** with the necessary information for compliance.

If Subcontractor changes insurance agents it is required to contact **myCOI** with the new agent information.

Subcontractors will receive a registration e-mail from registration@mycoitracking.com once a contract for the project is fully executed and recorded in Procore

PROJECT INSURANCE REQUIREMENTS

| Type of Insurance | Minimum Requirement |
|--|---|
| Professional Liability (Errors and Omissions) if providing professional services | <u>2,000,000</u> per claim and aggregate (per year) |
| Commercial General Liability | <u>\$1,000,000</u> each occurrence <u>\$2,000,000</u> general aggregate <u>\$1,000,000</u> personal/advertising per occurrence <u>\$2,000,000</u> products/completed operations aggregate \$100,000 damage to rented premises \$10,000 medical expense |
| Comprehensive Automobile Liability | <u>\$1,000,000</u> combined single limit |
| Employer's Liability | <u>\$1,000,000</u> all coverages |
| Worker's Compensation | Statutory coverage |
| Umbrella/Excess | <u>\$5,000,000</u> over primary insurance |

Additional Insured endorsement for this project shall read:

Project 18200 Rockford Public Library, Replacement Library. It is agreed Scandroli Construction Co. (Construction Manager), Rockford Public Library (Owner), Studio GWA (Architect) and its consultants (see 2.f) are added as additional insureds on above liability policies primary/non-contributory basis. It is further agreed that a waiver of subrogation applies to the General Liability and Workers Compensation policies in favor of the additional insureds.

Forms CG2010 10/07 and CG2037 10/07 or their equivalents are required.

END INSURANCE REQUIREMENTS

HEALTH AND SAFETY REQUIREMENTS

1.1 SUMMARY

A. The Subcontractor will be responsible to develop and submit a Site-Specific safety plan related to its Work. The plan must be presented to the Construction Manager for review and approval before the start of Subcontractor's Work onsite but no later than submission of the first Application for Payment if an application is made prior to beginning Work onsite.

1. Overview

Summarize Site Specific safety plan. Include description of work, identify competent person and responsible company personnel with contact information and guidelines for sub sub-contractors.

2. Emergency & Incident Procedures

Describe procedures in the event of an emergency or incident including logistics.

3. OSHA Inspection Policy & Procedure

Outline approach to interacting with OSHA.

4. Personal Protective Equipment

List and describe personal protective equipment.

5. Fall Protection

Identify potential fall hazards related to the Work of the Subcontractor and specific practices to protect employees.

6. Scaffolding, Aerial Lifts and Ladders

Identify possible hazards related to scaffolding, aerial lifts and ladders related to the Work of the Subcontractor and specific practices to protect employees.

7. Cranes & Rigging

Identify all equipment and material to be rigged and lifted including precautionary measures taken for safe practice.

8. Electrical and Fire Protection & Prevention

Identify all Electrical and Fire hazards. Describe each and precautions taken to minimize the hazard.

9. Hand & Power Tools

Identify all Electrical and Fire hazards. Describe each and precautions taken to minimize the hazard.

PART 1 - PRODUCTS (Not Used)

PART 2 - EXECUTION (Not Used)

END HEALTH AND SAFETY REQUIREMENTS

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SITE SPECIFIC SAFETY PROGRAM

GENERAL INTRODUCTION

There is a determination and commitment to provide a safe environment for all workers on this project. It is the responsibility of everyone involved in this project to aim for these same goals by contributing their own time and efforts, as each situation requires. Safety is everyone's job.

All contractors shall implement measures, which support safety awareness, furnish proper tools & equipment, respond to emergency conditions, and genuinely pursue their contractor's objectives in the safest possible manner. Each contractor shall bear sole and exclusive responsibility for safety in all phases of his or her work. Nothing contained herein shall relieve such responsibility.

In the event of conflict between the provisions of this manual and applicable local, State, Federal Safety and Health Laws, regulation and/or standards, or the contract document, the more stringent shall apply. Non-compliance with any of the rules, responsibilities, or regulations of this manual will result in verbal or written safety notice, disciplinary actions, back charges, and/or full dismissal of a worker, Supervisor, or entire company.

PROGRAM OBJECTIVE

The objective of this manual is to outline a plan for preventing job-related accidents and illnesses during construction on Scandrol Construction Company job sites. This manual sets forth the many elements which all contractors and subcontractors (of every Tier) must include in their safety program. This manual is not all-inclusive. Other elements may be added as the project develops. There are also other essential elements, which some contractors, by nature of the specific types of work being performed, must integrate within their own safety program.

While this safety manual is not intended to limit the legal or contractual obligations of individual contractors working on the site, this program outlines information that will assist each project in accomplishing the following objectives.

1. To carefully assist, help implement, and enforce proper safety techniques to avoid bodily injury, property damage, and loss of productive time.
2. To increase safety and environmental awareness by establishing and maintaining an employee safety and environmental training program including New Employee Orientation, Weekly Safety & Health meetings.
3. To establish and maintain a system of auditing project work that will promptly identify and correct unsafe practices or conditions.
4. To establish emergency procedures and communications with local authorities that will minimize fire, police, or ambulance time in the event of an occurrence.
5. To control access to the construction site or the project area by developing protection plans that will secure the area and minimize the hazard to the public.
6. Compliance with the US Labor Department Occupational Safety & Health Administration legislation and environmental protection legislation, including city, state, local, and owner safety and environmental requirements.

The safety of all site employees and commitment to our environment depends directly upon individual effort and commitment to the objectives of this program. We must all do our part and encourage and demand others to do theirs.

PROJECT RESPONSIBILITIES

References:

-29 CFR PART 1926

General

The responsibility for safety and environmental issues on a construction site lies with every person involved in the project. The following is a general outline of the function and related responsibility of various individuals involved in the safety on this project. Where the specific project requirement demand or the organization of the project team differs, the general responsibilities indicated below shall be assigned to the appropriate team members.

1 SCC Project Manager

The project manager is primarily responsible for the overall performance of the project Safety and including the development, enforcement, and administration of the project. These responsibilities include:

- a. Assigning appropriate project staff responsibilities and monitoring staff performance.
- b. Fostering staff enthusiasm and awareness through continued reinforcement of program objectives and setting a good example.
- c. Oversees safety, administration, and record documentation.
- d. Oversees investigation and documentation of serious incidents and implementation of corrective action.
- e. Responding to recommendations submitted by various auditing agencies including, but not limited to, the company's Safety Department and insurance carrier or broker.

2 SCC Project Superintendent

The project superintendent will work with the Safety Department and project manager to develop the project Safety Plan and be responsible for implementation and enforcement. The project superintendent will review the safety and environmental audits, accident investigations, training programs, and will approve reports prior to submission to the project manager or Safety Department.

Responsibilities of the Project Superintendent include:

- a. Immediate investigation and resolution of a site safety or environmental complaint generated by any employee, contractor, or member of the public.
- b. Obtaining a copy of each contractor's safety program which describes safety measures and steps that will be taken to minimize hazards particular to that contractor's work. Verifying that each contractor designates a Safety Representative and implements its own program.

- c. Coordinating regular jobsite inspections and requiring that each contractor conduct regular safety inspections of its respective activities.
- d. Verifying that a written report of all violations cited by the company is forwarded to the contractor concerned. If corrections cannot be made promptly, the company superintendent must insist on a timetable for corrections.
- e. Scheduling and presiding at coordination of safety meetings on a regular basis with the contractor's/trade contractor's/subcontractor's Safety Representatives for the project to:
 - i. Review safety performance
 - ii. Review jobsite inspection and corrective work schedules
 - iii. Discuss significant accidents and safety and environmental violations.
 - iv. Confirm compliance with safety program requirements including fall protection and chemical communication programs.
- f. Requiring that each trade contractor comply with all applicable federal, state, and local codes and regulations, in addition to provisions of the project specific SEMS.
- g. Coordinating all project safety and activities.
- h. Providing an adequate number of appropriate safety signs and other warning devices to be conspicuously posted throughout the site.
- i. Monitoring the work site and correcting or requiring contractors to correct, any unsafe practices or conditions that exist on any part of the job. Reporting to the project manager any unsafe conditions that cannot be promptly corrected.
- j. Insisting on maintenance of cleanliness and general housekeeping in the work area. Minimizing stockpiles or debris.
- k. Investigation and documentation of **serious** incidents and implementation of corrective action. A **serious** incident could best be defined as, one which requires response by the local police, or fire department, ambulance, or an injury requiring a physician's care.
- l. Developing contacts with local police, fire, and rescue squad representatives to establish sound relationships and assistance in developing fire, environmental, and emergency response plans.

3 SCC Project Safety Representative

A member of the project staff will be designated as the Project Safety Representative and serve as the focal point for administration of the project safety program.

Responsibilities of the Project Safety Representative will include:

- a. Posting emergency telephone numbers: police department, fire department, doctor, hospital, ambulance, etc.
- b. Confirming availability of medical service, first aid, and fire equipment.
- c. Establishing project-specific emergency notification(s).
- d. Establishing a project-specific evacuation plan, reviewed periodically, at least quarterly, for all phases of construction.
- e. Monitoring safety program compliance through regular inspections, identification, and documentation of unsafe conditions and remedial action. Reviewing the safety program requirements of project contractors and monitoring their program implementation.
- f. Organizing and participating in new employee safety orientation training and project safety and environmental meetings.
- g. Conducting regular job site safety checklist forms to evaluate safety program implementation.
- h. Making recommendations to correct hazardous conditions or helping prevent hazardous situations from occurring.
- i. Investigating all accidents, including safety and environmental incidents, and preparing Incident Reports.
- j. Maintaining all required safety and environmental related record keeping.
- k. Maintaining a field office first aid kit and appropriate fire safety equipment.

4 Contractors/Trades/Subs Site Responsibilities

All contractors/trade contractors/subcontractors performing construction or construction-related activities on the site, whether under contract with company or the owner, are responsible for compliance with this "Site Specific Safety Manual" and are DIRECTLY RESPONSIBLE for the safety of their employees. Any violation of the following responsibilities by the contractors/trade contractors/subcontractors will result in stoppage of work, disciplinary actions, dismissal of employees/supervisors/contractors, or back charges.

General responsibilities include:

- a. Contractors/trade contractors/subcontractors will develop & provide a written site-specific safety program to the SCC Site Safety Manager. The safety program must be site-specific and identify the hazards to their trade and provide a plan to perform their work safely.
- b. Contractors/trade contractors/subcontractors will conduct weekly safety meetings and Toolbox Talks for all their employees on the jobsite and maintain records of all such meetings.
- c. Contractors/trade contractors/subcontractors will not permit the interchange and use of tools and/or materials by another trade without written permission.
- d. Contractors/trade contractors/subcontractors will provide and enforce the use of personal protective equipment required by this safety policy, federal, state, and local regulations.

- e. Contractors/trade contractors/subcontractors will use proper tools for each task and maintain these tools in safe operating condition. Contractors will verify that all employees are trained and understand operating procedures before machinery or equipment is used.
- f. Contractors/trade contractors/subcontractors will check for and correct any unsafe practices and conditions that exist in the performance of their work and shall report to SCC any unsafe conditions created by others.
- g. Contractors/trade contractors/subcontractors will make a complete investigation of accidents to determine the cause so that corrective action can be taken.
- h. Contractors/trade contractors/subcontractors will provide appropriate first aid supplies for their employees and personnel qualified to administer first aid as required.
- i. Contractors/trade contractors/subcontractors will maintain good general housekeeping in their work areas and minimize all combustible debris in their work areas. This shall be completed on at least a daily basis or more frequently as needed for safety and production reason.
- j. Each contractors/trade contractors/subcontractor shall assure that their tools, equipment, and material will be secured at the end of each day and prior to high wind weather reports. This is to prevent property and material damage during windy conditions.
- k. The contractors/trade contractors/sub-contractor will see to it that no political stickers, decals, posters, or graffiti of any kind shall be allowed on the project. This includes gang boxes, lunch boxes and anywhere else on the project.
- l. All contractors/trade contractors/sub-contractor with material or personnel trailers shall have them tied down at eight points to prevent the trailer from tipping during high winds.
- m. Each contractors/trade contractors/subcontractor shall notify the SCC Site Safety Manager daily of its personnel count.
- n. Each contractors/trade contractors/subcontractor shall comply with designated fuel storage, refueling areas, and washout areas for mixer trucks on the project. Fuel storage, refueling of equipment, or mixer truck washout will be restricted to only designated areas.
- o. Each contractors/trade contractors/subcontractor shall assure that all refueling tanks shall be properly labeled, have appropriate fire fighting equipment, and spill containment reservoirs large enough to contain the entire contents of the tank to prevent fires and avoid environmental contamination.
- p. Each contractors/trade contractors/subcontractor shall provide and have readily available (on site) enough spill containment and cleanup supplies. The quantity of these supplies will be based on the amount of, and types of chemicals used on the site. In addition to this the contractors/trade contractors/subcontractor shall have a spill containment / clean up program, provide training in spill containment and clean up procedures to their employees, and include it in their site-specific plan.
- q. All contractors/trade contractors/subcontractor needing to work in a "controlled" or "restricted" area must receive training on gowning and/or lab coats. All rules set forth in this

training must be strictly adhered to. (SEE "Required Documents & Practices" section of this program.)

- r. All contractors/trade contractors/subcontractor shall comply with this site's fall protection height requirements. "At no time will an employee working on this site be exposed to a fall greater than 6' without fall protection".
- s. All contractors/trade contractors/subcontractor must turn a site-specific fall protection program. Preparation for this requirement must, at a minimum, include: a site-specific fall protection plan, safety equipment to achieve minimum requirements, employee training, and an enforcement policy.
- t. All contractors/trade contractors/subcontractor shall provide the SCC Site Safety Manager with the training records to prove that they have trained each of their employees on their individual site-specific plan.
- u. All contractors/trade contractors/sub-contractors shall designate a Project Safety Representative and serve as the focal point for administration of the project safety and environmental program. This individual may have other job site responsibilities besides safety.
- v. Responsibilities of the Project Safety Representative for all contractors/trade contractors/sub-contractors will include:

- 1) Shall be "Qualified" and "Competent"

"Qualified" - means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

"Competent Person" means one who can identify existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

- 2) Shall Attend Contractor Weekly Safety Meetings
- 3) Posting emergency telephone numbers: police department, fire department, doctor, hospital, ambulance, etc.
- 4) Confirming availability of medical service, first aid, and fire equipment.
- 5) Monitoring their safety and environmental program compliance through regular inspections, identification, and documentation of unsafe conditions and remedial action
- 6) Organizing new employee safety orientation training for all workers. This must be completed prior to the start of any work. (This shall include SCC New Employee Orientation).
- 7) Conduct & complete (Daily) a "Contractor Daily Checklist Form" and follow up on finding.
- 8) Making recommendations to correct hazardous conditions or helping prevent hazardous situations from occurring.

- 9) Investigating all accidents, including safety and environmental incidents, and preparing Incident Reports.
- 10) Maintaining all required safety and environmental related record keeping.
- 11) Preserving an open line of communication with the SCC Site Safety Manager.
- 12) Maintaining a field office first aid kit and appropriate fire safety equipment.
- 13) Ensuring that all **Safety, Health or Environmental Alerts** that are published by the SCC Safety Department are discussed with all employees and prominently posted in view of all employees.
 - w. Each Subcontractor shall assure their foreman/supervisors understand and adhere specifically to the following requirements:
 - 1) Each foreman/supervisor shall verify that the work under his/her supervision is being performed under the guidelines of their site-specific safety program for the project.
 - 2) Each foreman/supervisor shall set a good example by personally complying with Safety requirements, including proper work attire, and use of protective equipment.
 - 3) Each foreman conducting weekly Toolbox Talk safety meetings shall:
 - Discuss safe work practices and conditions observed.
 - Review recent accidents or incidents and discuss ways to prevent similar occurrences.
 - Encourage safety suggestions from workers.
 - Discuss upcoming work for week and precautions that are necessary.
 - Verify that all company employees are trained and fully understand the safe equipment or machinery operating procedures. Hazardous chemical precautions and training is provided.

DRUG AND ALCOHOL POLICY

Scope:

This policy applies to all contractors/trade contractors/subcontractors who work on this project.

Purpose:

SCC recognizes the importance of a drug & alcohol-free workplace, which is conducive to a safe and productive work environment. It is SCC's intent and obligation to comply with all federal, state, and local statutes regarding this matter, including the drug free workplace act of 1988.

Policy:

Drug and alcohol-free workplace:

The project site is a drug and alcohol-free workplace. Drugs or alcohol will not be permitted on site. Persons under the influence of drugs and alcohol will not be permitted on site.

Incident or safety violation:

It is mandatory that a drug screening test, at the expense of the contractors/trade contractors/subcontractors, be completed on all employees involved in an accident where an employee:

1. Receives an on-the-job injury requiring medical attention caused by their actions or lack of actions.
2. Receive an on-the-job injury caused by their actions but waives medical attention.
3. Injures another employee.
4. Utilizes unsafe work practices.
5. Causes damage to property.

Employees who produce a confirmed positive will be permanently prohibited from entering the premises and working on the project.

Reasonable Suspicion of Illegal Drug Use:

Reasonable suspicion exists where an employee exhibits signs of intoxication, drug influence or other behavior causing a prudent and reasonable person to have concern for the safety of such employee, other employee, or public. The determination to test based on reasonable suspicion, shall be made by the owner, their designee, or the Construction Manager. Testing for reasonable suspicion/cause will be at the individuals (being screened for reasonable suspicion) employer's expense. Employees who produce a confirmed positive will be permanently prohibited from entering the premises and working on the project.

Testing Guidelines:

In incidences when testing is conducted, the contractors/trade contractors/subcontractor must require that employees produce a urine sample at the testing site and such sample shall be tested for at least the following substances: cocaine metabolite, methaqualone, opiates, phencyclidine, amphetamines, barbiturates, benzodiazepines, and cannabinoids. Samples will be collected, sealed, and monitored by professional collection specialists and transported to an approved laboratory for actual testing using immunoassay. (Sensitivity test)

Screening can be preformed at any facility authorized to perform such screening. All post accident screening will be preformed at the treatment location the injured employee is dispatched to. Regarding waiver of medical treatment, suspicion screening or when screening is mandated the employee shall be sent to the nearest managed care facility for the screen. Applicants / employees who produce a confirmed positive will be permanently prohibited from entering the premises and working on the project. All testing shall be completed within 24 hours of notice.

Additional Grounds for Being Barred form the Premises:

1. Refusal to submit to drug screening test when requested by Owner and/or SCC.
2. Degrading, diluting, switching, altering, or tampering with a testing sample.
3. Using, manufacturing, distributing, dispensing, while on the premises, any illegal or unlawful drug
4. Any employee's off-duty possession, use, sale, manufacture, or abuse of any illegal drug, whether resulting in criminal charges or conviction.

SITE SPECIFIC SAFETY REQUIREMENTS

All the applicable rules set forth in this section shall be incorporated into the contractors/trade contractors/subcontractor's site-specific safety policy. In addition to these requirements all Federal, State

regulations apply. Any violation of the following requirements by the contractors/trade contractors/subcontractors will result in stoppage of work, disciplinary actions, dismissal of employees/supervisors/contractors, or back charges.

General Rules

1. Supervisors shall insist on employees observing and obeying every safety rule & regulation to obtain a safe working environment.
2. Horseplay, scuffling, and other acts, which tend to have an adverse influence on the safety or well being of the workers, shall be prohibited.
3. Employees shall not enter voids, chambers, tanks, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter from their supervisor.
4. Employees shall be instructed to ensure that all guardrails and other protective devices are in proper working order and shall report all deficiencies to their supervisor immediately.
5. Workers will not handle or tamper with any electrical equipment, machinery, air, or water lines in a manner not within the scope of their duties, unless they have received instructions from their supervisor.
6. All injuries shall be reported to their employee's supervisor and the SCC Site safety Manager immediately.
7. All posted speed limit signs shall be obeyed on main roads around the site and 10mph on all site roads.
8. There will be no smoking in any of the buildings on site. Smoking will be restricted to "designated smoking areas" outside of the buildings only.
9. No firearms will be allowed on site.

Housekeeping

1. All trades must leave their work areas in such a way that "facility cleaning personnel" may adequately perform their tasks.
2. All waste generated on the site will be cleaned up on at least a daily basis. The contractors/trade contractors/subcontractors will comply with the SCC Construction Management team when requested to clean up on a more frequent than daily basis for safety or production reasons.

Scaffolding

1. Provide an on-site employee who is the "Competent Person" in scaffold to oversee all scaffolding erection, dismantling and alterations.
2. The onsite competent person for scaffolding shall complete a written "Scaffolding Safety Checklist Form" for all the following reasons and turn in a copy of all reports to the SCC Site safety Manager.
 - a. Once After the scaffolding has been erected.
 - b. Once before each shift
 - c. After alterations
 - d. After severe weather (High winds, heavy rain, thunders storms) and/or earthquakes.

3. No employee can work on scaffolding at heights greater than 6ft without adequate fall protection.
4. External Use - Free-standing scaffold towers used externally must not be higher to the top platform level than three times the minimum base dimension, unless secured to a permanent structure.
5. Internal Use - For internal use only, the height to platform may rise to 3.5 times the minimum base dimension. Wheels must be locked when towers are in use. No person is permitted to remain on a tower platform while a tower is being moved.

PPE (Personal Protective Equipment)

1. Hard Hats, safety glasses, high-visibility attire and work boots are always required on the site by anyone entering the project. This shall also include visitors, vendors, and suppliers.

Fall Protection

1. Contractors/trade contractors/subcontractors will provide a written site-specific safety program to the SCC site safety manager. The safety program must be site specific and identify the hazards to their trade and provide precautions to perform the work safely. This program must be submitted before any work is performed on the jobsite and must include provisions for implementation on the project, including the safe work performance of any additional trade/subcontractors.
2. All workers exposed to a fall greater than 6 ft shall require fall protection.
3. Where work areas can not be fitted with guardrails where persons or materials could fall more than 6ft, suitable and sufficient fall protection devices such as harnesses, nets, or the like must be provided and used.
4. If for any reason during the performance of the work, perimeter cables, barricades, floor or roof opening covers, hole covers, or fall protection related items are removed to perform work, it will be the responsibility of that Contractor to replace them promptly and devise a secondary fall protection system to protect their workers while the primary system is down. This also includes warning other trades to stay out of the area while primary fall protection systems are down. Before such actions are preformed the SCC Site Safety Manager must be contacted and had a chance to review the area and the plan.

Cranes

1. All cranes, aerial platforms, scissor lifts, and man lifts must be certificated as "safe to use" by a third party and have a licensed/trained operator.
2. The crane operator shall perform daily and weekly inspection of the crane. All machinery and equipment shall be inspected prior to each use and during use to make sure it is in safe operating condition. Any deficiencies shall be repaired for defective parts replaced before continued use.

Electrical

1. All temporary electrical circuits must include a Residual Current Device, Earth Leakage Circuit Breaker or Ground Fault Circuit Interrupter at source. Assured grounding programs will not be allowed on site by any contractor, trade contractor, or subcontractor.
2. Visual Inspections - Employees shall be instructed that cords, and equipment connected by cords and plug, shall be visually inspected by the user before each day's use for external defects, such as deformed or missing pins, or insulation damage, and for indication of possible internal damage. Equipment found to be damaged or defected may not be used and must immediately be removed from service and tagged.

Ladders

1. All contractors/trades contractors/sub-contractors using ladders shall be trained in safe ladder usage before commencing such.
2. All ladders shall be maintained in good working order. Secured from movement before use. Extend three feet over the upper landing area.
3. All openings for ladder access shall be guarded to prevent personnel from walking directly into and opening where a person can fall 6 feet or greater.

Fire Protection

1. All fuel storage and refueling areas will be in a predetermined area on the site. This location will be determined by Scandroli Construction Company on an as need basis throughout the project.
2. There will be no refueling of vehicles or equipment in any other area but that which Scandroli Construction Company has determined. The only exception to this would be cranes.
3. All gas or petroleum powered equipment shall be equipped with at least a 5-pound ABC rated fire extinguisher.
4. At least a 10-pound ABC rated fire extinguisher shall be readily accessible to all welding or similar operations.
5. All job site offices shall be equipped with at least one 10-pound ABC rated fire extinguisher.
6. All refueling areas must be equipped with a retention basin able to contain the entire contents of the tank, be properly labeled, and have a 20lb BC rated fire extinguisher with 75ft of each tank.

Hot Work Permit Requirements

1. All "Hot Work" must have a Hot Work Permit. The trade contractor must request for the permit from Scandroli Construction Company at least 24 hours prior for the start of work and comply with all listed requirements.
2. Combustible material subject to hot work operations must not be stored closer than 35ft of the hot work operations.
3. A minimum of one person other than the person doing the hot work must always act as the designated fire watch from the start of work until one hour after completion. A copy of the hot work permit must remain with that person. Additional fire watch persons may be required.
4. The fire watch must remain within 50ft of the hot work operations, have at least a 20lb ABC Dry Chemical rate fire extinguisher, know whom to call in case of a fire, and be familiar with the operations of the fire extinguishing equipment.
5. Should the use of a fire extinguisher be necessary, a fully charged replacement is required before work can resume.

HAZ-COM

1. This shall include the Project Hazard Communication Program, including employee training records, and the Contractor's Site-Specific Safety Program. Only chemicals that will be used on this project shall be in this program. This program shall be organized to the extent that an index listing each chemical and the associated page it may be found in the program.

Trenching & Excavation

1. All excavations of 4 feet or greater shall have ladder access every 25 feet of lateral movement (Mass excavations for buildings should be reviewed separately for access plans).
2. All excavations at 5 feet or deeper shall be protected from cave-ins. (benching, slopping, trench-boxes, etc.). Mass excavations for buildings should be reviewed separately for access requirements.

Lockout / Tagout (LOTO)

1. All LO/TO procedure will be closely coordinated with the SCC Senior Superintendent & Site Safety Management.
2. Before any system is locked out, a permit must be completed and approved before the start of any work.
3. All contractors/trade contractors/sub-contractors performing any operation involving potential release of hazardous energy (e.g., electrical, mechanical, hydraulic, pneumatic, chemical, thermal, etc.) will use a lockout/tagout log and energy control procedure.
4. Contractors/trade contractors/sub-contractors will use locks and tags that are standardized and distinct in color.
5. Each tag will contain the following information.
 - a. Name of the contractor
 - b. The trade applying the tag.
 - c. Phone number
 - d. A brief description of the reason for the lockout
 - e. A warning message (DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, DO NOT OPERATE...etc.)

Confined Space

1. Before entering a confined space, a job hazard analysis shall be completed by the sub-contractor and train their entire crew.
2. Contractors/trade contractors/sub-contractors performing in operations involving entry into confined space will use a confined space entry permit.
3. Fall protection is required when the vertical exceeds 5ft.

COVID-19 ACTION PLAN

1. To keep up to date with the latest recommendations, please visit the CDC website to review the latest CDC recommendations. The site is <https://www.cdc.gov>
2. Avoid touching your face, eyes, nose, and mouth.
3. Sneeze or cough into a tissue, or the inside of your elbow.
4. Wash hands thoroughly and properly with soap for at least 20 seconds. If soap is not an option, then use the proper hand sanitizer with a minimum 60% alcohol content.
5. The use of Social/Physical Distancing should be practiced as much as possible throughout the day. This includes break time and lunch time. Try to minimize contact with customers and building occupants. If weather permits, consider conducting weekly jobsite meetings and toolbox talks outside. Conference calls are also another option that can be utilized for jobsite meetings.
6. Proper Personal Protective Equipment (PPE) must be worn. This includes hard hats, safety glasses (to protect your eyes; and to avoid touching them), gloves (to protect your hands; and to prevent exposure to germs).
7. The use of N95 approved masks, or other face coverings are recommended, especially on indoor projects, or if you are working in close proximity to others.
8. Clean attire is recommended daily.

9. Always remember when touching any public surfaces, including but not limited to, gas pumps, ATM machines, vending machines, door handles, parking meters, mailbox handles, etc., wash your hands right away, or wear gloves when touching these surfaces.
10. Company Vehicles should be cleaned frequently, especially the steering wheel; and any buttons touched frequently. This should also be practiced with personal vehicles as well. Try your best not to drive with more than 2 people in a vehicle at a time to limit exposure to someone who may be carrying the virus; but who does not show signs of sickness.

EMERGENCY PROCEDURES

This section shall serve as a guide for the implementation of emergency plans and procedures in the event of an emergency on the project.

While the size and nature of these emergencies may vary, all must be treated seriously. Examples of emergencies that may occur are listed below:

1. GENERAL PROCEDURE FOR ACCIDENTS RESULTING IN AN INJURY
2. GENERAL PROCEDURES FOR FIRE
3. EVACUATION PLAN.
4. SEVERE STORM/WEATHER EMERGENCY
5. BOMB THREAT
6. EARTHQUAKE

This list is by no means complete and it should be recognized that any emergency might contain elements of one or more of the listed examples.

An Emergency Station Plan will be developed to assist the Local Fire Department in their rescue efforts. A copy of this plan and instruction sheet should be posted in every Contractors field office near an accessible telephone. This plan must be used to facilitate a prompt and coordinated emergency response. Each area on the plan will be labeled appropriately and should be used to identify the location of the accident. The Local Fire Department and Paramedics will be given a copy of this plan to assist them in their rescue. Please do not fail to use this plan in the event of an emergency or fire to assist the paramedics to the proper location of the fire/accident.

Serious Injury (General Procedure for Accidents Resulting in an Injury)

In the event of an injury, the following steps should be taken:

1. Call the SCC Site Safety Manager or "911" (In the case of a life-threatening situation) and inform them of the following:
 - a. Your Name
 - b. The nature of the incident
 - c. Location of the incident
 - d. What Assistance is required? (Fire truck, ambulance, first aid etc.)
- NOTE:** If "911" is called first, then **"e"** applies.
- e. Where emergencies responders will be met once they enter the site?

2. If "911" was called first the SCC Site Safety Manager needs to be called and informed about all the information in number one (1) (a-e).
3. The SCC Site Safety Manager will then coordinate the SCC Emergency Response Team (ERT) to assist. This Shall include:
 - a. Open necessary gates on site.
 - b. Coordinate escorts for the emergency vehicles entering the site
 - c. Help to control the incident scene and stabilize the injured person until emergency services arrive.
4. If the emergency involves serious injury, the victim should be given the appropriate first aid until professional help arrives. DO NOT move the injured party unless there is potential for additional injury or death due to impending circumstances. If the injured party must be moved, if possible, ascertain if there are any back/neck injuries. Attempt to take the proper precautions to immobilize the neck and back so as not to increase the injury severity. Attempt to make the victim comfortable and await professional assistance.
5. Once the Emergency Services arrive, the SCC Site Safety Manager will turn over the control of the incident to them and aid as needed.
6. Make no comments to the media. Refer all questions to SCC Management.
7. No onsite photos will be allowed without permission from SCC Senior Superintendent.
8. The responsible Subcontractor along with the SCC Site safety Manager will make a full investigation and will file an incident/injury report if required within 24 hours.

General Procedures for Fire

The person discovering a fire should:

1. Make a safe attempt to extinguish the fire but do not endanger your life. Remember that all "Hot Work" is required to have at least one fire watch who has a 20lb ABC rated fire extinguisher and trained in its proper use.
2. If the fire cannot be extinguished by site personnel, then call "911" & SCC site safety manager. (**NOTE:** call the SCC site safety manager on all fire regardless of the size.)
3. Provide them with the following.
 - a. Your Name
 - b. The nature of the incident
 - c. Location of the incident
 - d. What Assistance is required? (Fire truck, ambulance, first aid etc.)

NOTE: If "911" is called first, then **"e"** applies

- e. Where emergency responders will be met once they enter the site?

4. Immediately warn others in the immediate area of the danger.
5. SCC Site Safety Manager will proceed to the incident location and direct assistance.
6. Scandroli Construction Company Assistance will include:
 - e. If the fire cannot be extinguished or controlled, all personnel should be evacuated to a designated Safety Zone.
 - f. Evacuation Alerts shall be a coded air horn alarm for the applicable building. (See evacuation procedures in this section for more details)
 - g. If possible and personal safety is not jeopardized, endangered equipment and material should be moved to a safe location.
 - h. Send someone to the appropriate entrance to escort the emergency vehicles to the fire location.
 - i. Obtain head count reports from all contractors, trade contractors, and sub-contractors.
 - j. Notify SCC Site Safety Manager or the Fire Department Chief if any employees are not accounted for. Give them the employee names and last known work location.
 - k. ALL CLEAR - The workers will not be allowed back into the building until the SCC Senior Superintendent gives the **All-Clear** message to the site. When the emergency is over the senior superintendent or assistant will contact each contractors/trade contractor/sub-contractor.
7. Make no comments to the media. Refer all questions to SCC Management.
8. No onsite photos will be allowed without permission from SCC Senior Superintendent.
9. The responsible Subcontractor along with the SCC Site safety Manager will make a full investigation and will file an incident report if required within 24 hours.

Evacuation Plan

In the unlikely event that the building must be evacuated due to some emergency, all employees should immediately move to their assigned assembly area. This area will be indicated in the emergency station plan. A head count should be made by their employer and the names and last known work location of any employees not accounted for should be given to SCC Site Safety Manager and the Fire Department.

Each structure shall be designated a number and that number will be equal to the number of blasts on the air horn alert before a pause and the next series of blasts are heard. For example:

1 – long blast (then a 5 second break)

1 – long blast (then a 5 second break)

1 – long blast (then a 5 second break)

1 – long blast (then a 5 second break)

1 – long blast (then a 5 second break)

This shall be repeated at least five times, or as many, as necessary.

Once the air horn alarm is sounded all workers in the building that the alarm pertains to shall do the following:

1. Stop work.
2. Turn off all fuel sources if time allows.

3. Exit the building in the safest possible manner.
4. After exiting the building go directly to the designated assembly area for that building for a head count. Each Subcontractor in the designated assembly area shall gather and call their supervisor and report the incident and give a head count.
5. All workers believed to be missing or known to still be in the building then the Site safety Manager and the Fire Department Chief shall be alerted immediately.
6. A supervisor for each trade working in the building shall also proceed to the designated assembly area to coordinate their workers. When the supervisor has obtained a total head count and is sure no one is missing he/she can dismiss their workers.
7. ALL CLEAR - The workers will not be allowed back into the building until the SCC Senior Superintendent gives the **All-Clear** message to the site. When the emergency is over the senior superintendent or assistant will contact each contractors/trade contractor/sub-contractor.
8. Make no comments to the media. Refer all questions to SCC Management.
9. No onsite photos will be allowed without permission from SCC Senior Superintendent.
10. The responsible Sub-contractor along with the SCC Site safety Manager will make a full investigation and will file an incident report if required within 24 hours.

Earthquake

In case of an earthquake the following apply for all Subcontractors working on the site.

1. DON'T PANIC
2. Stay indoors.
3. Seek cover away from glass. Try to find an area under a heavy desk, table, or under a doorframe.
4. Be prepared for after-shocks. Although most of these are smaller than the main shock, some may be large enough to cause additional damage or bring weakened structures down.
5. Exit the building only after the tremors have stopped. Approach stairwells with caution as structural damage may have occurred. Also, be cautious of loose or falling objects above.
6. After the earthquake is over, all contractors/trade contractor/sub-contractor employees must report back to their office trailer for a head count.
7. Once the head count is complete a representative from each contractors/trade contractor/sub-contractor shall provide a list to the SCC Site Safety Managers.
8. Any injured, missing, or unaccounted for employees must be reported to the Site safety Managers Office immediately.

9. ALL CLEAR - The workers will not be allowed back into the building until the SCC Senior Superintendent gives the All-Clear message to the site. When the emergency is over the senior superintendent or assistant will contact each contractors/trade contractor/sub-contractor.

Severe Weather Emergency

SCC will notify all contractors/trades contractors/sub-contractors that a tornado warning has been issued. All contractors/trade contractor/sub-contractor will proceed immediately to the nearest designated emergency meeting area. Subcontractors will remain in the designated areas until notified "ALL CLEAR"

In the event of an approaching severe storm involving the potential for high winds and damaging lightning, the following steps should be taken:

All loose material should be secured to minimize the possibility of it being blown around or off the structure and becoming a potential source for personal injury or property damage. Exposed equipment and or material should be covered or protected to reduce water or wind damage.

Construction equipment should be moved to a location where there is little or no potential for trees, electrical wires, or structures to fall on them and which is located on high ground to reduce the potential for loss due to water damage.

1. If the storm is severe enough (i.e., Tornado) then all employees in the building should move to a place of safety in the lower level of the building. In addition, all employees in construction field office trailers should immediately move to the lower level of the building to a place of safety. **DO NOT STAY IN FIELD TRAILERS!**
2. Make no comments to the media. Refer all questions to SCC Management.
3. No onsite photos will be allowed without permission from SCC Senior Superintendent.
4. The responsible Subcontractor along with the SCC Site safety Manager will make a full investigation and will file an incident/injury report if required within 24 hours.

Bomb Threat

In the event of a bomb threat the following procedures have been developed and shall apply to all employees working on this project.

1. If you receive a bomb threat the following steps should be followed.
 - a. Note the time of the call.
 - b. Try to write down the exact words used by the caller.
 - c. Try to ask the following questions.
 - i. When will the bomb go off?
 - ii. Where is the bomb?
 - iii. What does the bomb look like?
 - iv. What kind of bomb is it?
 - v. Why did you place the bomb?
 - vi. Where are you now?
 - d. Listen closely to the caller's voice (i.e., Sex of caller, estimate age, accents, speech impediments, etc.)
 - e. Pay particular attention to any strange or peculiar background noise, such as motors running, background music, and any other noise that might give even a remote clue as to the place from which the call is being made.
2. If the threat is left on voice mail do not erase it.

3. Report all threats to the SCC Site Safety Manager immediately.
4. The Local Police Department will be called.
5. If evacuation of the site is necessary, then all Subcontractors/trade contractor/subcontractor will be contacted by SCC and instructed to call all their employees to a designated area for a head count. One representative from each Subcontractors/trade contractor/sub-contractor shall report this information to the SCC Site Safety Manager within one hour of the notice. All Subcontractors/trade contractor/sub-contractor will instruct their employees to leave the site.
6. No employees will be allowed back into the site until the SCC Senior Superintendent gives the **All-Clear** message to the site. When the emergency is over, the Senior Superintendent or assistant will contact each Subcontractors/trade contractor/sub-contractor.

Emergency Phone Numbers

| | |
|-------------------------|--------------|
| Ambulance & Paramedics | 911 |
| Fire Department | 911 |
| Police Department | 911 |
| Illinois Poison Control | 800-222-1222 |
| Non-Emergency Police | 815-966-2900 |
| Non-Emergency Fire | 815-987-5645 |

SCC Project Team Phone Numbers

| | |
|---|--------------|
| SCC Site Safety Manager – Cory Rasmus | 815-821-3480 |
| SCC Senior Superintendent – Anthony Scandrolì | 814-962-4037 |
| SCC Project Manager – Albert Kelchner | 815-222-1174 |
| SCC Project Superintendent – Cory Rasmus | 815-821-3480 |
| SCC Project Foreman - TBD | |

Utilities

| | |
|---------------------------------------|--------------|
| Gas Company (Nicor) | 888-642-6748 |
| City of Rockford Water Division | 815-987-5700 |
| Electric Company (ComEd) | 800-334-7661 |
| Rock River Water Reclamation District | 815-387-7400 |
| JULIE | 811 |

WASTE MANAGEMENT PLAN

Scope

This plan applies to all Subcontractors/trade Subcontractors/subcontractor working on the site and requires strict compliance.

Purpose

To protect the environment through recycling, good housekeeping, and proper disposal of waste.

Plan:

Toilet facilities

1. Toilet facilities will be located through the site and serviced on a regular basis.

Non-Hazardous Waste Disposal

1. All non-hazardous waste material will be disposed of into proper waste receptacles on a frequent (at least daily) basis. This shall be accomplished through good housekeeping practices on site.
2. "Non-Hazardous Waste" - shall be defined as any waste that is not ignitable, corrosive, reactive, or toxic. Check the MSDS on all questionable materials.

Hazardous Material Waste Disposal

1. All hazardous waste on the site shall be disposed of in a proper and prompt manner by the responsible contractor/trade contractor/sub-contractor.
2. No hazardous waste shall be allowed in non-hazardous waste containers.
3. "Hazardous Waste" - Any material that is ignitable, corrosive, reactive, or toxic. Each Subcontractors/trade contractor/sub-contractor shall check the proper disposal requirements listed on the products MSDS and strictly follow the listed procedures.
4. The Subcontractors/trade contractor/sub-contractor shall plan for and be responsible for the safety handling and disposal of hazardous material waste.

SITE ORIENTATION (SCC)

A site-specific new employee safety orientation will be mandatory for all Subcontractors, trade contractors, and sub-contractor personnel prior to the start of work on this project. The site safety manager for Scandroli Construction Company will conduct the orientation. The following topics will be covered during this time.

1. A map of the site including:
 - a. Access and egress routes
 - b. Designated parking areas & requirements
 - c. Designate smoking areas. (If applicable)
 - d. Emergency action plan
 - e. Location of rally points / Assembly areas
 - f. Fuel storage area
 - g. Mixer truck washout area and requirements
2. Work Permits
3. Accident Reporting Requirements
4. Substance Abuse Plan
5. Emergency Phone List
6. PPE Requirements
7. Fall Protection 6' Standard
8. Housekeeping Requirements
9. Personal Health Policy

10. Waste Management
11. Disciplinary Action Plan
12. Visitors Policy

PROJECT SAFETY MEETINGS

1. Scandroli Construction Company Safety Superintendent and/or Safety Coordinator will conduct a project safety meeting weekly. Attendance is contractually required of all active project subcontractor safety supervisory personnel.
2. All subSubcontractors must hold weekly toolbox meetings with their employees. Copies of the sign-in sheets and minutes of these meetings should be submitted to Scandroli Construction Company on a weekly basis at coordination meetings.
3. Scandroli Construction Company Project Superintendent or Safety Manager, if necessary, may hold other special meetings.

VISITOR POLICY

This visitors' policy has been established for this project that required that any visitors to the project report to the Scandroli Construction Company project office and obey all the following requirements:

1. Visitor's access can only be approved by SCC Management.
2. All visitors shall sign a General Release Form.
3. All visitors shall be required to wear hard hats, safety glasses, and work boots.
4. No Shorts allowed.
5. Visitors must be always escorted by a site trained and orientated employee.
6. The escort will be responsible for the actions and behaviors of the visitor.

GENERAL RELEASE – VISITORS (Sample)

The undersigned wishes to enter and inspect the Premises.

In consideration of permission given by Construction Manager and Owner or either of them to the undersigned to enter and inspect the Premises, I agree for myself and for my heirs, executors, and administrators as follows:

1. I understand that the Premises may be in an unfinished condition and I am aware of the dangers to be expected in such situation.
2. I agree that I enter the Premises entirely at my own risk.
3. I shall comply with all rules, regulations, and directives concerning my safety at the Premises and shall always wear a hard hat.
4. This is not a contract or agreement, either public or private, for the construction, alteration, repair, or maintenance of a building, structure, highway, bridge, viaducts, or other work dealing with construction, or for any moving, demolition, or excavation connected herewith.
5. I release and forever discharge Construction Manager, Owner, and all the Subcontractors, Subcontractors, and material-men who have performed or may be performing work or who provided

materials or may be providing materials on, in, or about the Premises from all manner of claims, actions, or causes of actions which I now have or which I or my heirs, executors, or administrators hereafter can, shall, or may have because of bodily injury (including death) or damage to property which I may suffer while on, in, or about the Premises whether or not said injury or damage may be due to the at, failure to act, or negligence of Construction Manager, Owner, or any of the above/referred to Subcontractors, subcontractors, or material-men.

Signature

Date

REQUIRED SAFETY DOCUMENTS

Each Subcontractor shall be responsible for obtaining, completing, and submitting all the following documents that apply to their work.

1. Weekly Toolbox Talk Training
2. Work Permit Forms as needed
 - a. Hot Work
 - b. Confined Space
 - c. Facilities Interruption
 - d. Excavation
 - e. LO/TO
3. Scaffolding / Excavation Checklist Form
4. Daily Man-power Reports
5. Accident / Incident Forms

CLOSEST EMERGENCY CARE FACILITIES

Swedish American Hospital
1401 E State St, Rockford, IL 61104
General Phone Number (779) 696-4400

END SITE SPECIFIC SAFETY PLAN

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SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Work by Owner.
 - 4. Owner-furnished products.
 - 5. Access to site.
 - 6. Work restrictions.
 - 7. Specification and Drawing conventions.

1.3 PROJECT INFORMATION

- A. Project Identification: Rockford Public Library – Library Replacement
 - 1. Project Location: 215 N. Wyman Street, Rockford, IL 61101
- B. Architect of Record: **Studio GWA (GWA)**
 - 1. 200 Prairie Street, Suite 201, Rockford, IL 61107
- C. Architect's Consultants: Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:
 - 1. Library Design Consultant: Engberg Anderson (EA)
 - 2. Civil and Landscape: Fehr Graham Engineering and Environmental (FG)
 - 3. Structural: IMEG
 - 4. Plumbing & Fire Protection: IMEG
 - 5. Mechanical: IMEG
 - 6. Electrical & Technology: IMEG
- D. Construction Manager: Scandroli Construction.
 - 1. Construction Manager has been engaged for this Project to serve as an advisor to Owner and to provide assistance in administering the Contract for construction between Owner and each Contractor, according to a separate contract between Owner and Construction Manager.
 - a. Construction Manager also serves as Project coordinator.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. This is intended to be a new building on previously developed site. The facility and grounds will be owned and Operated by the Board of Library Trustees of the Rockford Public Library, Winnebago County, Illinois.
- B. Type of Contract:
 - 1. Project will be constructed under coordinated, concurrent multiple contracts under Construction Manager.
- C. All contractors are required to have all licenses to preform work in the City of Rockford. Each contractor is responsible for the acquisition and management of their own license.

1.5 WORK BY OWNER

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

1.6 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish products indicated. The Work includes receiving, unloading, handling, storing, protecting, and installing Owner-furnished products.

1.7 ACCESS TO SITE

- A. General: Each Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7 a.m. to 7 p.m., Monday through Friday, unless otherwise indicated.
 - 1. Weekend Hours: as coordinated with the Construction Manager.

2. Early Morning Hours: Coordinate with Construction Manager and Authorities having Jurisdiction.
- C. Restricted Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Unit-cost allowances.
 - 3. Quantity allowances.
 - 4. Contingency allowances.
 - 5. Testing and inspecting allowances.

1.3 DEFINITIONS

- A. Allowance is a quantity of work or dollar amount established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

1.4 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.5 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.6 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.7 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include freight, and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.8 UNIT-COST ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include freight and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.9 QUANTITY ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include freight and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.10 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.11 TESTING AND INSPECTING ALLOWANCES

- A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.
- C. Costs of testing and inspection services not required by the Contract Documents are not included in the allowance.
- D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.12 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
 - 3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
 - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
 - 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 001: Quantity Allowance: Include a \$5,000 allowance for signs noted as Type W: Allowance to include the cost to coordinate final text, color, and installation as specified in Section 101419-Dimensional Letter Signage and as shown on Drawings, schedules and specifications.
 - 1. This allowance includes material cost, receiving, handling, and installation and Contractor overhead and profit.
 - 2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 "Unit Prices."

- B. Allowance No. 002: Include a \$5,000 allowance for sign noted as Type X ID-101: Allowance to include the cost to coordinate final text, color, and installation as specified in Section 101419-Dimensional Letter Signage and as shown on Drawings, schedules and specifications.
 - 1. This allowance includes material cost, receiving, handling, and installation and Contractor overhead and profit.
 - 2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 "Unit Prices."

END OF SECTION 012100

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

- A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- A. Unit Price No. 01 – Dimensional Signage – Type Y.
1. Description: The procurement, coordination, and installation of Dimensional Letter Signage according to Section 101419-Dimensional Letter Signage
 2. Unit of Measurement: One letter 8-inch-tall, number, or character including procurement, and installation.
 3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."
- B. Unit Price No. 02 – Dimensional Signage – Type X.
1. Description: The procurement, coordination, and installation of Dimensional Letter Signage according to Section 101419-Dimensional Letter Signage
 2. Unit of Measurement: One letter 6-inch-tall, number, or character including procurement, and installation.
 3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."
- C. Unit Price No. 03 – Unit Prices for and related to Driven Piles
1. The following unit prices shall be used for all additions and/or deletions to the contract quantities and shall be inclusive of all things necessary to perform the Work in its entirety for each unit price. The Work is assumed to be performed during normal working hours within the normal sequence of construction. Unit prices will be held firm for the duration of the Subcontractor's Work.
 - a. Additional Length of Driven Plies: Cost per Foot
 - b. Subtract Length of Driven Piles: Cost per Foot
 - c. Soil Excavation: Cost per Cubic Yard
 - d. Concrete: Cost per Cubic Yard
 - e. Obstruction Removal and Rock Excavation: Cost per Hour.
- D. Unit Price No. 04 – Site Concrete - Sidewalk
1. Description: The installation of site concrete for sidewalks including stone base. Provide 5 inches of concrete intended for pedestrian traffic including granular subbase as described in the Civil Drawings and Specifications.
 2. Unit of Measurement: Cost per One Square Yard of Concrete and Subbase.

- E. Unit Price No. 05 – Site Concrete - Drives
 - 1. Description: The installation of site concrete for drives including stone subbase. Provide 7 inches of concrete intended for vehicle traffic including granular subbase as described in the Civil Drawings and Specifications.
 - 2. Unit of Measurement: Cost per One Square Yard of Concrete and Subbase.

- F. Unit Price No. 06 – Subbase Granular Material
 - 1. Description: Provide a cost to install and compact subbase granular material Type B as described in the Civil Specifications.
 - 2. Unit of Measurement: Cost per Cubic Yard

- G. Unit Price No. 07 – Geotechnical Fabric
 - 1. Description: Provide geotechnical fabric for ground stabilization as described in the Civil Specifications.
 - 2. Unit of Measurement: Cost per Square Yard

END OF SECTION 012200

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other work of the Contract.
- C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: Roof Terraces
 - 1. Base Bid: Roofs noted on the Second and Third Floor:
 - a. Summary Description: Provide roof assembly over concrete deck as noted in the drawings. Roofing membrane, coverboard, over tapered insulation, on adhered vapor membrane.
 - 2. Alternate: Roof Terraces Noted on the Second and Third Floor:
 - a. Summary Description: Provide roof assembly as described in base bid, including roof paver system, railing system, AstroTurf system, and Millwork. See additional items noted in Landscape, Mechanical, Electrical, Technology
- B. Alternate No. 2: Additional Access Control
 - 1. Base Bid: Access control system
 - a. Summary Description: Access Control System and Hardware.
 - 2. Alternate: Additional Access Control Locations
 - a. Summary Description: Provide additional door hardware and/or alternate door hardware, and system devices to include all doors and locations identified as Alternate 02. System to operate the same as base bid with additional locations identified.
- C. Alternate No. 3: Site Furnishings
 - 1. Base Bid: Site Furnishings
 - a. Summary Description: Provide site accessories and furniture noted on the Landscape drawings and specifications.
 - 2. Alternate: Additional Site Furnishings
 - a. Summary Description: Provide additional site accessories and furnishings noted as alternate 03 on the Landscape drawings and specifications.
- D. Alternate No. 4: NOT USED
- E. Alternate No. 5: North Property Grading
 - 1. Base Bid: Provide plaza as designed assuming the construction of a mixed-use building to the north.
 - 2. Alternate: Should the mixed use building not be constructed, provide grading on the north property.
 - a. Summary Description: furnish and compact in place aggregate base (CA-6) and 6" of topsoil flush with the pavers along the north edge of the Library property sloped down to meet existing grade to the north at a 4:1 slope. Contractor to provide

IDOT Class 1 seed and NAG DS75 Erosion Control Blanket or equivalent to cover the slope.

- F. Alternate No. 6: Exterior Sectional Glass Doors
 - 1. Base Bid: Storefront Glazing
 - a. Provide storefront glazing as noted on the east elevation on the third floor.
 - 2. Alternate: Substitute Exterior Sectional Glass Doors
 - a. Summary Description: Furnish and install exterior motorized glass section doors in lieu of storefront glazing as noted as alternate 6 on the east elevations on the third floor.

- G. Alternate No. 7: Interactive Display Monitors
 - 1. Base Bid: Back Boxes for Future Use.
 - a. Provide back boxes and conduit for a future installation of interactive display monitors.
 - 2. Alternate: Interactive Display Monitors
 - a. Summary Description: Furnish and install all electrical, technology, and audio visual for the interactive display monitors and systems described as alternate 7 in the technology drawings and specifications.

- H. Alternate No. 8: Basement Floor Epoxy
 - 1. Base Bid: Floor Graphics and Striping
 - a. Summary Description: Provide floor graphics and striping as noted on the finish plans and specifications.
 - 2. Alternate: Additional Floor Graphics
 - a. Summary Description: Provide additional epoxy-based floor graphics as noted on the finish plans and specifications.

- I. Alternate No. 9: Youth Department Ceiling Clouds
 - 1. Base Bid: None.
 - 2. Alternate: Ceiling Clouds
 - a. Summary Description: Furnish and install ceiling clouds noted in the youth services department as alternate 9.

- J. Alternate No. 10: Light Fixtures
 - 1. Base Bid: None. (Do NOT include light fixture F31 in the base bid.)
 - 2. Alternate: Light Fixture F31
 - a. Summary Description: Provide light fixture F31 as noted on the electrical plans and schedule.

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use facsimile of form provided in Project Manual.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size,

- durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

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

1.6 PROCEDURES

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

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 MINOR CHANGES IN THE WORK

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

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect and/or Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 1. The Construction Manager will issue an RFQ (Request for Quote) through the Change Event module in Procore, the Construction Manager's web-based document control software. An RFQ is not an instruction to either to stop work in progress or to execute the proposed change.
 2. Within five (5) consecutive calendar days, (or more if agreed upon by Construction Manager) after receipt of RFQ, Subcontractor shall submit a written quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.
- 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 - 7. Proposal Request Form: Use form acceptable to Architect.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

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

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect and/or Construction Manager may issue a Construction Change Directive on AIA Document G714 or equal. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.8 WORK CHANGE DIRECTIVE

- A. Work Change Directive: Construction Manager may issue a Work Change Directive on EJCDC Document C-940. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment. The Construction Manager uses Procore's Invoicing module to effectively manage and process Subcontractor payments. Subcontractors will have access to the Invoicing module of the software application to submit a Schedule of Values and monthly applications for an integrated approach to managing the project.

1.3 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.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values through Procore to the Construction Manager by the billing period cut-off date.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Arrange schedule of values consistent with requirements of Procore.
 - 2. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.

- e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Do NOT separate breakdown amounts into labor and material except for Stored Materials. A written request for Stored Materials with amounts must be submitted to the Construction Manager for approval prior to creating the Schedule of Values.
- a. Provide written notification to Construction Manager pending request for stored materials in an off-site location fourteen (14) days prior to the submission of each monthly requisition.
 - 1) Subcontractor/Vendor must provide a Consent of Surety to the Construction Manager stating that payment of off-site stored materials can be made to the Subcontractor / Vendor. THIS POLICY ONLY APPLIES TO BONDED SUBCONTRACTORS AND VENDORS. OFF-SITE STORED MATERIALS WILL BE PAID TO A NON-BONDED SUBCONTRACTOR OR VENDOR AT OWNER'S AND CONSTRUCTION MANAGER'S DISCRETION.
 - 2) The Subcontractor/Vendor must provide copies of invoices clearly indicating the cost of goods and the project name in an organized fashion in accordance with Construction Manager's direction.
 - 3) The third (3rd) party storage facility must be an insured warehouse or bonded warehouse. Access and delivery of goods must be cleared for release by Construction Manager in the event of a Subcontractor/Vendors failure to perform.
 - 4) The Subcontractor/Vendor must provide an Insurance certificates (policies, if required) including a letter accepting responsibility for any deductibles on those specific goods (stored materials), covering goods in storage and during transportation to the Jobsite, naming Construction Manager and the Owner as additional insured.
 - 5) The Subcontractor/Vendor must provide a Bill of Sale from Subcontractor/Vendor to Construction Manager for materials which are stored off-site.
4. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
5. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by

measured quantity. Use information indicated in the Contract Documents to determine quantities.

6. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
7. Closeout Costs. Include separate line items for Project closeout requirements.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and Construction Manager and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Construction Manager and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Applications for Payment to Construction Manager by the 20th day of the month. The period covered by each Application is one month ending on the last day of the month.
- D. Application for Payment Forms: Use the "Invoicing" selection found under "Financial Management" in Procore the Construction Manager's web-based software. Instructions will be provided prior to entering a Schedule of Values.
 1. Other Application for Payment forms proposed by the Contractor shall be acceptable to Architect, Construction Manager and Owner. Submit forms for approval with initial submittal of schedule of values.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide written notification to Construction Manager pending request for stored materials in an off-site location fourteen (14) days prior to the submission of each monthly requisition.
 2. Contractor/Vendor must provide a Consent of Surety to the Construction Manager stating that payment of off-site stored materials can be made to the Subcontractor / Vendor. THIS POLICY ONLY APPLIES TO BONDED SUBCONTRACTORS AND VENDORS. OFF-SITE STORED MATERIALS WILL BE PAID TO A NON-BONDED SUBCONTRACTOR OR VENDOR AT OWNER'S AND CONSTRUCTION MANAGER'S DISCRETION.
 3. The Subcontractor/Vendor must provide copies of invoices clearly indicating the cost of goods and the project name in an organized fashion in accordance with Construction Manager's direction.
 4. The third (3rd) party storage facility must be an insured warehouse or bonded warehouse. Access and delivery of goods must be cleared for release by Construction Manager in the event of a Contractor/Vendors failure to perform.
 5. The Contractor/Vendor must provide an Insurance certificates (policies, if required) including a letter accepting responsibility for any deductibles on those specific goods (stored materials), covering goods in storage and during transportation to the Jobsite, naming Construction Manager and the Owner as additional insured.
 6. The Subcontractor/Vendor must provide a Bill of Sale from Contractor/Vendor to Construction Manager for materials which are stored off-site (See 00 70 04 Bill of Sale).
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit Chicago Title waivers of mechanic's lien from [entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment] [subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application]
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Products list (preliminary if not final).
 5. Submittal schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. List of Contractor's principal consultants.

8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 9. Certificates of insurance and insurance policies.
 10. Performance and payment bonds.
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706.
 5. AIA Document G706A.
 6. AIA Document G707.
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

1.3 DEFINITIONS

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from Owner, Construction Manager, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project

site. Identify individuals and their duties and responsibilities; list addresses and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, in web-based Project software directory, and in prominent location in built facility. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each contractor shall cooperate with Project coordinator who shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its own operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and direction of Project coordinator to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.

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

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed items that would require maintenance.
 - f. Indicate required installation sequences.
 - g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

1.7 COORDINATION DOCUMENTS

- A. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Preparation Format:
 - a. BIM files using Revit Version 2021.

2. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format.
 - a. Structural BIM file using a standard Level of Design 400
 - b. Fire Protection BIM file using a standard Level of Design 400
 - c. Electrical BIM File using a standard Level of Design 400
 - d. Mechanical BIM File using a standard Level of Design 400
 - e. Plumbing BIM File a standard Level of Design 400
 3. BIM File Incorporation: The Mechanical Contractor will develop and incorporate coordination BIM files into primary BIM model established for Project.
 - a. Perform three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect.
 - b. Mechanical Contractor will make the primary BIM model available to contractors involved in the BIM coordination as well as the Construction Manager and Architect.
 4. Architect will furnish Contractor with an Architectural Design BIM model at Level of Design 300 for use in preparing coordination BIM files.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
 - b. Digital Data Software Program: Drawings are available in Revit 2021.
 - c. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.
 5. Coordination of contractor BIM Information
 - a. Participate in series of coordination meetings to resolve conflicts in the BIM model.
 - 1) Construction Manager to schedule meetings with all participating contractors and Architect to discuss and resolve conflicts.
 - 2) Mechanical Contractor to provide conflict information to each participating contractor.
 - 3) Each participating contractor is expected to complete a general review of the primary BIM model in relation to their specific scope of work. However, the collision detection is the responsibility of the Mechanical Contractor.
 - b. Each contractor participating in the BIM coordination is expected to make changes to their BIM model based on the outcome of the coordination meetings. The expectation of changes shall be included in project cost.
 - 1) Lighting locations show in the construction documents shall be maintained to the maximum extent possible and shall take precedent over other disciplines.
- B. Coordination Drawing Process: Prepare coordination drawings in the following manner:
1. Schedule submittal and review of Fire Sprinkler, Plumbing, Mechanical, and Electrical Shop Drawings to make required changes prior to preparation of coordination drawings.
 2. Commence routing of coordination drawing files with Mechanical Contractor.
- C. Coordination Organization: Organize coordination models:
1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of

- visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms, showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
 - c. Panel board, switchboard, switchgear, transformer, busway, generator, and motor-control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
 8. Fire-Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Use of Architect's Digital Data Files: Digital data files of Architect's BIM model and CAD drawings will be provided by Architect for Contractor's use during construction.
 1. CAD files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project Record Drawings.
 2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
 3. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.
 - a. Subcontractors and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of Agreement acceptable to Owner and Architect.
 4. The following digital data files will be furnished for each appropriate discipline:
 - a. CAD background floor plans.
 - b. CAD background reflected ceiling plans.

- c. BIM Model to contractors participating in the BIM coordination process.

1.9 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Contractor shall coordinate and submit RFIs in a prompt manner electronically by e-mail to the Construction Manager's project manager to avoid delays in its work or work of other Contractors. The RFI will be processed through Procore, the Construction Manager's web-based document control software.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Subject Line
 - a. Project name.
 - b. Project number.
 - c. RFI Topic
 2. Body
 - a. Name of Contractor.
 - b. RFI number, numbered sequentially.
 - c. Specification Section number and title and related paragraphs, as appropriate.
 - d. Drawing number and detail references, as appropriate.
 - e. Field dimensions and conditions, as appropriate.
 - f. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 3. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. Architect's and Construction Manager's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect or Construction Manager after 1:00 p.m. will be considered as received the following working day.
 1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.

- f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
- 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect or Construction Manager of additional information.
 - 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within 10 days of receipt of the RFI response.
- D. RFI Log: Shall be maintained and tracked by the Construction manager.

1.10 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Web-Based Project Software: Use Construction Manager's web-based Project software site for purposes of hosting and managing Project communication and documentation until Final Completion.
- 1. Web-based Project software site includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Architect, architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
 - c. Document workflow planning, allowing customization of workflow between project entities.
 - d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.
 - i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.
 - 2. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.

- B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
 - 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.11 PROJECT MEETINGS

- A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager, and Architect, within three days of the meeting.
- B. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
 - 1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority,, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Preparation of Record Documents.

- o. Use of the premises.
 - p. Work restrictions.
 - q. Working hours.
 - r. Owner's occupancy requirements.
 - s. Responsibility for temporary facilities and controls.
 - t. Procedures for moisture and mold control.
 - u. Procedures for disruptions and shutdowns.
 - v. Construction waste management and recycling.
 - w. Parking availability.
 - x. Office, work, and storage areas.
 - y. Equipment deliveries and priorities.
 - z. First aid.
 - aa. Security.
 - bb. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, Construction Manager, and Owner's Commissioning Authority of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Sustainable design requirements.
 - i. Review of mockups.
 - j. Possible conflicts.
 - k. Compatibility requirements.
 - l. Time schedules.
 - m. Weather limitations.
 - n. Manufacturer's written instructions.
 - o. Warranty requirements.
 - p. Compatibility of materials.
 - q. Acceptability of substrates.
 - r. Temporary facilities and controls.

- s. Space and access limitations.
 - t. Regulations of authorities having jurisdiction.
 - u. Testing and inspecting requirements.
 - v. Installation procedures.
 - w. Coordination with other work.
 - x. Required performance results.
 - y. Protection of adjacent work.
 - z. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Construction Manager will schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of Record Documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Procedures for completing and archiving web-based Project software site data files.
 - d. Submittal of written warranties.
 - e. Requirements for completing sustainable design documentation.
 - f. Requirements for preparing operations and maintenance data.
 - g. Requirements for delivery of material samples, attic stock, and spare parts.
 - h. Requirements for demonstration and training.
 - i. Preparation of Contractor's punch list.
 - j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - k. Submittal procedures.
 - l. Coordination of separate contracts.
 - m. Owner's partial occupancy requirements.
 - n. Installation of Owner's furniture, fixtures, and equipment.

- o. Responsibility for removing temporary facilities and controls.
 - 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Construction Manager will conduct progress meetings at biweekly intervals.
 - 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Status of sustainable design documentation.
 - 6) Deliveries.
 - 7) Off-site fabrication.
 - 8) Access.
 - 9) Site use.
 - 10) Temporary facilities and controls.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) Status of RFIs.
 - 16) Status of Proposal Requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

- F. Coordination Meetings: Construction Manager will conduct Project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
 1. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site use.
 - 9) Temporary facilities and controls.
 - 10) Work hours.
 - 11) Hazards and risks.
 - 12) Progress cleaning.
 - 13) Quality and work standards.
 - 14) Status of RFIs.

- 15) Proposal Requests.
 - 16) Change Orders.
 - 17) Pending changes.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Unusual event reports.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. 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.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.

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

- G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file, where indicated.
 - 2. PDF file.

- B. Startup construction schedule.
 - 1. Submittal of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

- C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

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

- F. Daily Construction Reports: Submit at weekly intervals.

- G. Material Location Reports: Submit at weekly intervals.

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

- I. Unusual Event Reports: Submit at time of unusual event.

- J. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:
1. Review software limitations and content and format for reports.
 2. Verify availability of qualified personnel needed to develop and update schedule.
 3. Discuss constraints, including phasing, work stages, area separations, interim milestones and partial Owner occupancy.
 4. Review delivery dates for Owner-furnished products.
 5. Review schedule for work of Owner's separate contracts.
 6. Review submittal requirements and procedures.
 7. Review time required for review of submittals and resubmittals.
 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
 9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
 10. Review and finalize list of construction activities to be included in schedule.
 11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from entities involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
1. Use Scheduling component of Project website software specified in Section 013100 "Project Management and Coordination," for current Windows operating system.
- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.
1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

- C. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
 4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
 5. Commissioning Time: Include no fewer than 15 days for commissioning.
 6. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
 7. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use-of-premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.

- b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Building flush-out.
 - m. Startup and placement into final use and operation.
 - n. Commissioning.
8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
- a. Structural completion.
 - b. Temporary enclosure and space conditioning.
 - c. Permanent space enclosure.
 - d. Completion of mechanical installation.
 - e. Completion of electrical installation.
 - f. Substantial Completion.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
- F. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
- 1. See Section 012900 "Payment Procedures" for cost reporting and payment procedures.
- G. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
- 1. Unresolved issues.
 - 2. Unanswered Requests for Information.
 - 3. Rejected or unreturned submittals.
 - 4. Notations on returned submittals.
 - 5. Pending modifications affecting the Work and the Contract Time.
- H. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate final completion percentage for each activity.
- I. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
- J. Distribution: Distribute copies of approved schedule to Architect, Construction Manager, 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.

1.8 STARTUP CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for commencement of the Work.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

1.9 GANTT-CHART SCHEDULE REQUIREMENTS

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for commencement of the Work.
1. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.10 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.
 4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 7. Testing and inspection.
 8. Accidents.
 9. Meetings and significant decisions.
 10. Unusual events.
 11. Stoppages, delays, shortages, and losses.
 12. Meter readings and similar recordings.
 13. Emergency procedures.
 14. Orders and requests of authorities having jurisdiction.
 15. Change Orders received and implemented.
 16. Construction Change Directives received and implemented.
 17. Services connected and disconnected.
 18. Equipment or system tests and startups.
 19. Partial completions and occupancies.
 20. Substantial Completions authorized.
- B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
 2. Material stored prior to previous report and since removed from storage and installed.
 3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final completion construction photographs.
 - 4. Construction webcam.

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph and video recording. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within three days of taking photographs.
 - 1. Submit photos by uploading to web-based project software site. Include copy of key plan indicating each photograph's location and direction.
 - 2. Identification: Provide the following information with each image description in web-based project software site:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect and Construction Manager.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of location, vantage point, and direction.
 - g. Unique sequential identifier keyed to accompanying key plan.
- C. Time-Lapse Video: Submit time-lapse sequence video recordings simultaneously with recording.
 - 1. Submit time-lapse sequence video recordings monthly by uploading to web-based project software site.

2. Identification: For each recording, provide the following information on web-based project software site:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect and Construction Manager.
 - d. Name of Contractor.
 - e. Date(s) and time(s) video recording was recorded.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

1.4 QUALITY ASSURANCE

- A. Construction Webcam Service Provider: A firm specializing in providing photographic equipment, web-based software, and related services for construction projects, with record of providing satisfactory services similar to those required for Project.

1.5 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels, and with vibration-reduction technology. Use flash in low light levels or backlit conditions.
- B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- C. Metadata: Record accurate date and time from camera.
- D. File Names: Name media files with date and sequential numbering suffix.

1.6 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs with maximum depth of field and in focus.
 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Preconstruction Photographs: Before commencement of excavation, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Construction Manager.
 1. Flag excavation areas before taking construction photographs.
 2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.

3. Take 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- C. Periodic Construction Photographs: Take 50 photographs monthly, coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- D. Time-Lapse Sequence Construction Photographs: Take 20 photographs as indicated, to show status of construction and progress since last photographs were taken.
1. Frequency: Take photographs monthly, on the same date each month.
 2. Vantage Points: Following suggestions by Architect, Construction Manager and Contractor, photographer to select vantage points. During each of the following construction phases, take not less than two of the required shots from same vantage point each time to create a time-lapse sequence as follows:
 - a. Commencement of the Work, through completion of subgrade construction.
 - b. Above-grade structural framing.
 - c. Exterior building enclosure.
 - d. Interior Work, through date of Substantial Completion.
- E. Final Completion Construction Photographs: Take 100 photographs after date of Substantial Completion for submission as Project Record Documents. Architect and Construction Manager will inform photographer of desired vantage points.
- F. Additional Photographs: Architect or Construction Manager may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum.
1. Three days' notice will be given, where feasible.
 2. In emergency situations, take additional photographs within 24 hours of request.
 3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Special events planned at Project site.
 - b. Immediate follow-up when on-site events result in construction damage or losses.
 - c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
 - d. Substantial Completion of a major phase or component of the Work.
 - e. Extra record photographs at time of final acceptance.
 - f. Owner's request for special publicity photographs.

1.7 CONSTRUCTION WEBCAM

- A. Webcam: Provide one fixed-location camera(s) with weatherproof housing, mounted to provide unobstructed view of construction site from location approved by Architect, with the following characteristics:
 - 1. Static view.
 - 2. Capable of producing minimum 12 megapixel images.
 - 3. Provide power supply, active high-speed data connection to service provider's network, and static public IP address for each camera.

- B. Live Streaming Images: Provide web-accessible image of current site image, updated at 15-minute intervals during daytime operation.

- C. Rockford, Illinois Web-Based Interface: Provide online interface to allow viewing of each high-definition digital still image captured and stored during construction, from the Internet.
 - 1. Access Control: Provide password-protected access for Project team administered by Contractor, providing current image access and archival image access by date and time, with images downloadable to viewer's device.
 - 2. Storage: Maintain images on the website for reference during entire construction period, and for not less than 30 days after final completion. Provide sufficient memory on remote server to store all Project images.
 - 3. Online Interface: Provide website interface with Project and client information and logos; calendar-based navigation interface for selecting images; pan and zoom capability within high-definition images.
 - 4. Forward and Reverse: Provide capability to browse through images, moving forward and backward in time by individual image and by day.
 - 5. Slideshow: Provide capability to automatically display current images from sites when there are three or more cameras used.
 - 6. Time-Lapse: Provide capability for online display of project time-lapse.
 - 7. Dashboard: Provide capability to view thumbnails of all cameras on one screen.
 - 8. Weather: Provide corresponding weather data for each image captured.
 - 9. Provide public viewer open access to most recent Project camera image.

- D. Maintain cameras and web-based access in good working order according to web-based construction photographic documentation service provider's written instructions until final completion. Provide for service of cameras and related networking devices and software.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Submittal schedule requirements.
 - 2. Administrative and procedural requirements for submittals.

1.3 DEFINITIONS

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

1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and Construction Manager and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's and Construction Manager's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL FORMATS

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

- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect and Construction Manager on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Paper Submittals:
 - 1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
 - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect and Construction Manager.
 - 3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated to Achitect, through Construction Manager.
 - 4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect and Construction Manager will not return copies.
 - 5. Additional Copies: Unless additional copies are required for final submittal, and unless Architect or Construction Manager observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - 6. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using AIA Document G810 transmittal form.
- E. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.
- F. Submittals for Web-Based Project Software: Prepare submittals as PDF files, or other format indicated by Project software website.

1.6 SUBMITTAL PROCEDURES

- A. Prepared and submit submittals required by individual Specifications Sections. Types of submittal are indicated in individual Specification Sections.
 - 1. Email: Prepare submittals as PDF package, and transmit to Construction Manager by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
 - a. Architect, through Construction Manager, will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect and Construction Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Construction Manager, through Architect, before being returned to Contractor.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect and Construction Manager.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect's and Construction Manager's action stamp.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's and Construction Manager's action stamp.

1.7 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
 - a. Two opaque (bond) copies of each submittal. Architect, through Construction Manager, will return one copy(ies).

- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
 4. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
 5. Paper Transmittal: Include paper transmittal including complete submittal information indicated.
 6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Construction Manager, will return submittal with options selected.
 8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Number of Samples: Submit three sets of Samples. Architect and Construction Manager will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.

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

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

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

Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

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

1.9 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect and Construction Manager.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 1. Architect and Construction Manager will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ARCHITECT'S AND CONSTRUCTION MANAGER'S REVIEW

- A. Action Submittals: Architect and Construction Manager will review each submittal, indicate corrections or revisions required, and return it.
 1. PDF Submittals: Architect and Construction Manager will indicate, via markup on each submittal, the appropriate action, as follows:
 - a. Final Unrestricted Release: When the Architect marks a submittal "Reviewed Without Comment," the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.
 - b. Final-But-Restricted Release: When the Architect marks a submittal "Reviewed With Comments," the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents. Final payment depends on that compliance.
 - c. Returned for Resubmittal: When the Architect marks a submittal "Revise and Resubmit," do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain different action mark.
 - 1) Do not use, or allow others to use, submittals marked "Revise and Resubmit" at the Project Site or elsewhere where Work is in progress.
 1. Submittals by Web-Based Project Management Software: Architect and Construction Manager will indicate, on Project management software website, the appropriate action.
 - a. Actions taken by indication on Project management software website have the following meanings:

- 1) Same as PDF Submittals.

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

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

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

- E. Architect and Construction Manager will return without review submittals received from sources other than Contractor.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Commissioning Authority, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.
 - 4. Specific test and inspection requirements are not specified in this Section.
- C. Related Requirements:
 - 1. Section 012100 "Allowances" for testing and inspection allowances.

1.3 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
 - 1. Laboratory Mockups: Full-size physical assemblies constructed and tested at testing facility to verify performance characteristics.
 - 2. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements or as part of permanent construction, consisting of multiple products, assemblies, and subassemblies.
- E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect or Construction Manager.

1.4 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.5 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior and laboratory mockups.
 - 1. Include plans, sections, and elevations, indicating materials and size of mockup construction.
 - 2. Indicate manufacturer and model number of individual components.
 - 3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.
- B. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.7 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.

- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 - 2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.
- F. Reports: Prepare and submit certified written reports and documents as specified.
- G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.8 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's Construction Schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
 - 1. Project quality-control manager may also serve as Project superintendent.

- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 - 1. Contractor-performed tests and inspections including Subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
 - 2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
 - 3. Owner-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by Commissioning Authority.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.9 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, telephone number, and email address of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.

- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.

1.10 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services

of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens and test assemblies, mockups, and laboratory mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, through Construction Manager, with copy to Contractor. Interpret tests and inspections and state

in each report whether tested and inspected work complies with or deviates from the Contract Documents.

- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups of size indicated.
 - 2. Build mockups in location indicated or, if not indicated, as directed by Architect or Construction Manager.
 - 3. Notify Architect and Construction Manager seven days in advance of dates and times when mockups will be constructed.
 - 4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
 - 5. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 6. Obtain Architect's and Construction Manager's approval of mockups before starting corresponding work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 - 7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 8. Demolish and remove mockups when directed unless otherwise indicated.
- L. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph.
- M. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Specification Sections.

1.11 QUALITY CONTROL

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

- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority, Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect, Commissioning Authority,, Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's

services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

- G. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspection equipment at Project site.

- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Construction Schedule. Update as the Work progresses.
 - 1. Distribution: Distribute schedule to Owner, Architect, Commissioning Authority, Construction Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.12 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Architect, Commissioning Authority, Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority, through Construction Manager, with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected work.
- B. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect, Commissioning Authority, Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority, through Construction Manager, with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's, Commissioning Authority's, and Construction Manager's reference during normal working hours.
1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if

bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. **[Abbreviations and acronyms not included in this list shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."]**The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 - 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 - 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 7. ABMA - American Boiler Manufacturers Association; www.abma.com.
 - 8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
 - 9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 - 10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 - 11. AF&PA - American Forest & Paper Association; www.afandpa.org.
 - 12. AGA - American Gas Association; www.aga.org.
 - 13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 - 14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 - 15. AI - Asphalt Institute; www.asphaltinstitute.org.
 - 16. AIA - American Institute of Architects (The); www.aia.org.
 - 17. AISC - American Institute of Steel Construction; www.aisc.org.
 - 18. AISI - American Iron and Steel Institute; www.steel.org.
 - 19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.

20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWPA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformite Europeenne; <http://ec.europa.eu/growth/single-market/ce-marking/>.
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.

63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csagroup.com.
65. CSA - CSA International; www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarooft.com.
88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.
91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
99. IAS - International Accreditation Service; www.iasonline.org.
100. ICBO - International Conference of Building Officials; (See ICC).
101. ICC - International Code Council; www.iccsafe.org.
102. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
103. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
104. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
105. IEC - International Electrotechnical Commission; www.iec.ch.
106. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.

107. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
108. IESNA - Illuminating Engineering Society of North America; (See IES).
109. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
110. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
111. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
112. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
113. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
114. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
115. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
116. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
117. ISO - International Organization for Standardization; www.iso.org.
118. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
119. ITU - International Telecommunication Union; www.itu.int/home.
120. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
121. LMA - Laminating Materials Association; (See CPA).
122. LPI - Lightning Protection Institute; www.lightning.org.
123. MBMA - Metal Building Manufacturers Association; www.mbma.com.
124. MCA - Metal Construction Association; www.metalconstruction.org.
125. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
126. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
127. MHIA - Material Handling Industry of America; www.mhia.org.
128. MIA - Marble Institute of America; www.marble-institute.com.
129. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
130. MPI - Master Painters Institute; www.paintinfo.com.
131. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
132. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
133. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
134. NADCA - National Air Duct Cleaners Association; www.nadca.com.
135. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
136. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
137. NBI - New Buildings Institute; www.newbuildings.org.
138. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
139. NCMA - National Concrete Masonry Association; www.ncma.org.
140. NEBB - National Environmental Balancing Bureau; www.nebb.org.
141. NECA - National Electrical Contractors Association; www.necanet.org.
142. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
143. NEMA - National Electrical Manufacturers Association; www.nema.org.
144. NETA - InterNational Electrical Testing Association; www.netaworld.org.
145. NFHS - National Federation of State High School Associations; www.nfhs.org.
146. NFPA - National Fire Protection Association; www.nfpa.org.
147. NFPA - NFPA International; (See NFPA).
148. NFRC - National Fenestration Rating Council; www.nfrc.org.

149. NHLA - National Hardwood Lumber Association; www.nhla.com.
150. NLGA - National Lumber Grades Authority; www.nlga.org.
151. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
152. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
153. NRCA - National Roofing Contractors Association; www.nrca.net.
154. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
155. NSF - NSF International; www.nsf.org.
156. NSPE - National Society of Professional Engineers; www.nspe.org.
157. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
158. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
159. NWFA - National Wood Flooring Association; www.nwfa.org.
160. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
161. PDI - Plumbing & Drainage Institute; www.pdionline.org.
162. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
163. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
164. RFCI - Resilient Floor Covering Institute; www.rfci.com.
165. RIS - Redwood Inspection Service; www.redwoodinspection.com.
166. SAE - SAE International; www.sae.org.
167. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
168. SDI - Steel Deck Institute; www.sdi.org.
169. SDI - Steel Door Institute; www.steeldoor.org.
170. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
171. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
172. SIA - Security Industry Association; www.siaonline.org.
173. SJI - Steel Joist Institute; www.steeljoist.org.
174. SMA - Screen Manufacturers Association; www.smainfo.org.
175. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
176. SMPTE - Society of Motion Picture and Television Engineers; www.smpete.org.
177. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
178. SPIB - Southern Pine Inspection Bureau; www.spib.org.
179. SPRI - Single Ply Roofing Industry; www.spri.org.
180. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
181. SSINA - Specialty Steel Industry of North America; www.ssina.com.
182. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
183. STI - Steel Tank Institute; www.steeltank.com.
184. SWI - Steel Window Institute; www.steelwindows.com.
185. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
186. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
187. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
188. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
189. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
190. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).

191. TMS - The Masonry Society; www.masonrysociety.org.
192. TPI - Truss Plate Institute; www.tpinst.org.
193. TPI - Turfgrass Producers International; www.turfgrassod.org.
194. TRI - Tile Roofing Institute; www.tilerroofing.org.
195. UL - Underwriters Laboratories Inc.; www.ul.com.
196. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
197. USAV - USA Volleyball; www.usavolleyball.org.
198. USGBC - U.S. Green Building Council; www.usgbc.org.
199. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
200. WA - Wallcoverings Association; www.wallcoverings.org.
201. WASTEC - Waste Equipment Technology Association; www.wastec.org.
202. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
203. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
204. WDMA - Window & Door Manufacturers Association; www.wdma.com.
205. WI - Woodwork Institute; www.wicnet.org.
206. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
207. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut für Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.

14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
 15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
 17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
 18. USP - U.S. Pharmacopeial Convention; www.usp.org.
 19. USPS - United States Postal Service; www.usps.com.
- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
 2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
 3. DSCC - Defense Supply Center Columbus; (See FS).
 4. FED-STD - Federal Standard; (See FS).
 5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.
 6. MILSPEC - Military Specification and Standards; (See DOD).
 7. USAB - United States Access Board; www.access-board.gov.
 8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
 2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
 3. CDHS; California Department of Health Services; (See CDPH).
 4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
 5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
 6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.

7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development;
www.txforestservation.tamu.edu.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.
- E. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- F. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- G. Sewer, Water, and Electric Power Service: Use charges are specified in Section 011200 "Multiple Contract Summary."

1.4 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.
- C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.
- F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:
 - 1. Locations of dust-control partitions at each phase of work.
 - 2. HVAC system isolation schematic drawing.
 - 3. Location of proposed air-filtration system discharge.
 - 4. Waste-handling procedures.
 - 5. Other dust-control measures.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines, ICC/ANSI A117.1, and current Illinois Accessibility Code.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its

use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide galvanized-steel bases for supporting posts.
- C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.
- D. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E84 and passing NFPA 701 Test Method 2.
- E. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats minimum 36 by 60 inches.
- F. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, Construction Manager, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
 - 3. Drinking water and private toilet.

4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 017700 "Closeout Procedures."
- C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Toilets: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- F. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
 - 1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

- G. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
 - 1. Prior to commencing work, isolate the HVAC system in area where work is to be performed.
 - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
 - b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
 - 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
 - 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- H. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- I. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service underground unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- J. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- K. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install WiFi cell phone access equipment and one land-based telephone line(s) for each field office.
 - 1. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.
 - f. Construction Manager's home office.
 - g. Engineers' offices.
 - h. Owner's office.
 - i. Principal subcontractors' field and home offices.

3.4 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E136. Comply with NFPA 241.
 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Planned Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Section 312000 "Earth Moving."
 3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
 4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Section 321216 "Asphalt Paving."
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: [Provide temporary] [Use designated areas of Owner's existing] parking areas for construction personnel.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

2. Remove snow and ice as required to minimize accumulations.
- G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 3. Maintain and touch up signs so they are legible at all times.
- H. Waste Disposal Facilities: Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- J. Temporary Elevator Use: See Section 142100 "Electric Traction Elevators" and Section 142123.16 "Machine Room-Less Electric Traction Passenger Elevators" for temporary use of new elevators.
- K. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- L. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
1. Comply with work restrictions specified in Section 011000 "Summary."

- C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.
- G. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- K. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
 - 1. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
 - 2. Paint and maintain appearance of walkway for duration of the Work.
- L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- M. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.
1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
 2. Construct dustproof partitions with two layers of 6-mil polyethylene sheet on each side. Cover floor with two layers of 6-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant-treated plywood.
 - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.
 3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 4. Insulate partitions to control noise transmission to occupied areas.
 5. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
 6. Protect air-handling equipment.
 7. Provide walk-off mats at each entrance through temporary partition.
- N. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.

2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
 3. Indicate methods to be used to avoid trapping water in finished work.
- B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
1. Protect porous materials from water damage.
 2. Protect stored and installed material from flowing or standing water.
 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 4. Remove standing water from decks.
 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard and replace stored or installed material that begins to grow mold.
 7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.
- D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective and require replacing.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.7 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 015723 - TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Temporary stormwater pollution controls.

1.3 STORMWATER POLLUTION PREVENTION PLAN

- A. The Stormwater Pollution Prevention Plan (SWPPP) is part of the Contract Documents and is bound into this Project Manual.

1.4 INFORMATIONAL SUBMITTALS

- A. Stormwater Pollution Prevention Plan (SWPP): Within 15 days of date established for commencement of the Work, submit completed SWPPP.
- B. EPA authorization under the EPA's "2017 Construction General Permit (CGP)."
- C. Stormwater Pollution Prevention (SWPP) Training Log: For each individual performing Work under the SWPPP.
- D. Inspection reports.

1.5 QUALITY ASSURANCE

- A. Stormwater Pollution Prevention Plan (SWPPP) Coordinator: Experienced individual or firm with a record of successful water pollution control management coordination of projects with similar requirements.
 - 1. SWPPP Coordinator shall complete and finalize the SWPPP form.
 - 2. SWPPP Coordinator shall be responsible for inspections and maintaining of all requirements of the SWPPP.
- B. Installers: Trained as indicated in the SWPPP.

PART 2 - PRODUCTS

2.1 TEMPORARY STORMWATER POLLUTION CONTROLS

- A. Provide temporary stormwater pollution controls as required by the SWPPP.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with all best management practices, general requirements, performance requirements, reporting requirements, and all other requirements included in the SWPPP.
- B. Locate stormwater pollution controls in accordance with the SWPPP.
- C. Conduct construction as required to comply with the SWPPP and that minimize possible contamination or pollution or other undesirable effects.
 - 1. Inspect, repair, and maintain SWPPP controls during construction.
 - a. Inspect all SWPPP controls not less than every seven days, and after each occurrence of a storm event, as outlined in the SWPPP.
- D. Remove SWPPP controls at completion of construction and restore and stabilize areas disturbed during construction.

END OF SECTION 015723

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.
- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the

specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Architect's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
 - 1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but

inconspicuous surface. Include information essential for operation, including the following:

- a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
3. See individual identification sections in Divisions 21, 22, 23, and 26 for additional identification requirements.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
1. Store products to allow for inspection and measurement of quantity or counting of units.
 2. Store materials in a manner that will not endanger Project structure.
 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 6. Protect stored products from damage and liquids from freezing.
 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 - 4. Where products are accompanied by the term "as selected," Architect will make selection.
 - 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 - 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

- a. Submit additional documentation required by Architect through Construction Manager in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect, whose determination is final.
- B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."
 2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."
 3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
 4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
 - a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."
 5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
 6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.

- a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."
7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
 - a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

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

- B. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit two copies signed by professional engineer.
- F. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Plumbing piping systems.
 - f. Mechanical systems piping and ducts.
 - g. Control systems.
 - h. Communication systems.

- i. Fire-detection and -alarm systems.
 - j. Conveying systems.
 - k. Electrical wiring systems.
 - l. Operating systems of special construction.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
- a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services; and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before

fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.
- B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.

- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

- E. Final Property Survey: Engage a professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 - 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.

- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Repair or remove and replace damaged, defective, or nonconforming Work.
 - 1. Comply with Section 017700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.6 CUTTING AND PATCHING

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

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.

- b. Restore damaged pipe covering to its original condition.
- 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
- 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
- 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.
- C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.
- 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.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SALVAGING DEMOLITION WASTE

- A. Comply with requirements in Section 311000 "Site Clearing" for salvaging demolition waste.

3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- 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 according to approved construction waste management plan.
 - 1. Provide appropriately marked containers or bins for controlling recyclable waste until 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 from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.3 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. 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.
- C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.
 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.4 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner's property.
- C. Burning: Do not burn waste materials.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at final completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Construction Manager's signature for receipt of submittals.
 - 5. Submit testing, adjusting, and balancing records.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 - 6. Advise Owner of changeover in utility services.
 - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.

8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements.
 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
 5. Submit final completion photographic documentation.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect and Construction Manager.
 - d. Name of Contractor.
 - e. Page number.
 4. Submit list of incomplete items in the following format:
 - a. PDF electronic file. Architect, through Construction Manager, will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
1. Submit on digital media acceptable to Architect.
- E. Warranties in Paper Form:
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- F. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

- g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - 1) Clean HVAC system in compliance with NADCA ACR. Provide written report on completion of cleaning.
 - p. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
 - q. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.

- a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect and Commissioning Authority will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
 - 1. Submit on digital media acceptable to Architect. Enable reviewer comments on draft submittals.

2. Submit three paper copies to Architect, through Construction Manager.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect and Commissioning Authority will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.
 1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.
- E. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
 1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of

contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
 1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Construction Manager.
 7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.
 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
 1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
 2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
 3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
 1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.

6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:
1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Operating instructions for conditions outside normal operating limits.
 4. Required sequences for electric or electronic systems.
 5. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- C. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.

3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.
- C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance

service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

- D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 3. Identification and nomenclature of parts and components.
 4. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.
- J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 1. Do not use original project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.
- E. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Format: Annotated PDF electronic file with comment function enabled.
3. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect and Construction Manager.
 - e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 5. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file or scanned PDF electronic file(s) of marked-up paper copy of Specifications.

1.6 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- C. Format: Submit record Product Data as annotated PDF electronic file or scanned PDF electronic file(s) of marked-up paper copy of Product Data.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file or scanned PDF electronic file(s) of marked-up miscellaneous record submittals.
 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's and Construction Manager's reference during normal working hours.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Instruction in operation and maintenance of systems, subsystems, and equipment.
 - 2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Attendance Record: For each training module, submit list of participants and length of instruction time.
- C. Add the following. Submit outline a minimum of one (1) week prior to date set for Demonstration and Training.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.

- c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Date of video recording.
2. Transcript: Prepared and bound in format matching operation and maintenance manuals. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video recording. Include name of Project and date of video recording on each page.
 3. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
 4. At completion of training, submit complete training manual(s) for Owner's use prepared in same paper and PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.7 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Systems and equipment operation manuals.
 - c. Systems and equipment maintenance manuals.
 - d. Product maintenance manuals.
 - e. Project Record Documents.
 - f. Identification systems.
 - g. Warranties and bonds.
 - h. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 - 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.

- f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
- a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
- a. Diagnostic instructions.
 - b. Test and inspection procedures.
7. Maintenance: Include the following:
- a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning.
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
8. Repairs: Include the following:
- a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

1.9 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. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
 - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 3. 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 with Owner, through Construction Manager, with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode with vibration reduction technology.
 - 1. Submit video recordings on CD-ROM or thumb drive and by uploading to web-based Project software site.
 - 2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
 - 3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.

4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the equipment demonstration and training recording that describes the following for each Contractor involved on the Project, arranged according to Project Manual table of contents:
 - a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. Email address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
 1. Film training session(s) in segments not to exceed 15 minutes.
 - a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
 1. Furnish additional portable lighting as required.
- E. Narration: Describe scenes on video recording by dubbing audio narration off-site after video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017900

**SECTION 01 9100
COMMISSIONING**

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Description
- B. Commissioning Process
- C. Related Work

1.2 DESCRIPTION

- A. Commissioning. Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent and the Owner's operational needs. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing, adjusting and balancing, performance testing, and training.
- B. Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:
 - 1. Verify applicable equipment and systems are installed according to the Owner's project requirements, manufacturer's recommendations, and industry accepted minimum standards.
 - 2. Verify applicable equipment and systems receive adequate operational checkout by installing contractors.
 - 3. Observe and document proper performance of equipment and systems.
- C. The commissioning process does not take away from or reduce the responsibility of the system designers or installing contractors to provide a finished and fully functioning product.
- D. Abbreviations. The following are common abbreviations that may be used in the specifications and the Commissioning Plan.

| | | | |
|------|---------------------------------|------|--|
| A/E | Architects and Engineers | GC | General Contractor |
| BOD | Basis of Design | IST | Integrated Systems Test |
| Cx | Commissioning | LEED | Leadership in Energy and Environmental Design |
| CIL | Construction Issues Log | MFR | Manufacturer |
| CxA | Commissioning Authority | MC | Mechanical Contractor |
| CxS | Commissioning Specialist | O&M | Operation and Maintenance |
| CM | Construction Manager | OPR | Owner's Project Requirements |
| TCC | Temperature Controls Contractor | PC | Plumbing Contractor |
| DB/C | Design Build Contractor | PFC | Pre-Functional Checklist |
| EC | Electrical Contractor | Subs | Subcontractors to General |
| FOR | Field Observation Report | TAB | Test, Adjust & Balance Contractor |
| FPT | Functional Performance Test | | |

1.3 COMMISSIONING PROCESS

- A. Commissioning Plan. The Commissioning Plan (Cx Plan), which is an appendix to this specification, provides definition for the execution of the commissioning process. The Commissioning Authority (CxA) shall update the Cx Plan when appropriate during the Cx process.
- B. Commissioning Process. Refer to the Cx Plan for an overview of the typical commissioning tasks during construction and the general order in which they occur.

1.4 RELATED WORK

- A. Specific commissioning requirements are given in the following sections of these specifications. All the following sections apply to the Work of this section.
 - 1. Section 0 91 00 Appendix: Commissioning Plan (Cx Plan)
 - 2. Section 22 08 00 – Commissioning of Plumbing
 - 3. Section 23 08 00 - Commissioning of HVAC
 - 4. Section 26 08 00 - Commissioning of Electrical

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

- A. All standard testing equipment required to perform startup, initial checkout, and functional performance testing shall be provided by the Division Contractor. If required, two-way radios, ladders and/or man-lifts shall be provided by the General Contractor or applicable subcontractor.
- B. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the related specifications. All equipment shall be calibrated according to the manufacturer's recommended intervals and when dropped or damaged shall be replaced. Calibration tags shall be affixed or certificates readily available.

PART 3 - EXECUTION

3.1 COORDINATION

- A. Refer to the Commissioning Plan in the appendix of this section for further detail on the Commissioning Process.

3.2 EXECUTION

- A. The Commissioning Process requires efficient and effective communication among all trades, the design team, the contractors, the vendors, the Owner, and the Commissioning Authority. To facilitate the transition from one activity to the next and to prove system readiness for functional testing; the Commissioning Authority requires documentation showing compliance with the project requirements as well as providing evidence of conformance with manufacturer's recommendations. The following shall be documented and submitted for review and acceptance by the Commissioning Authority in a timely manner for each commissioned piece of equipment or system:
1. Completed pre-functional checklists.
 2. Startup reports filled out by a factory authorized representative as required by the project technical specifications.
 3. Field quality control test reports as required by the project technical specifications.
 4. Building automation system "point to point" reports.
 5. Testing, adjusting, and balancing reports as required by the project technical specifications.
 6. Building automation system graphics.
 7. Contractor completed Functional Performance Test documenting that, at a minimum "one of", for each functional test has been completed without deficiency.
- B. These documents will be reviewed and accepted by the Commissioning Authority, with concerns and deficiencies tracked in the Construction Issues Log. Commissioning Authority review of these documents is independent of any Architect/Engineer of Record review and approval as required elsewhere in the project technical specifications.
- C. Functional Performance Test procedures document conformance with the Owner's project requirements, establish a baseline for equipment and system performance, and are critical tools for troubleshooting by O&M staff during occupancy.
1. The Commissioning Authority will develop the Functional Performance Tests based on the Owner's project requirements, the design construction documents, and approved submittals.
 2. The Commissioning Authority will develop DRAFT copies for the Commissioning Team to review and provide comments.
 3. The Commissioning Authority will incorporate comments from the team as required and issue FINAL copies that the contractors will implement as required in this section, Paragraph 3.2A.7.

4. The Commissioning Authority will witness and document final Functional Performance Testing per the Commissioning Plan.
 5. If Functional Performance Tests fail or deficiencies are found that do not allow the Commissioning Authority to complete the testing, the deficiency will be documented in the Commissioning Actions Log per the Commissioning Plan.
- D. In the event functional testing cannot be completed due to Contractor negligence in completing and submitting documentation listed in Paragraph 3.2A or due to Contractor misrepresentation a system is ready for testing, a retesting charge will be submitted by the Commissioning Authority. Retesting charges to satisfactorily complete the Functional Performance Testing shall include labor and reimbursable expenses. These will be assessed to the Owner, wholly transferrable to the Construction Manager at the discretion of the Owner.

END OF SECTION 01 9100



Rockford Public Library

Replacement Library Building

Cx Plan

IMEG #18001571.01

REVISION HISTORY

Issued in 100% CD Set..... October19, 2020

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1.0 | Overview

Project Introduction

This is the Commissioning Plan for the Rockford Public Library – Replacement Library Building project. The Replacement Library Building is a two-story building with parking level below.

General Building Information

| | |
|---------------------|---------------------------------|
| Owner | Rockford Public Library |
| Project: | Replacement Library Building |
| Location: | Rockford, IL |
| Building Type: | Two Story Building plus Parking |
| Number of Stories: | 2 |
| Construction Start: | 02/2021 |

Abbreviations and Definitions

The following are common abbreviations, not all of which may be used in this document:

| | | | |
|---------|--------------------------------------|-------|---|
| A/E | Architects and Engineers | FPT | Functional Performance Test |
| AHJ | Authority Having Jurisdiction | GC | General Contractor |
| ASI | Architects Supplemental Instructions | IECC | International Energy Conservation Code |
| BECx | Building Envelope Commissioning | IST | Integrated Systems Test |
| BOD | Basis of Design | LEED | Leadership in Energy and Environmental Design |
| Cx | Commissioning | MFR | Manufacturer |
| CIL | Commissioning Issues Log | MC | Mechanical Contractor |
| CCD | Construction Change Directive | MM | Maintenance Manager |
| CxA | Commissioning Authority | MBCxP | Monitoring Based Commissioning Plan |
| CxE | Commissioning Engineer | O&M | Operation and Maintenance |
| Cx Plan | Commissioning Plan | OPR | Owner’s Project Requirements |
| CM | Construction Manager | PFC | Pre-Functional Checklist |
| TCC | Temperature Controls Contractor | PM | Program Manager |
| D/BC | Design Build Contractor | QA/QC | Quality Assurance/Quality Control |
| EC | Electrical Contractor | RFI | Request for Information |
| EOR | Engineer of Record | SOO | Sequence of Operation |
| EBCx | Existing Building Commissioning | Subs | Subcontractors to General |
| FAC | Fire Alarm Contractor | Staff | Facility/Operations/Maintenance Staff |
| FO | Field Observation Report | TAB | Testing, Adjusting, and Balancing Contractor |



2.0 | Commissioning Plan

Purpose

The Commissioning Plan is a management and communications tool that defines the scope, standards, processes, roles and responsibilities, expectations, and deliverables for the project. It is a dynamic document that can be revised and refined as the phases of the project progress.

The plan also defines the equipment and systems, commissioning requirements, and addresses the integration of commissioning into the overall project delivery process. This plan is intended to assist members of the Project Team in applying a clear and consistent approach to commissioning during all phases of project delivery.

The CxA develops the Cx Plan using input from the commissioning team. The plan includes the following:

- Commissioning Team. Defines the roles and responsibilities of the team members.
- Commissioning Scope of Work. Describes in detail the scope of work, identifies the commissioned equipment and systems and related requirements.
- Commissioning Forms. A description of the documentation and test forms to be completed.

The Owner, Design Consultants, and Contractor review the Cx Plan with the CxA. The approved document will be distributed to the Commissioning Team for information and action. When changes or modifications are needed, the CxA will incorporate them and redistribute the Cx Plan.

Commissioning Definition

Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent and the Owner's operational needs. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing and balancing, performance testing. The participation of the contractors in commissioning activities will follow the requirements defined in the specifications.



Systems to be Commissioned

The following systems will be commissioned in this project. All general references to equipment in this document refer only to equipment that is to be commissioned.

Mechanical Systems and Equipment (and all integral equipment controls)

- Air Handling Unit w/ HW Circulating Pump (qty 1)
- Dedicated Outdoor Air Unit w/ HW Circulating Pump (qty 1)
- Heating Hot Water System – (3 Boilers, 5 Pumps)
- Air Cooled Chilled Water System - (1 Chiller, 3 Pumps)
- Split System AC Unit (qty 2)
- Exhaust Fans (qty 8)
- Outdoor Air Box Schedule (qty 54) % Sampling
- Blower Coil Unit (qty 28) % Sampling
- Fan Coil Unit (qty 39) % Sampling
- Air Curtain (qty 1)
- HW Panel Radiators (qty 49) % sampling
- Finned Tube Radiation (qty 10) % Sampling
- Cabinet Unit Heater (qty 14) % Sampling
- Unit Heater (qty 6) % Sampling
- Building automation system (controlled devices, control loops, and system integration)

Plumbing Systems and Equipment

- Domestic Water Heater with Circulating Pump (qty 1)

Electrical Systems and Equipment

- Lighting Controls – Library and Parking level - % Sampling

FPT Sampling Strategy

The sampling strategy for Functional Performance Testing for the commissioned equipment/systems is listed below. Equipment and systems not listed are assumed to be tested at 100%.

| Equipment/System | Sampling Test Rate |
|--|--------------------|
| Outdoor Air Box Schedule | 25% |
| Blower Coil Unit/Fan Coil Units | 25% |
| Finned Tube Radiation/HW Radiant Panel | 25% |



| Equipment/System | Sampling Test Rate |
|---------------------------------|--------------------|
| Unit Heater/Cabinet Unit Heater | 50% |
| Lighting Controls | 50% |

3.0 | Commissioning Team

| Name | Title | Phone | Mobile | E-Mail Address |
|---|-------------------------|----------------|----------------|--|
| Owner | | | | Rockford Public Library 215 Wyman Street Rockford, IL 61101 |
| Architectural Design Consultant | | | | Engberg Anderson Architects 8618 West Catalpa Avenue #1116 Chicago, IL 60656 |
| Mechanical/Electrical/Plumbing Design Consultant | | | | IMEG Corp 623 26th Avenue Quad Cities, IL 61201 |
| Matt Snyder | PM/EE | 309) 793-3404 | | matthew.d.snyder@imegcorp.com |
| Commissioning Group | | | | IMEG Corp 231 South LaSalle Street, Suite 600 Chicago, IL 60604 |
| Pablo Benitez | Commissioning Authority | (312) 931-3751 | (773) 704-3900 | pablo.benitez@imegcorp.com |
| Jaime Olivas | Commissioning Authority | (651) 783-2688 | (612) 540-5022 | jaime.v.olivas@imegcorp.com |
| General Contractor | | | | Company Name Address |
| Mechanical Contractor | | | | Company Name Address |
| Electrical Contractor | | | | Company Name Address |
| Plumbing Contractor | | | | Company Name Address |
| Temperature Controls Contractor | | | | Company Name Address |



4.0 | Commissioning Process

Commissioning Process

The following sections sequentially detail the commissioning process by task through each phase of the project while incorporating the Roles and Responsibilities of the Commissioning Team.

Design Phase

| Task | Owner | GC | Architect | CxA | Engineer |
|---------------------|------------------|------------------|-------------------|------------------|-------------------|
| Cx Design Documents | Review & Approve | Review | Develop & Respond | Review | Develop & Respond |
| Cx Plan | Review & Approve | Review & Approve | Review & Approve | Develop & Manage | Review & Approve |
| Cx Specifications | Review | Review | Incorporate | Develop & Manage | Incorporate |

Design Documents

The CxA shall review the design documents for familiarization only and coordination of the Commissioning requirements into the Cx Plan and Cx Specifications.

Commissioning Plan

The CxA develops the Cx Plan which outlines the commissioning process and individual team member responsibilities.

Commissioning Specifications

The CxA develops the commissioning specification sections. This will ensure that all systems and equipment to be commissioned are clearly identifiable by the GC and their subcontractors for accurate pricing.

Construction Phase

| Task | Owner | GC | Design Team | CxA | Sub/Vendors |
|------------------------|--------|--------|-------------|------|-------------|
| Commissioning Meetings | Attend | Attend | Attend | Lead | Attend |



| | | | | | |
|--|--------|------------|------------------|--------------------|--------------------|
| Equipment Submittals and Documentation | Review | Review | Approve | Review & Comment | Submit |
| Field Observations | Attend | Support | – | Perform & Document | Support |
| Field Quality Control Testing | – | Coordinate | Review & Approve | Review | Perform & Document |
| Equipment Startup | Attend | Coordinate | Review & Approve | Witness & Review | Perform & Document |
| BAS Point to Point | – | Coordinate | - | Review | Perform & Document |
| Testing, Adjusting and Balancing | – | Coordinate | Review & Approve | Review | Perform & Document |

Commissioning Kickoff Meeting

The respective representatives of the GC, CxA, Owner’s Representative, A/E, and the mechanical, electrical, controls, and TAB subs should be in attendance as required. At the appropriate point in the Construction Phase (typically early), our team will organize and hold a Kickoff Meeting with all interested parties. The intent of this meeting is to introduce the contractors to the accepted commissioning process. This is done through a presentation overview of the process and distribution of the Cx Plan.

A typical kickoff meeting agenda would include:

1. CxA introduction
2. Team introductions with roles related to startup and schedule
3. Review management and reporting
4. Review distribution of documents and submittal data the CxA will receive
5. Review of this Commissioning Plan (and process)
6. Discussion of schedule, major deadlines, and milestones
7. Questions

The goal of the meeting is to promote an increased understanding by all parties of the commissioning process and their respective responsibilities.

Commissioning and Project Meetings

The CxA can attend selected planning and job site meetings to remain informed of the construction progress and to update the parties involved in commissioning. The GC and A/E provide the CxA with information regarding substitutions and change orders that may affect commissioning equipment, systems, or the commissioning schedule.



The CxA will coordinate with the Contractor and Owner to schedule Commissioning meetings in conjunction with regular progress meetings. An agenda will be developed by the CxA and distributed to the Commissioning Team.

A typical Cx project meeting agenda would include:

1. Schedule review
2. Equipment start-up status
3. Testing status
4. Recap of upcoming activities relating to commissioning
5. Commissioning Issues Log (CIL) review
6. Site Observation (before or after the meeting)

Dates, times and prerequisites for upcoming Commissioning checks, start-ups, or tests will be established. Issues will be raised, and problems identified with required action decided, and a date for completion determined. Commissioning Team members are responsible for attending Commissioning meetings and for completing assigned action items by the assigned dates. The CxA will document meeting minutes and distribute to the Commissioning Team.

Equipment Submittals and Documentation

The CxA has limited Submittal review scope as part of this project and will review the Water Balance, Air Test and Balance Report and O&M Manuals. These responses are documented in the CIL and relayed to the design team for response. The comments are vetted and incorporated as applicable into the overall submittal package review by the A/E. The design team will respond accordingly, and comments will be closed out on the issuance of the Approved final record submittal. The contractor provides all the other Approved final record submittals to the CxA for developing Tests.

The subcontractors, GC, or A/E shall notify the CxA of any new design intent, operating parameter changes, added control strategies and sequences of operation, or other change orders, RFIs, ASIs, etc. that may affect commissioned systems.

Field Observations

The CxA makes periodic visits to the site to witness equipment and system installations. Field Observation Reports (FOs) will be issued to document activities, observations and any issues or deficiencies. These will be issued to the Owner and the rest of the construction team, as necessary.

Field Quality Control Testing



The subcontractor is responsible for coordinating and preparing any field quality control testing for the CxA to witness. Examples of this type of testing would be hydronic piping and duct pressure testing. These tests are typically identified in the project specifications. These activities should be scheduled with the GC and included in the overall project schedule. The CxA will collect and review the test reports from these activities.

Equipment Startup

The start-up process is scheduled by the subcontractor responsible for the equipment and systems being started. Working with the GC, the subcontractor prepares an overall schedule of startup activities for the team to review. The CxA may witness the startup of major equipment and systems and will collect and review the required Start-up Reports for the equipment being commissioned. The Owner staff may also choose to witness selected startups.

The subcontractor must notify the CxA in writing within of any outstanding items from the initial start-up process. The CxA will document these items in the CIL so their resolution can be tracked and recorded. Outstanding items must be satisfactorily addressed and documented before start-up. All startup procedures must be satisfactorily executed before functional testing begins and before the equipment is operated, even temporarily. Once the equipment and systems are started, the subcontractor is responsible for maintaining the warranty of the equipment.

BAS Point to Point

The BAS contractor shall perform point to point on all actuators, dampers, valves and verify calibration of sensors and meters. This process confirms that 1) all devices are properly wired, 2) devices respond properly (e.g., temperatures readings are accurate, actuators stroke over their full range when commanded, etc.), 3) what is required by the project has indeed been provided and 4) when the CxA performs the FPTs, all components will react as expected.

The BAS contractor will document the points on their own form. The CxA may witness the point to point check out as part of their normal site visits. The controls contractor point to point documentation will be collected and reviewed by the CxA. Proving the analog or digital point operates correctly is crucial for proving the equipment or system will operate as intended.

Testing, Adjusting and Balancing

Typically, when the BAS point to point is complete, the Testing, Adjusting, and Balancing (TAB) can begin. The TAB contractor will verify system air and water performance as required by the project documents. The CxA will review the TAB report. Any comments will be documented via the CIL.



The final TAB report shall be submitted as a standard submittal per the project requirements and the review process shall be as the other submittals.

Acceptance Phase

| Task | Owner | GC | Design Team | CxA | Sub/Vendors |
|--|------------------|-------------------------------|------------------|--------------------|--------------------|
| Develop Functional Performance Tests | Review & Comment | Review & Comment | Review & Comment | Develop | Review & Comment |
| Functional Test Review | Support | Support | Support | Support | Support |
| Final Test Scheduling | Support | Support | -- | Lead | Support |
| Functional Performance Testing | Attend | Coordinate | Support | Witness & Document | Support & Perform |
| Deficiencies, Re-testing, and Acceptance | Support | Support Coordinate & Document | Support | Witness & Document | Perform & Document |
| Deficiencies (Cx Issues Log) | Support | Support Coordinate & Document | Support | Witness & Document | Perform & Document |

Develop Functional Performance Tests

Functional testing is the dynamic testing of equipment and systems under all modes of operation. The systems are run through the control sequences of operation and components are verified to respond as required.

The CxA develops project specific test procedures to verify proper operation of each piece of equipment and system to be commissioned.

Functional Performance Test Review

After all FPTs are developed, the CxA submits them to the Cx Team for review and comment. During this review, comments are discussed and the CxA will incorporate all approved modifications to the FPTs. If any of the comments contradict current contract documents or submittals, those responsible parties shall update their documentation and submit via the approved chain of communication. The CxA will issue to the Cx Team any revised FPTs.

Final Test Scheduling



The CxA, Owner and GC will review the current project schedule and modify any anticipated Commissioning milestone durations based on the actual submitted FPTs. Through coordination with the CxA, the GC shall integrate all commissioning activities into the master construction schedule. Additionally, all responsible parties required to participate in the FPTs will be identified in the project schedule.

Functional Performance Testing

The subcontractors and vendors execute the FPTs while the CxA documents the results. Functional testing may be achieved by manual testing (via BAS overrides) or by monitoring the performance and analyzing the results using the control system’s trend-logging capabilities. Equipment with standalone control is tested locally to simulate operating conditions.

Deficiencies, Re-testing, and Acceptance

Incomplete work or deficiencies discovered in FPTs will be corrected by the responsible contractors and then re-tested. The Contractor is responsible for deficient or incomplete work and will be responsible to ensure corrections necessary for full and complete system operation as specified are completed. **Re-tests required due to contractors not having the system or component functional for successful re-testing will result in charges to the contractors for additional re-testing time.**

Commissioning Issues Log (CIL)

The CxA keeps a log (in CxAlloy) of all commissioning-related issues that require current or future attention. The assigned responsible party is to promptly address the issues and respond in writing in CxAlloy. Upon final confirmation by the CxA that the item has been resolved, it will be closed and documented for record. Any remaining open items at the end of the project will be clearly communicated to the owner in the final Cx Report.

Occupancy Phase

| Task | Owner | GC | Design Team | CxA | Sub/Vendors |
|----------------------------------|---------------------|--------|-------------|---------|-------------|
| Preliminary/Final Summary Report | Approve | Review | -- | Develop | -- |
| Seasonal Testing | Coordinate & Attend | -- | -- | Develop | -- |

Preliminary/Final Summary Report



A Preliminary and Final Summary report containing all Cx documentation from the project will be developed by the CxA.

Seasonal Testing

If any equipment is unable to be satisfactorily tested due to the weather conditions at the time of testing, follow-up testing in the appropriate season may be required.

5.0 | Appendix

Functional Performance Tests

The following FPTs are examples and are provided for the contractor to understand level of rigor required to perform the work. The equipment listed is a sampling from the Systems to be Commissioned List. Once equipment submittals have been provided to the CxA, per the Cx Plan process these documents will be updated and finalized for the contractor to complete. These are for SAMPLE review only.

The following FPTs are included:

- AHU



**Functional Performance Test:
FPT-03a Air Handling Unit 1**



Client Name

IMEG #000000000.00

| Revision | | | |
|----------|----------|-----------------------------|--------|
| Level | Date | Description | Author |
| 0 | XX/XX/XX | Issued for Review / Testing | |
| | | | |
| | | | |

1. Participants

| Date | | | Organization | Participant | Participant Signature |
|------|--|--|-------------------------|-------------|-----------------------|
| | | | | | |
| | | | Commissioning Agent - | | |
| | | | Controls Contractor - | | |
| | | | Mechanical Contractor - | | |
| | | | | | |
| | | | | | |
| | | | | | |

2. Test Prerequisites

| Prerequisite | Notes | Complete Y / N |
|---|-------|-------------------|
| All required participants listed above are scheduled and available for testing. | | |

3. System Description

- A. Air Handling Unit AHU-1 is a 8,565 cfm unit serving Module A. An energy recovery wheel transfers energy between the outside air stream and exhaust air stream reducing overall heating and cooling loads.
- B. A supply fan array with two supply fans controls to maintain supply duct static pressure set point. A return fan array with two return fans controls to maintain a constant cfm offset based on the return fan airflow schedule. The FMCS shall utilize feedback from all TAB supply damper positions to reset supply duct static pressure set point as required to maintain at least one supply TAB damper 95% open.
- C. Discharge air temperature is reset based on the zone with the greatest call for cooling. Temperature is reset between 55 deg and 60 deg.
- D. A graphical toggle provides the user with the option to use either static pressure reset or discharge air temperature reset. Only one control operation is used at a time.

4. Sequence of Operation References / Attachments
 - A. Refer to Everest Energy & Control Technologies Control Submittal, 4.00 – 4.08
 - B. Refer to Contract Documents, M-705
5. System Point Review / Check
 - A. BAS Points

| Point No. | Point Description | Point Values | Notes | Pass Y / N |
|-----------|---|--------------|-------|------------|
| 1) | Outside Air Temperature | | | |
| 2) | Outside Air Humidity | | | |
| 3) | Outside Air CO2 | | | |
| 4) | E.R. Wheel OA Discharge Air Temperature | | | |
| 5) | E.R. Wheel OA Discharge Air Humidity | | | |
| 6) | Return Air Temperature | | | |
| 7) | Return Air Humidity | | | |
| 8) | Discharge Air Temperature | | | |
| 9) | Discharge Air Humidity | | | |
| 10) | Exhaust Air Temperature | | | |
| 11) | Exhaust Air Humidity | | | |
| 12) | Mixed Air Temperature | | | |
| 13) | Low Limit Temperature | | | |
| 14) | Preheat Coil Hot Water Supply Temp | | | |
| 15) | Preheat Coil Hot Water Return Temp | | | |
| 16) | Discharge Static Pressure | | | |
| 17) | Outside Air Flow | | | |
| 18) | Discharge Air Flow | | | |
| 19) | Return Air Flow | | | |
| 20) | Outside Air Damper Output | | | |
| 21) | Outside Air Damper Feedback | | | |
| 22) | Return Air Damper Output | | | |
| 23) | Return Air Damper Feedback | | | |
| 24) | Exhaust Air Damper Output | | | |
| 25) | Exhaust Air Damper Feedback | | | |



6. Functional Testing Record

A. Occupied / Unoccupied Mode and Start-up Control

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|---|--|-----------------------------|---------------|
| 1) | <p>Verify AHU is in Occupied Mode and discharge air and space temperature set-points are being maintained</p> <p>(Note: This step serves as a general system operation observation prior to Functional Testing of Modes of operation)</p> | <ul style="list-style-type: none"> a. Supply Fan array is modulating to maintain duct static pressure setpoint b. Return Fan is modulating to maintain airflow offset c. Interlocked Exhaust Fan EF-1 is on d. OA damper is open 100% e. EA damper is open 100% f. RA damper modulates to maintain minimum outside air flow rate g. Condensing unit stages to maintain discharge air temperature setpoint, if in cooling h. Heating water valve modulates to maintain preheat discharge air temperature, if in heating i. Energy Recovery wheel is on if Discharge air temperature is below set point or if Outside air temperature is higher than return air temperature. Otherwise energy recovery wheel is off. j. Freeze protection pump is on if OAT is less than 38 deg. If OAT is higher than 38 deg, pump is on when reheat coil is open. Pump is off if OAT is above 54 deg. k. SP or DAT set-point are resetting based on VAV damper position | See initial points | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|--|--|-----------------------------|---------------|
| 2) | Place AHU in Unoccupied Mode Confirm occupancy schedule matches drawing schedule | <ul style="list-style-type: none"> a. OA damper closes b. RA damper opens c. EA damper closes d. Condensing unit is disabled e. Heating water valve is closed f. Supply fans are off g. Return fans are off h. Interlocked Exhaust Fan is off i. Preheat coil pumps off | | |
| 3) | While in unoccupied mode, lower unoccupied setpoint below current space temp Record Space Temperature Set-point prior to test: Expected: 10F above occupied set-point | <ul style="list-style-type: none"> a. OA damper is closed b. RA damper is open c. EA damper is closed d. SF starts and maintains static pressure set point. Maximum cfm is limited to maximum return fan airflow. e. RF starts and maintains an offset of 0 cfm f. Condensing unit is enabled and compressors cycle as necessary to maintain discharge air temperature set point (55F) g. When all space temperature drops to unoccupied setpoint, AHU shuts down | | |
| 4) | While in unoccupied mode, increase unoccupied setpoint above current space temp Record Space Temperature Set-point prior to test: Expected: 10F below occupied set-point | <ul style="list-style-type: none"> a. OA damper is closed b. RA damper is open c. EA damper is closed d. SF starts e. RF starts f. HW valve modulates to maintain discharge air temperature (85F) g. Preheat coil pump starts h. When all space temperatures increase above unoccupied setpoint, AHU shuts down | | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|---|---|-----------------------------|---------------|
| 5) | <p>While in unoccupied mode, place unit in economizer mode by changing outside air temperature lower than return air temperature</p> <p>Release all overrides when step is complete</p> | <ul style="list-style-type: none"> a. OA damper opens b. EA damper opens c. RA damper is closed d. ER wheel is off e. Condensing unit and hot water valves are under control | | |
| 6) | <p>Verify through trend data Heating Optimum Startup and Cooling Optimum Startup.</p> | <ul style="list-style-type: none"> a. In heating season, DDC determines minimum runtime to warm spaces to set point when space becomes occupied. When computed start time is reached, AHU discharge air temperature is maintained at set point of 85F until all temperatures exceed a set point of 68F. Then FMCS switches to occupied control. b. In cooling season, DDC determines minimum runtime to cool spaces to set point when space becomes occupied. When computed start time is reached, AHU discharge air temperature is maintained at a set point of 55F until all temperatures are less than a set point of 75F. Then FMCS switches to occupied control. | | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|----------------------------|---|-----------------------------|---------------|
| 7) | Place AHU in occupied mode | <ul style="list-style-type: none"> a. OA damper opens b. When OA damper is 100% open, SF is enabled c. When SF has started, EA damper opens d. RF starts e. Interlocked EFs start f. SF modulates to maintain static pressure set point g. RF modulates to maintain airflow offset h. Duct static pressure resets to maintain at least one supply TAB damper 95% open | | |

B. Fan Speed Control

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|--|---|---|---------------|
| 1) | <p>Increase supply static pressure set-point</p> <p>Record Supply Static Pressure Set-point prior to test:</p> | <ul style="list-style-type: none"> a. Supply fan speed increases to maintain static pressure setpoint b. Return fan speed modulates to maintain airflow offset | <p>Static pressure set point:</p> <p>SF speed:</p> <p>Static pressure:</p> <p>RF speed:</p> <p>Offset set point:</p> <p>Offset:</p> | |
| 2) | <p>Decrease supply static pressure set-point</p> <p>When step is complete release all overrides</p> | <ul style="list-style-type: none"> a. Supply fan speed decreases to maintain static pressure set point b. Return fan speed modulates to maintain airflow offset | <p>Static pressure set point:</p> <p>SF speed:</p> <p>Static pressure:</p> <p>RF speed:</p> <p>Offset set point:</p> <p>Offset:</p> | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|--|---|---|---------------|
| 3) | <p>Switch user toggle to Static Pressure Reset</p> <p>Override (1) VAV boxes served by AHU above 95% open, to simulate a need for Static Pressure Reset Control</p> <p>Record the Static Pressure Reset Allowable Range:</p> | <ul style="list-style-type: none"> a. After a delay, the static pressure setpoint will increase by 0.06" wg b. Supply fan speed increases to maintain setpoint c. Return fan speed increases to track maintain offset d. After 2 additional minutes, supply static pressure setpoint increases by another 0.06" e. Supply fan speed increases to maintain setpoint f. Return fan speed increases to track maintain offset | <p>Supply Static Pressure Setpoint Prior to test:</p> <p>Supply SP Set-point/Actual after 2 min.:</p> <p>Supply Fan(s) VFD speed:</p> <p>Return Fan(s) CFM/VFD Speed:</p> <p>Supply SP Set-point/Actual after 4 min.:</p> <p>Supply Fan(s) VFD speed:</p> <p>Return Fan(s) CFM/VFD Speed:</p> | |
| 4) | <p>Override all VAV boxes served by AHU below 80% open.</p> | <ul style="list-style-type: none"> a. After delay, static pressure setpoint decreases by 0.04" b. Supply fan speed decreases to maintain setpoint c. Return fan speed decreases to track supply fan d. After 2 additional minutes, static pressure setpoint decreases by another 0.04" e. Supply fan speed decreases to maintain setpoint f. Return fan speed decreases to track supply fan | <p>Supply Static Pressure Setpoint Prior to test:</p> <p>Supply SP Set-point/Actual after 2 min.:</p> <p>Supply Fan(s) VFD speed:</p> <p>Return Fan(s) CFM/VFD Speed:</p> <p>Supply SP Set-point/Actual after 4 min.:</p> <p>Supply Fan(s) VFD speed:</p> <p>Return Fan(s) CFM/VFD Speed:</p> | |
| 5) | <p>Release all overrides</p> | | | |

C. Temperature Control

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|---|--|---|---------------|
| 1) | Place unit in economizer mode. Override outside air temperature below return air temperature | <ul style="list-style-type: none"> a. Return air damper is closed b. Outside air damper is 100% open c. Exhaust air damper is 100% open d. ER wheel bypass dampers are 100% open e. ER wheel is off | OAT: RAT: RA damper: OA damper: EA damper: OA bypass damper: EA bypass damper: ER wheel status: | |
| 2) | Override discharge air temperature set point below discharge air temperature OAT is below RAT (from previous step) | <ul style="list-style-type: none"> a. ER wheel is off b. ER wheel bypass dampers are 100% open c. RA damper is closed d. OA damper is 100% open e. Condensing unit compressors stage on to maintain DAT set point | DAT set point: DAT: ER wheel: OA bypass damper: EA bypass damper: RA damper: OA damper: ACC-1: ACC-2: ACC-3: ACC-4: | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|--|---|--|---------------|
| 3) | Increase cooling demand by lowering discharge air temperature set point | a. Condensing unit compressors stage on to maintain DAT set point | DAT set point: DAT: ACC-1: ACC-2: ACC-3: ACC-4: | |
| 4) | <p>Override Outside Air Temperature above Return Air Temperature</p> <p>Discharge air temperature set point is below Discharge Air temperature (from previous step)</p> <p>Release overrides when step is complete</p> | <p>a. Outside air damper and return air damper modulate to minimum scheduled cfm</p> <p>b. ER wheel is enabled</p> <p>c. Bypass dampers are closed</p> <p>d. Condensing unit compressors stage on to maintain DAT set point</p> | <p>OAT:</p> <p>RAT:</p> <p>DAT sp:</p> <p>DAT:</p> <p>OA damper:</p> <p>RA damper:</p> <p>OA airflow:</p> <p>Scheduled cfm:</p> <p>ER wheel speed:</p> <p>OA bypass damper:</p> <p>EA bypass damper:</p> <p>ACC-1:</p> <p>ACC-2:</p> <p>ACC-3:</p> <p>ACC-4:</p> | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|--|--|---|---------------|
| 5) | Override Discharge air temperature set point above Discharge Air Temperature | <ul style="list-style-type: none"> a. Outside air damper and return air damper modulate to minimum scheduled cfm b. ER wheel is enabled c. Bypass dampers modulate to maintain DAT set point d. After bypass damper is closed, heating valve modulates open. | DAT sp: DAT: OA airflow: Scheduled cfm: ER wheel speed: OA bypass damper: EA bypass damper: HW valve: | |
| 6) | While energy recovery wheel is running, override exhaust air temperature downstream of the ER wheel below 38 deg. Or increase set point above actual exhaust air temperature | <ul style="list-style-type: none"> a. Energy recovery wheel speed slows to maintain temperature above set point or until wheel stops b. Bypass dampers are fully closed | ER wheel speed: OA bypass damper: EA bypass damper: | |
| 7) | Switch user toggle to Discharge Air Temperature Reset Override all VAV boxes served by AHU below 80% open, to simulate a need for DAT Reset Control. Record the Discharge Air Temperature Reset Allowable Range (should be 55 – 60 deg): | <ul style="list-style-type: none"> a. After a 10-minute delay, the DAT setpoint will increase by 1° b. Chilled Water Valve modulates closed to maintain DAT set point c. After 10 additional minutes, DAT setpoint will increase by another 1° Chilled Water Valve modulates closed to maintain DAT set point | DAT Set-point Prior to test: DAT Set-point/Actual after reset.: CW Valve: DAT Set-point/Actual after second reset.: CW Valve: | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|---|---|---|---------------|
| 8) | Override (1) VAV box served by AHU above 90% open. | a. After 10 min delay, DAT setpoint decreases by 1° b. Chilled water valve modulates open to maintain DAT set point c. After 10 additional minutes, DAT setpoint decreases by another 1° d. Chilled water valve modulates open to maintain DAT set point | DAT Set-point Prior to test: DAT Set-point/Actual after reset.: CW Valve: DAT Set-point/Actual after second reset.: CW Valve: | |
| 9) | Override Outside Air Temperature above 54 deg F | a. Preheat coil pump is disabled b. | | |
| 10) | Override OAT below 38 deg. Override Discharge Air Temperature set point so it is satisfied. | a. HW valve is closed b. Preheat pump is on | OAT: DAT sp: DAT: HW valve: Ph pump: | |
| 11) | Override OAT below 38 deg. Increase Discharge Air Temperature set point above DAT Release overrides when step is complete. | a. HW valve modulates to maintain DAT set point b. Preheat pump is on continuously | OAT: DAT sp: DAT: HW valve: Ph pump: | |
| 12) | Override return air humidity greater than 60% | a. DAT resets to 55° until return air humidity is 55% | RA humidity: DAT set point: DAT: | |

D. Alarms and Safeties

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|---|--|---|---------------|
| 1) | <p><u>Freeze Stat Safety</u> With the unit running, adjust the freeze stat set point to cause the freeze stat to trip or simulate a local cold spot on the sensor.</p> <p>Record Freeze Stat Set-point, prior to test (Expected to be 34°F, adj.):</p> | <p>a. Supply Fans stop b. Return Fans stop c. OA Damper closes 100% d. RA Damper Opens e. Pre-heat Coil Control Valve opens f. Condensing unit is disabled g. Alarm is generated at BAS h. Low limit switch is wired to a dedicated remote trip/reset circuit, requiring manual reset.</p> | <p>Supply Fan Status: Return Fan Status: OA Damper: Return Air Damper: Relief Air Damper: PH Coil valve: ACCU: ER wheel: Preheat Coil Circ pump: Alarm:</p> | |
| 2) | <p><u>Supply High Static Pressure Safety</u> With the unit running, adjust the supply fan high static pressure switch to cause the switch to trip.</p> <p>Record High Static Pressure Switch Set-point, prior to test (Expected to be 3.0" w.g., adj.):</p> | <p>a. AHU shuts down and shut down process is similar to results in step above except valves close and pump is off. b. Alarm is generated at BAS c. Pressure switch requires manual reset to allow unit to re-start</p> | <p>Supply Fan Status: Return Fan Status: OA Damper: Return Air Damper: Relief Air Damper: PH Coil valve: ACCU: ER wheel: Preheat Coil Circ pump: Alarm:</p> | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|---|---|---|---------------|
| 3) | <p><u>Return Low Static Suction Safety</u> With the unit running, adjust the return fan low suction static pressure switch to cause the switch to trip. Record Low Suction Switch Set-point, prior to test (Expected to be -3.0" w.g., adj.):</p> | <p>a. AHU shuts down and shut down process is similar to results in step above. b. Alarm is generated at BAS c. Pressure switch requires manual reset to allow unit to re-start</p> | <p>Supply Fan Status: Return Fan Status: OA Damper: Return Air Damper: Relief Air Damper: PH Coil valve: ACCU: ER wheel: Preheat Coil Circ pump: Alarm:</p> | |
| 4) | <p><u>Supply Fan Failure/VFD Fault</u> With unit running, simulate a VFD failure by shutting off Supply Fan VFD</p> | <p>a. AHU shuts down b. Alarm is generated at BAS</p> | <p>Supply Fan Status: Return Fan Status: OA Damper: Return Air Damper: Relief Air Damper: PH Coil valve: ACCU: ER wheel: Preheat Coil Circ pump: Alarm:</p> | |

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|--|---|---|---------------|
| 5) | <u>Enthalpy Wheel VFD failure</u> While enthalpy wheel is called to run, simulate a failure by shutting off VFD | a. Wheel stops b. AHU continues to run c. Alarm is generated at BAS | Supply Fan Status: Return Fan Status: OA Damper: Return Air Damper: Relief Air Damper: PH Coil valve: ACCU: ER wheel: Preheat Coil Circ pump: Alarm: | |
| 6) | <u>High Discharge Air Temperature</u> Increase discharge air temperature 5 deg above set point | a. Alarm is generated at BAS | | |
| 7) | <u>Low Discharge Air Temperature</u> Lower discharge air temperature 5 deg below set point | a. Alarm is generated at BAS | | |

E. Final Inspections

| Step No. | Test Procedure | Expected Results | Remarks/ Actual Response | Pass Y / N |
|----------|--|--|-----------------------------|---------------|
| 1) | Labeling is complete | a. All equipment has appropriate label b. All related piping is properly labeled. | | |
| 2) | All overrides have been restored to original positions | | | |

--END OF TEST--



February 5, 2021



Rockford Public Library
214 North Church Street
Rockford, Illinois 61101

Attn: Mr. Anthony Cortez

Re: Addendum Letter
New Rockford Public Library
215 North Wyman Street
Rockford, Illinois
Terracon Project No. 19185012

Dear Mr. Cortez:

Terracon performed a subsurface exploration and prepared a geotechnical engineering report for the referenced project (Terracon Project No. 19185012, report dated April 22, 2019). Terracon understands that the project was delayed, but it is now planned for design and construction. We understand that the project information described in our report remains the same since our geotechnical report was prepared, with the following exception:

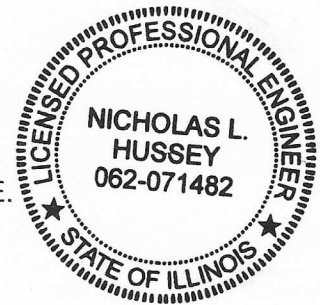
The design lower level design grade has been changed from 704 feet to 704.5 feet. Based on the new elevation, we understand that the design includes approximately 2 feet of compacted CA-06 below the slab underlain with a geotextile fabric over the remediation backfill consisting of CA-07.

The geotechnical recommendations and parameters provided in our report remain valid, and our report can be used for design of the project.

Sincerely,
Terracon Consultants, Inc.

Doug Waldeier, P.E.
Senior Engineer

Nicholas L Hussey, P.E.
Project Engineer



May 29, 2019



Rockford Public Library
214 North Church Street
Rockford, Illinois 61101

Attn: Mr. Anthony Cortez

Re: Addendum Letter
New Rockford Public Library
215 North Wyman Street
Rockford, Illinois
Terracon Project No. 19185012

Dear Mr. Cortez:

Terracon previously performed Geotechnical Services and submitted a report dated April 22, 2019. During preparation of our report, we were informed that portions of the site would be remediated by removing some of the overlying fills and replacing them with a crushed stone aggregate. Additional information concerning the remediation process has been provided. Specifically, we understand that the removal of environmentally impacted material will extend to depths of as much as 12 feet below design subgrade elevation, and the excavations are to be backfilled with “clean” crushed stone (CA-07) to be capped with crushed stone with fines (CA-06).

Terracon’s original report recommended that a minimum of 2 feet of structural fill be present at the finished subgrade elevation below slabs and pavement. Upon review of the proposed backfill procedure noted above, Terracon recommends that the depth of CA-06 capping stone fill be extended to at least 1/3 of the total excavation depth, with a minimum thickness of two feet. For example, if the overexcavation depth is 9 feet, the CA-06 capping stone layer should extend to a depth of at least 3 feet below the design subgrade elevation.

We appreciate the opportunity to be of further service to you on this project. This Addendum Report should be considered a part of our original Report (Terracon Project No. 19185012 dated 4/22/19), prepared for this project, and is subject to the same qualifications and conditions outlined in that report. Please contact us if you have any questions concerning this Addendum Letter or the Geotechnical Engineering Report.

Sincerely,

Terracon Consultants, Inc.

Doug Waldeier, P.E.
Office Manager

A handwritten signature in black ink, appearing to read 'Paul A. Tarvin', is written over a light gray circular background.

Paul A. Tarvin, P.E.
Regional Geotechnical Manager



Geotechnical Engineering Report

**New Rockford Public Library
Rockford, Illinois**

April 22, 2019

Terracon Project No. 19185012 - Revised

Prepared for:

Rockford Public Library
Rockford, Illinois

Prepared by:

Terracon Consultants, Inc.
Rockford, Illinois



April 22, 2019

Rockford Public Library
214 North Church Street
Rockford, Illinois 61101



Attn: Mr. Anthony Cortez

Re: Geotechnical Engineering Report
New Rockford Public Library
215 North Wyman Street
Rockford, Illinois
Terracon Project No. 19185012 - Revised

Dear Mr. Cortez:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. P19185018 dated March 1, 2018. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and floor slabs for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Nicholas L. Hussey, P.E. (IA)
Project Engineer

Paul A. Tarvin, P.E.
Regional Geotechnical Manager



REPORT TOPICS

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Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

New Rockford Public Library

215 North Wyman Street

Rockford, Illinois

Terracon Project No. 19185012 - Revised

April 22, 2019

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed public library to be located at 215 North Wyman Street in Rockford, Illinois. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification per IBC
- Lateral earth pressures

The geotechnical engineering Scope of Services for this project included the advancement of two test borings to depths of approximately 100 feet below existing site grades.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

| Item | Description |
|-----------------------|---|
| Parcel Information | The project is located at 215 North Wyman Street in Rockford, Illinois. See Site Location |
| Existing Improvements | None – previous library has been demolished |
| Current Ground Cover | Bare earth/fill material |
| Existing Topography | Post-demolition elevation of about 704 feet across the building pad |

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal, and our current understanding of the project conditions is as follows:

| Item | Description |
|---------------------------------|--|
| Proposed Structure | The project includes a new three-story public library with a gross area of about 68,000 square feet on three levels with a lower level for open parking. |
| Building Construction | Cast in place concrete for lower level parking area with slab on metal deck for upper levels |
| Finished Floor Elevation | Lower level finished floor will be near 704 feet, with 18 to 20 feet floor heights for the main and upper levels. |
| Maximum Loads | <ul style="list-style-type: none"> ■ Columns: 500 kips ■ Walls: 10 kips per linear foot (klf) ■ Slabs: 200 pounds per square foot (psf) |
| Below Grade Structures | Lower level open parking slab-on-grade |

GEOTECHNICAL CHARACTERIZATION

Subsurface Profile

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

| Model Layer | Layer Name | General Description |
|-------------|-----------------|--|
| 1 | Fill | Lean clay and sand, some hydrocarbon odors |
| 2 | Clay | Lean clay and sand with clay |
| 3 | Sand and Gravel | Sand and gravel, grading from fine to medium to coarse |
| 4 | Clay | Lean clay |
| 5 | Sand | Fine to medium sand |

Groundwater Conditions

The boreholes were observed while drilling and after completion for the presence and level of groundwater. Groundwater was not encountered in the borings prior to initiating wash bore procedures, but is expected to be at or slightly above the level of the adjacent Rock River, which based on the river gauge at Auburn Street is about 706 feet.

Groundwater level fluctuations occur due to seasonal variations in the Rock River stage, amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

Existing, uncontrolled fill is present at this site to depths ranging from about 12 to 17 feet below existing grades, and could be present to greater depths elsewhere on the site. Based on the composition and SPT N-values in the fill zone, it is our opinion that the fill was not placed as structural fill and is not suitable for direct support of shallow foundations. We anticipate that deep foundations such as driven pipe piles or H-piles will be used to support the new public library building. The **Deep Foundations** section provides design parameters and construction considerations for driven piles at this site.

As an alternative to installing driven piles to support the library building, the building could be supported using shallow foundations after complete removal and replacement of the existing fill materials and soft clay soils directly below the fill. We anticipate, however, that this option will be difficult to implement and could pose risk for greater than typical total and differential settlements. The difficulties in implementing this alternative are based the following:

- Based on the boring logs, the environmentally impacted fills extend to depths of about 10 to 15 feet (or more) below existing grades. Furthermore, there are softer clays that were encountered in boring B-100 that will also need to be removed. The fill materials are granular in composition, so the excavation sides will need to be sloped per OSHA requirements, or temporary shoring (sheet piling) will be required. In addition, there is shallow groundwater present, which complicates advancing the excavations to the required depths. The surrounding area is developed with structures and active roadways, and is adjacent to the Rock River, such that we anticipate that sloped excavations will not be feasible within the constraints of the project site. Therefore, a temporary earth retention system will most likely be required to extend the excavation to the required depths, and the site will need to be adequately dewatered before the excavations can be advanced.

- The temporary earth retention system will most likely consist of steel sheeting. Steel sheeting will be an effective groundwater cutoff to the lateral flow of water, but will need to extend to a sufficient depth to not only provide sufficient toe resistance, but also to minimize the potential for upward hydraulic gradients causing basal heave or a “quick condition.” Depending on the depth of excavation required, the steel sheeting will also likely require at least one, if not multiple, levels of anchors or internal bracing. If soil anchors are used, it will not be possible to remove the sheeting after the remediation is complete.
- Shallow groundwater conditions are present at the site. Based on the Army Corps of Engineer river gauge at Auburn Street, the elevation of the Rock River is about 700 feet. As mentioned previously, excavations of impacted soils below about 700 feet would require dewatering. As the existing fill materials are primarily granular, this would require significant dewatering equipment running constantly to maintain a dry excavation. Furthermore, groundwater is likely environmentally impacted, such that any effluent would need to be treated before removing off site.
- The existing dock wall adjacent to the Rock River may have a system of tieback anchors providing lateral stability. The anchors may extend to a deadman system behind the wall or consist of drilled and grouted soil anchors or helical piers. Regardless, any excavations behind the wall will need to avoid impacting the tiebacks and/or reducing the support provided by the anchors. Disruptions of the tiebacks could potentially result in failure of the dock wall.
- The existing fill materials are environmentally impacted and will need to be disposed of at a suitable landfill. Additional fees will apply based on the amount of material transported to the landfill, as well as the particular contaminants in the fill material.

While technically feasible, we anticipate that the use of shallow spread foundations poses significant risks to the Owner, such that deep foundation support of the structure is preferred to reduce the risk of excessive total and differential settlement of the building.

The **General Comments** section provides an understanding of the report limitations.

SITE PREPARATION

Site preparation is anticipated to include foundation excavations and general grading for floor slabs and pavements. The following sections provide recommendations for use in the preparation of specifications for the work.

Existing Fill

As noted in **Geotechnical Characterization**, the borings encountered existing fill to depths ranging from about 12 to 17 feet below existing grades. Based on the variability in the SPT blow counts, material composition, and the moisture contents, it is our opinion that the fill was not

placed as structural fill with consistent control of moisture and density. If the library accepts an increased risk of poor slab/pavement performance in exchange for reduced initial construction costs, stable portions of the existing fill could be left in place below slabs and pavements. However, at a minimum, we recommend that at least 2 feet of structural fill be present at the finished subgrade elevation below slabs and pavements. The onsite materials could potentially be reused for structural fill after moisture conditioning and recompaction.

Support of floor slabs and pavements on or above existing fill soils is discussed in this report in the **Floor Slabs** and **Pavements** sections. However, even with the recommended construction procedures, there is inherent risk for the owner that compressible fill or unsuitable material, within or buried by the fill will, not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill, but can be reduced by following the recommendations contained in this report.

Subgrade Evaluation and Stabilization

The near-surface fill materials and soils could become unstable with typical earthwork and construction traffic, especially after precipitation events. Effective site drainage should be completed early in the construction sequence and maintained after construction to avoid potential strength and/or stability issues. If possible, the grading should be performed during the warmer and drier time of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist.

After rough grade has been established, the exposed subgrade should be proofrolled by the contractor and tested by Terracon. Obviously unstable subgrades should not be proofrolled to reduce disturbance of the subgrade soils, until after these soils have been stabilized. Proofrolling could be accomplished by using heavy, rubber-tired construction equipment or a tandem-axle dump truck (loaded to a gross weight of about 25 tons). This surficial proofroll would help provide a stable base for the compaction of new structural fill, and delineate low density, soft, or disturbed areas that may exist below subgrade level. Soft, low density, and disturbed areas should be scarified, moisture conditioned, and recompacted or replaced with approved structural fill.

EARTHWORK

Fill Material Types

Earthen materials used for structural fill should meet the following material property requirements:

| Fill Type ¹ | USCS Classification | Acceptable Locations for Placement |
|-------------------------------|----------------------------|--|
| On-site soils | CL, CL/CH, CH | Portions of the on-site soils typically appear suitable for reuse as fill. |

| Fill Type ¹ | USCS Classification | Acceptable Locations for Placement |
|--------------------------------------|----------------------------------|---|
| Low plasticity cohesive ² | CL-ML, CL, ML | General site grading fill More than 6 inches below finished subgrade |
| Granular | GW, GP, GM, GC SW, SP, SM, SC | General site grading fill Below foundations |
| Unsuitable | CH, CL/CH, MH, OL, OH, PT | Green (non-structural) locations |

1. Structural fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation prior to use on this site.
2. Suitable low plasticity cohesive soil would have a liquid limit less than 45 and a plasticity index of less than 23.

Fill Compaction Requirements

Structural fill should meet the following compaction requirements.

| Item | Description |
|---|--|
| Maximum Fill Lift Thickness | 9 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used |
| Minimum Compaction Requirements ^{1, 2, 3} | 95% below foundations and within 1 foot of finished pavement subgrade 92% above foundations, below floor slabs, and more than 1 foot below finished pavement subgrade |
| Moisture Content Range ¹ | Low plasticity cohesive: -2% to +3% High plasticity cohesive: 0 to +4% Granular: -3% to +3% |

1. As determined by the modified Proctor test (ASTM D 1557).
2. Lean to fat clay and fat clay should not be compacted to more than 100 percent of modified Proctor maximum dry density.
3. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254).

Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roof should have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the building.

Exposed ground should be sloped and maintained at a minimum 5% away from the building for at least 10 feet beyond the perimeter of the building. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure's maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations.

Where granular soils are encountered, excavations will likely require shoring or bracing to maintain stability and reduce the lateral extent of the excavations. Sloped excavations could be considered if the lateral extent would not impact adjacent utilities, pavements or structures. Where poorly compacted variable fill materials are encountered, flatter slopes than those required by OSHA could be required to maintain the stability of the excavation(s). The stability of the excavation slopes should be reviewed continuously by qualified personnel.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of existing fill, proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content. In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer’s evaluation of subsurface conditions, including assessing variations and associated design changes.

DEEP FOUNDATIONS

Driven Pile Design Parameters

We recommend that driven piles be extended through the upper fill and soft clay deposits and supported a sufficient depth into the underlying alluvial soils encountered below a depth of approximately 60 to 70 feet. Recommendations for the design of driven pile foundations are provided below.

Static Axial Capacity

Piles derive their load bearing through a combination of end bearing and skin friction; therefore, piles driven to greater depths will generally develop higher capacities. The static methods detailed in the 2014 American Association of State and Highway Transportation (AASHTO) Load and Resistance Factor Design Manual were used to estimate end bearing and skin friction resistances for the soil types encountered in the borings. A summary of the recommended unit end bearing and skin frictional resistances with general soil type and relative depth is presented below:

**Recommended Unit End Bearing and Skin
 Frictional Resistance with Depth – Displacement Piles**

| Soil Type | Depth Range ¹ (ft) | Net Allowable End Bearing Resistance ^{2,3} (psf) | Allowable Compression Unit Side Friction ^{2,3} (psf) | Allowable Uplift Unit Side Friction ^{2,3} (psf) |
|---|----------------------------------|--|--|---|
| Urban Fill | Above 17 | -- | 300 | 200 |
| Lean Clay, Loose to Medium Dense Sand | 17 to 60 | -- | 400 | 270 |
| | 60 to 70 | -- | 750 ⁴ | 500 ⁴ |

| | | | | |
|--------------------------|-----------|--------|--------------------|------------------|
| Dense to Very Dense Sand | 70 to 100 | 20,000 | 1,250 ⁴ | 850 ⁴ |
|--------------------------|-----------|--------|--------------------|------------------|

1. Values are based on the typical depths encountered across the site. The first value represents the top of the stratum and the second value represents the bottom of the stratum. Refer to the individual boring logs for the layer depth and elevation range at specific locations.
2. Neglect soil resistance in the upper 5 feet due to frost action and construction disturbance.
3. End bearing values includes a safety factor of 2.0; compression side friction values include a safety factor of 2.0; uplift side friction values have been reduced by a factor of 1/3 from the allowable compression side resistance values.
4. Side friction values include the effect of pile setup in estuarine, alluvium and glacial till hardpan layers.

**Recommended Unit End Bearing and Skin
Frictional Resistance with Depth – Non-Displacement Piles (i.e., H-piles)**

| Soil Type | Depth Range ¹ (ft) | Net Allowable End Bearing Resistance ^{2,3} (psf) | Allowable Compression Unit Side Friction ^{2,3} (psf) | Allowable Uplift Unit Side Friction ^{2,3} (psf) |
|--|----------------------------------|--|--|---|
| Urban Fill | Above 17 | -- | 250 | 150 |
| Lean Clay and Loose to Medium Dense Sand | 17 to 60 | -- | 325 | 220 |
| Dense to Very Dense Sand | 60 to 70 | -- | 450 ⁴ | 300 ⁴ |
| | 70 to 100 | 16,000 | 850 ⁴ | 550 ⁴ |

1. Values are based on the typical depths encountered across the site. The first value represents the top of the stratum and the second value represents the bottom of the stratum. Refer to the individual boring logs for the layer depth and elevation range at specific locations.
2. Neglect soil resistance in the upper 5 feet due to frost action and construction disturbance.
3. End bearing values includes a safety factor of 2.0; compression side friction values include a safety factor of 2.0; uplift side friction values have been reduced by a factor of 1/3 from the allowable compression side resistance values.
4. Side friction values include the effect of pile setup in estuarine, alluvium and glacial till hardpan layers.

The allowable resistances shown above are based on the static methods described in the 2014 AASHTO LRFD manual using a factor of safety of 2.5 in accordance with the 2002 Wisconsin Enrolled Commercial Building Code, Section 1807, Pier and Pile Foundations for the pile sections identified above. This factor of safety is based on the assumption that the production pile capacities will be dynamically tested in the field with a Pile Driving Analyzer (PDA). If dynamic testing is not performed during construction, then the allowable resistances should be reduced by one-sixth as directed by the code. If a static load test program is utilized, then the design factor of safety could be reduced to 2.0.

Additionally, piles are likely to develop additional capacity through the effect of pile “setup”. Pile setup is typically defined as additional shaft resistance that develops over time after the piles have been driven. Pile setup generally occurs as a result of the following factors: 1) a reduction in excess pore water pressure after driving, 2) a realignment of the soil matrix during the driving operation, and/or 3) closing of the annulus surrounding the pile. Accounting for the increased strength due to pile setup allows the designer to install shallower, more economical piles compared to designing only for static capacity, or the dynamic capacity measured at the end of initial driving. Based on our previous experience, we anticipate that allowable pile setup resistances of 250 to 800 psf in the alluvial deposits can also be used for design of pile foundations for the proposed development. Setup resistance should not be used in the upper fill or soft clay deposits (where encountered). When evaluating for uplift, the setup should be included in resistance calculations. Conservative values for set up have been assumed in the allowable skin frictional resistance values provided in the tables above. Higher allowable skin frictional resistance values may be justified by implementing a dynamic and/or static load test program. Recommendations for a pile load test program are provided in the **Driven Pile Construction Considerations** subsection.

Resistance to uplift will be provided by the dead weight of the pile, superstructure, and the skin friction resistance below the urban fill. Allowable skin friction for uplift resistance are provided in the tables above. These values have been reduced by 1/3 from the allowable skin friction resistance for compressive loads. The recommended setup resistances can also be used to increase the allowable uplift resistance. The recommended setup resistances should be reduced by a factor of 1/3 when evaluating resistance to uplift loads. Frost action beneath pile caps and grade beams can cause uplift loads on the piles. To avoid uplift loads due to frost, exterior (perimeter) pile caps and grade beams within heated portions of the structure should be embedded a minimum of 4 feet below final exterior grade. Pile caps and grade beams within unheated portions of the structure should be embedded a minimum of 5 feet below final exterior grade. There is no recommended minimum tip elevation for uplift, provided that uplift resistance is ignored in the upper 5 feet, and that the piles are embedded a suitable distance in the native bearing soils below the upper fill and organic layers.

The skin friction and end bearing resistance values were estimated for the following pile types: 10.75-inch and 12.75-inch closed-ended, cast-in-place (CIP) pipe piles (steel shell); and HP10x42 and HP12x53 H-piles. The aforementioned pile sizes were selected for analysis because similar pile types and sizes have been used extensively throughout southeast Wisconsin. H-piles may be more suitable for this site due to the presence of underground obstructions within the fill and the potential for occasional cobbles or boulders. Compared to CIP piles, H-piles (i.e., non-displacement piles) are typically more easily driven through compact granular layers and materials with occasional cobbles. However, H-piles are generally more expensive than CIP piles and typically need to be driven to greater depths than comparably sized CIP piles in order to achieve similar capacities. We recommend that an economic analysis be undertaken to evaluate the most cost-effective pile alternative.

Using the unit end bearing, skin friction, and setup resistances presented above, we have calculated estimated allowable capacities for 10.75-inch and 12.75-inch CIP piles and HP10x42 and HP12x53 H-piles driven to depths ranging from 80 to 100 feet below the finished pile cap elevation. The results are presented in the tables below. Allowable capacities for other pile lengths and pile sizes can be calculated using the end bearing, skin frictional, and setup resistances presented above. In all cases, the designer should check that the structural capacity is not exceeded.

Pile penetrations should be expected to vary across the site. This variation could be as much 20 feet or more between individual pile locations depending on where the final pile cap elevations are established. This range is consistent with our experience in the southeast Wisconsin. Terracon should be allowed to review, and revise if necessary, the capacities provided in the table below once the design pile cap elevations are known.

Allowable Static Axial Capacity of Driven CIP Piles

| Pile Dia. (in) | Estimated Average Pile Length (ft) | Estimated Compression Capacity ¹ (tons) | Estimated Uplift Capacity (tons) |
|--------------------|------------------------------------|--|----------------------------------|
| 10.75 ² | 75 | 55 | 35 |
| | 95 | 90 | 60 |
| 12.75 ² | 75 | 70 | 40 |
| | 95 | 110 | 70 |

1. Based on a factor of safety of 2.5 assuming that driving operations are monitored with a Pile Driving Analyzer.
2. Cast-in-place pipe pile with yield stress of 45 ksi; ASTM A252 Grade 3 Steel (common grade of steel used in Milwaukee area).

Allowable Static Axial Capacity of Driven H-piles

| Pile Size ¹ | Estimated Average Pile Length ^{2,3} (ft) | Estimated Compression Capacity ^{2,3} (tons) | Estimated Uplift Capacity (tons) |
|------------------------|---|--|----------------------------------|
| 10x42 | 95 | 75 | 45 |
| 12x53 | 95 | 90 | 55 |
| 14x73 | 95 | 105 | 65 |

1. ASTM A572 Grade 50 Steel (standard for H-piles).
2. End bearing capacity estimated using a partially plugged pile tip with an effective area equal to 0.25 times the square end area (e.g., effective end area of a Hp10x42 pile = 10" x 10" x 0.25 = 0.174 ft²)
3. Based on a factor of safety of 2.5 assuming that driving operations are monitored with a Pile Driving Analyzer.

Driven Pile Lateral Loading

Several methods, including hand solutions and computer programs, are available for calculating the lateral behavior of deep foundations. Most of these methods rely on “key” soil parameters such as soil elastic properties (E and k_s), strain at 50 percent of the principal stress difference (ϵ_{50}), undrained shear strength (c), angle of internal friction (ϕ), and load-deflection (p - y) criteria. The p - y criteria, which are commonly used to model soil reaction, were developed from instrumented load tests and are generally considered to provide the best model of soil behavior under short term lateral loading. COM624 and LPILE series programs use the p - y criteria and are widely used in lateral load analysis. The input parameters for the COM624 and LPILE series programs are presented in the following table.

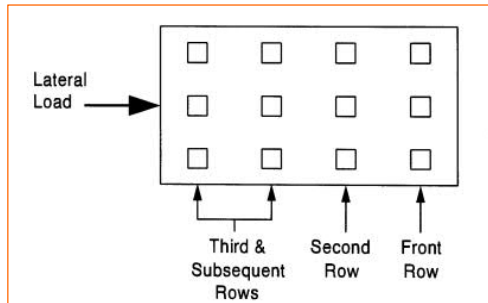
Lateral Soil Properties for Use with LPILE Software

| Soil Type | Depth Range ¹ (ft) | LPILE Material Type | Effective Unit Weight ² (pcf) | Total Friction Angle (deg.) | Cohesion (psf) | Modulus of Horizontal Reaction, k (pci) | Soil Strain at 50% Stress, ϵ_{50} |
|---|----------------------------------|---------------------------|---|--------------------------------------|-------------------|--|---|
| Urban Fill | Above 4 | Sand | 120 | 30 | -- | 25 | -- |
| Urban Fill | 4 to 17 | Sand | 60 | 30 | -- | 25 | -- |
| Lean Clay and Loose to Medium Dense Sand | 17 to 60 | Sand | 60 | 32 | - | 40 | - |
| Alluvium | 60 to 70 | Sand | 55 | 34 | -- | 60 | -- |
| | 70 to 100 | Sand | 60 | 38 | -- | 125 | -- |

1. Values are based on the typical depths encountered across the site. The first value represents the top of the stratum and the second value represents the bottom of the stratum. Refer to the individual boring logs for the layer depth and elevation range at specific locations.
2. The groundwater table is estimated to be at an approximate depth of 4 feet, but should be expected to vary across the site.

If sufficient lateral resistance cannot be developed with vertical production piles, then additional resistance can be mobilized by driving batter piles. In this case, the lateral capacity can be determined by multiplying the allowable vertical capacity by the sine of the angle of the batter pile from vertical.

When piles are used in groups, the lateral capacities of the piles in the second, third, and subsequent rows of the group should be reduced as compared to the capacity of a single, independent pile. Guidance for applying p -multiplier factors to the p values in the p - y curves for each row of pile foundations within a pile group are as follows:



- Front row: $P_m = 0.8$;
- Second row: $P_m = 0.4$
- Third and subsequent row: $P_m = 0.3$.

The load capacities provided herein are based on the stresses induced in the supporting soil strata. The structural capacity of the piles should be checked to assure they can safely accommodate the combined stresses induced by axial and lateral forces. Lateral deflections of piles should be evaluated using an appropriate analysis method, and will depend upon the pile's diameter, length, configuration, stiffness and "fixed head" or "free head" condition. We can provide additional analyses and estimates of lateral deflections for specific loading conditions upon request. The load-carrying capacity of piles may be increased by increasing the section (for H-piles), diameter (for pipe piles) and/or length.

Driven Pile Construction Considerations

A drivability analysis should be performed once the production hammer type and design pile section are known to confirm that the piles will not be overstressed during installation. The size of the pile driving hammer should be carefully selected so as not to cause structural damage to the pile during driving.

The piles should be driven to a predetermined driving resistance, rather than to a pre-determined depth. Driving depths are anticipated to vary significantly across the site. The driving criteria should be developed using a Wave Equation Analysis that appropriately models the soil-pile—hammer system used. Based on the results of the static analysis, we anticipate that typical embedment depths will range from 70 to 85 feet depending on the desired capacity and final cap elevations.

We recommend that dynamic testing (i.e., Pile Driving Analyzer) be performed on a series of indicator piles, preferably at both the end of initial driving and several days after test pile or production pile driving to measure pile set-up. If the capacity variation with time is not considered when establishing pile driving criteria, it is likely that the resulting conservative criteria will result in production piles being driven deeper than necessary. We recommend that at least 2% percent of the production piles (i.e., indicator piles) be monitored with a pile dynamic analyzer (PDA) to determine the dynamic pile capacity at the end of initial drive and subsequent re-strikes, and the

approximate distribution of skin friction along the length of the shaft, as well as the end bearing resistance. The indicator piles should be re-struck with the pile hammer several days or weeks after initial drive and monitored with the PDA to evaluate the incremental increase in capacity with time due to setup. The indicator piles should be driven in production pile locations, if possible, so the piles can be incorporated into the final structure.

The time duration between initial driving and re-striking can have a significant impact on the measured capacities. The pile capacity will tend to continue to increase over time (even up to one year after driving); therefore, it is advantageous to wait as long as possible before performing the re-strikes in order to maximize the measured capacity. At a minimum, we recommend the piles be re-struck no sooner than seven days following initial driving to evaluate at least a minimal amount of set-up. If the required design capacity is not achieved with a 7-day re-strike, then we recommend one of two options: 1) if possible, wait a minimum of seven additional days and re-strike the pile again in order to allow for more set up to occur, or 2) if the schedule does not allow for additional wait time, then the design pile capacity should be adjusted to reflect the lower measured value. Based on our experience in southeast Wisconsin, we anticipate that the pile types discussed previously will achieve the recommended design capacities with sufficient set up time (roughly 7 to 14 days); therefore, the preferable option is to allow more time and re-strike the piles again rather than re-designing for a lower allowable capacity in the unlikely event the initial re-strikes indicates a lower than expected allowable capacity.

Depending on the number of piles required for the structure, it may also be cost effective to perform a static load test on an indicator pile, in addition to the recommended dynamic testing. A static load test will allow for the use of a factor of safety of 2.0 (versus a minimum factor of safety of 2.5 for dynamic testing only), which could result in a reduction in the number of piles or allow the use of a smaller pile section.

Pile damage can occur from hard driving in dense sand layers or from cobbles and boulders. Although the borings did not indicate any continuous layers of cobbles or boulders in the overburden soils, layers of medium dense to dense sand and gravel with occasional cobbles were encountered. As a result, CIP piles should be driven closed ended. The end plates welded to the pile tips prior to driving must not exceed the pile outside diameter by more than ¼ inch. Pile splices should develop the net section of the pile in compression, tension, shear and bending. Prefabricated splices should be detailed on the project plans and be proven to develop the full section of the pile. We recommend that a sleeve/ring splice be utilized, if possible. Driving shoes and/or cut pile tips should not be allowed.

Typically, piles are installed in pairs or groups of three for stability. Pile caps should be proportioned so that the minimum center-to-center pile spacing is not less than three equivalent pile diameters to minimize group effects. Piles should project a minimum of 6 inches into the pile cap after all material damaged during driving is removed. Piles which are split or otherwise damaged, or more than 2% off plumb, should be assigned a reduced capacity, or supplemented

with additional piles. CIP piles should be filled with minimum 3,000 pounds per square inch (psi) strength concrete after internal inspection and acceptance.

The installation of production piles and indicator piles should be monitored by a qualified Terracon Geotechnical Engineer or his representative. Each pile should be fully monitored and a pile driving log kept for each pile documenting driving resistances and compliance with the established termination criteria. If a select number of piles are found to be damaged during initial driving, the geotechnical engineer can assign a reduced capacity for that particular pile based upon the skin frictional resistance and anticipated setup along the undamaged length. The structural engineer can then use this information to determine if an additional replacement pile is needed for that particular pile cap. The recommended PDA testing of indicator piles to confirm the design capacities during construction should also be completed by Terracon.

Pile foundations which are designed and constructed in accordance with the preceding recommendations should experience less than ½ inch total settlement after loading has been applied, essentially slightly greater than the elastic compression of the pile. Differential settlements should be less than half of the total settlement.

Existing structures are nearby to the proposed new library building, and we anticipate that subsurface utilities are also present in the vicinity. These structures should be observed prior to pile installation to document their condition. Structures should also be observed during pile installation for indications of movement. Pile driving should be stopped and Terracon contacted if movement or cracking of the existing structures is observed. Monitoring vibration levels during pile driving should be considered, and Terracon can provide these services if requested. Although vibrations from pile driving may be below levels that will cause structural damage, they may be felt by occupants of the adjacent buildings. The potential impact of driving piles at this site should be considered when evaluating this alternative.

SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties encountered at the site and as described on the exploration logs and results, it is our professional opinion that the **Seismic Site Classification is D**. Subsurface explorations at this site were extended to a maximum depth of 100 feet.

FLOOR SLABS

Existing or newly placed fill materials are expected to be encountered at the floor slab subgrade level. These soils should be replaced with at least 2 feet of properly compacted structural fill so the floor slab is supported on at least 18 inches of controlled material where fill is left in place.

Design parameters for floor slabs assume the requirements for **Earthwork** have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the aggregate base beneath the floor slab.

Floor Slab Design Parameters

| Item | Description |
|--|--|
| Floor Slab Support ¹ | Minimum 6 inches of free-draining (less than 6% passing the U.S. No. 200 sieve) crushed aggregate compacted to at least 92% of ASTM D 1557 ^{2, 3} |
| Estimated Modulus of Subgrade Reaction ² | 100 pounds per square inch per inch (psi/in) for point loads |

1. Floor slabs should be structurally independent of building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.
2. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.
3. Free-draining granular material should have less than 5% fines (material passing the No. 200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

Settlement of floor slabs supported on existing fill materials cannot be accurately predicted, but could be larger than normal and result in some cracking. Mitigation measures, as noted in **Existing Fill** within **Earthwork**, are critical to the performance of floor slabs. In addition to the mitigation measures, the floor slab can be stiffened by adding steel reinforcement and/or post-tensioned elements.

Floor Slab Construction Considerations

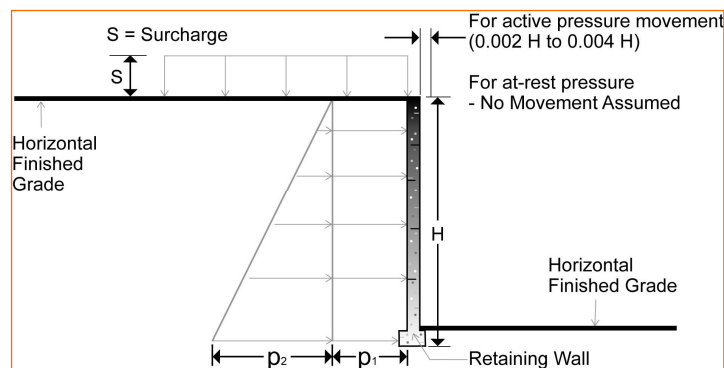
Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed and structural fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

LATERAL EARTH PRESSURES

Design Parameters

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown in the diagram below. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The “at-rest” condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



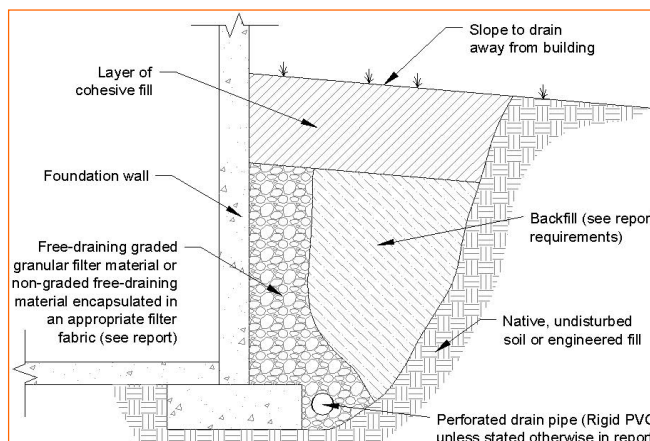
| Lateral Earth Pressure Design Parameters | | | | |
|--|--|---|--|------------------------|
| Earth Pressure Condition ¹ | Coefficient for Backfill Type ² | Surcharge Pressure ^{3, 4, 5} p ₁ (psf) | Effective Fluid Pressures (psf) ^{2, 4, 5} | |
| | | | Unsaturated ⁶ | Submerged ⁶ |
| Active (K _a) | Granular - 0.31 | (0.31)S | (40)H | (80)H |
| At-Rest (K _o) | Granular - 0.47 | 0.47)S | (55)H | (90)H |
| Passive (K _p) | Granular - 3.25 | --- | (390)H | (250)H |

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance.
2. Uniform, horizontal backfill, compacted to at least 92% of the ASTM D 1557 maximum dry density, rendering a maximum unit weight of 120 pcf.
3. Uniform surcharge, where S is surcharge pressure.
4. Loading from heavy compaction equipment is not included.
5. No safety factor is included in these values.
6. To achieve "Unsaturated" conditions, follow guidelines in **Subsurface Drainage for Below-Grade Walls** below. "Submerged" conditions are recommended when drainage behind walls is not incorporated into the design.

Backfill placed against structures should consist of granular soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively.

Subsurface Drainage for Below-Grade Walls

Recommendations for drainage of below grade walls are provided based on the assumption that the walls will be located at or slightly above the water table. A perforated rigid plastic or metal drain line installed behind the base of walls that extend below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5 percent passing the No. 200 sieve, such as IDOT Gradation CA13. The free-draining aggregate should be encapsulated in a filter fabric. The filter fabric should consist of a non-woven geotextile with an Apparent Opening Size (AOS) in the range of 70 to 100. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill, sidewalk or pavement to reduce infiltration of surface water into the drain system.



CORROSIVITY

A series of corrosivity tests were performed on representative samples. These tests consisted of determining the pH and reduction/oxidation (Redox) potential. These properties were measured, and the results are reported in the table below. The test results are provided to assist in determining the type and degree of corrosion protection that may be required.

| Chemical Properties of Soils | | | | |
|------------------------------|--------------|--------------------|------|-------|
| Boring | Sample Depth | Soil Type | pH | Redox |
| | Feet | | | mV |
| B-100 | 18.5 to 20 | Lean clay | 7.67 | -5 |
| B-101 | 18.5 to 20 | Poorly graded sand | 8.25 | +300 |

1. Description of nil means below the detectable limits of the test method.

Numerous publications exist that provide guidance to assess the chemical test results provided in the table above.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we

Geotechnical Engineering Report

New Rockford Public Library ■ Rockford, Illinois

April 22, 2019 ■ Terracon Project No. 19185012 - Revised



can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

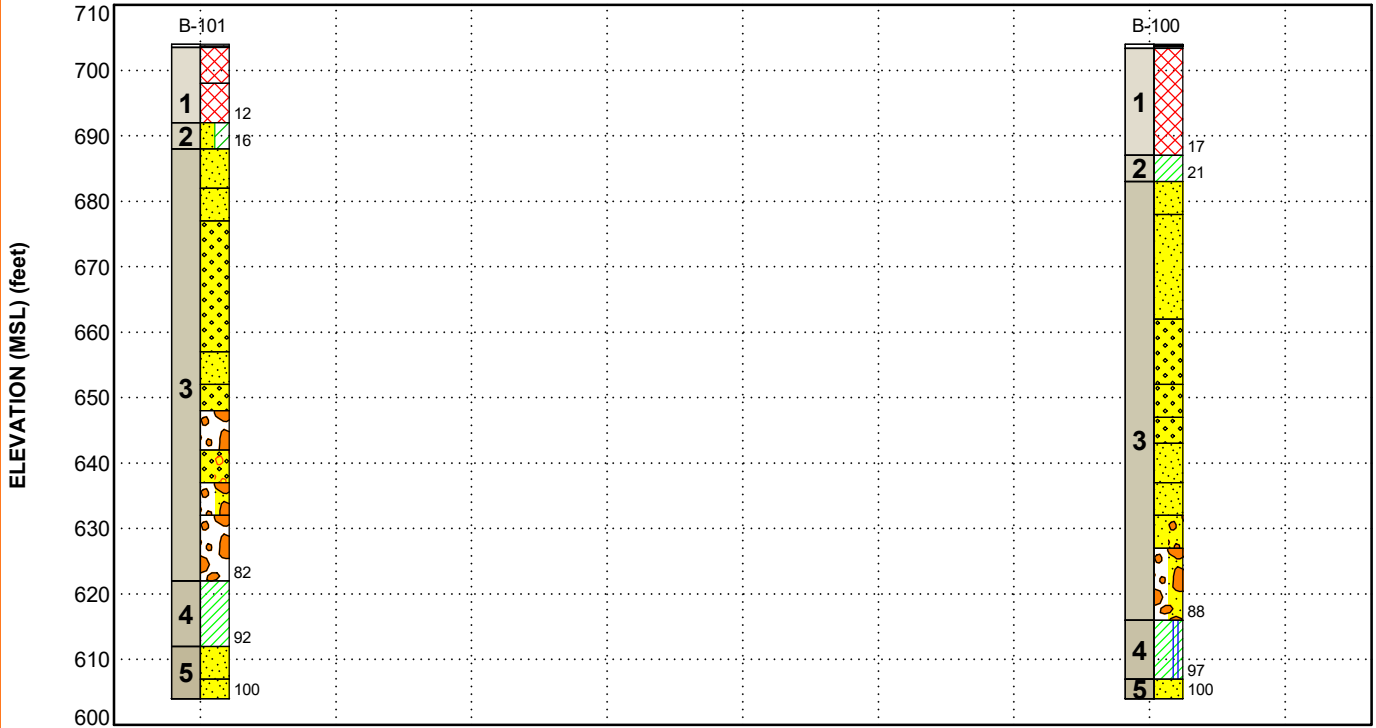
FIGURES

Contents:

GeoModel

GEOMODEL

New Rockford Public Library ■ Rockford, IL
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This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

| Model Layer | Layer Name | General Description |
|-------------|-----------------|--|
| 1 | Fill | Existing fill - lean clay and sand, some hydrocarbon odors |
| 2 | Clay | Lean clay and sand with clay |
| 3 | Sand and Gravel | Sand and gravel grading from fine to medium to coarse |
| 4 | Clay | Lean clay |
| 5 | Sand | Fine to medium sand |

LEGEND

- Asphalt
- Lean Clay
- Poorly-graded Sand with Gravel
- Concrete
- Well-graded Sand with Gravel
- Well-graded Gravel
- Poorly-graded Sand
- Poorly-graded Gravel with Sand
- Poorly-graded Sand with Clay
- Fill
- Well-graded Sand
- Lean Clay with Silt
- Poorly-graded Gravel

- First Water Observation
- Second Water Observation
- Third Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

| Number of Borings | Boring Depth (feet) | Location |
|-------------------|---------------------|--------------------|
| 2 | 100 | Building footprint |

Boring Layout and Elevations: Terracon used handheld GPS equipment to locate borings with an estimated horizontal accuracy of +/-20 feet. Approximate elevations were obtained from Google Earth.

Subsurface Exploration Procedures: We advanced the borings with a truck-mounted rotary drill rig using continuous hollow stem flight augers above the water table, and rotary wash boring techniques below. Samples were obtained at intervals of 5 feet. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with bentonite grout after their completion. Pavements were patched with cold-mix asphalt and/or pre-mixed concrete, as appropriate.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by an engineer or geologist. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Computer-generated boring logs were prepared from the field logs. The boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. The following tests were performed for this project.

- Water content
- Chemical analyses – pH, sulfates, chloride ion, electrical resistivity

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Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan

Exploration Plan

Note: All attachments are one page unless noted above.

EXPLORATION PLAN

New Rockford Public Library ■ Rockford, Illinois

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DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

Boring Logs (B-100 and B-101)

Note: All attachments are one page unless noted above.

BORING LOG NO. B-100

PROJECT: New Rockford Public Library

CLIENT: Rockford Public Library
Rockford, IL

SITE: 215 North Wyman
Rockford, IL

| MODEL LAYER | GRAPHIC LOG | LOCATION See Exploration Plan Latitude: 42.2722° Longitude: -89.092° Approximate Surface Elev.: 704 (Ft.) +/- ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | RECOVERY (%) | FIELD TEST RESULTS | LABORATORY HP (psf) | WATER CONTENT (%) |
|-------------|-------------|--|-------------|--------------------------|-------------|--------------|--------------------|---------------------|-------------------|
| | | DEPTH | | | | | | | |
| | | 0.4 ASPHALT, Approximately 5" | 0.4 | | | | | | |
| | | 0.7 CRUSHED STONE AGGREGATE, Approximately 3" | 0.7 | | | | | | |
| | | FILL - SAND, with clay and gravel, dark brown to black | | | | | | | |
| 1 | | Hydrocarbon/chemical odor | | | | | | | |
| | | 17.0 | 17.0 | | | | | | |
| 2 | | LEAN CLAY (CL), trace silt, dark brown, soft | | | | | | | |
| | | 21.0 | 21.0 | | | | | | |
| | | FINE TO MEDIUM SAND (SP), trace clay and gravel, dark brown, loose | | | | | | | |
| | | 26.0 | 26.0 | | | | | | |
| | | FINE TO MEDIUM SAND (SP), brown, loose to medium dense | | | | | | | |
| 3 | | | | | | | | | |
| | | 30.0 | 30.0 | | | | | | |
| | | FINE TO MEDIUM SAND (SP), brown, loose to medium dense | | | | | | | |
| | | 35.0 | 35.0 | | | | | | |
| | | FINE TO MEDIUM SAND (SP), brown, loose to medium dense | | | | | | | |
| | | 40.0 | 40.0 | | | | | | |
| | | FINE TO COARSE SAND (SW), trace gravel, brown, medium dense | | | | | | | |
| | | 45.0 | 45.0 | | | | | | |
| | | FINE TO COARSE SAND (SW), trace gravel, brown, medium dense | | | | | | | |
| | | 50.0 | 50.0 | | | | | | |
| | | 52.0 | 52.0 | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite
Surface capped with concrete

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevation estimated post-demolition

WATER LEVEL OBSERVATIONS



Boring Started: 01-24-2019

Boring Completed: 01-24-2019

Drill Rig: D-50

Driller:

Project No.: 19185012

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. 19185012 NEW ROCKFORD PUBL.GPJ. MODEL LAYER.GPJ 2/19/19

BORING LOG NO. B-100

PROJECT: New Rockford Public Library

CLIENT: Rockford Public Library
Rockford, IL

SITE: 215 North Wyman
Rockford, IL

| MODEL LAYER | GRAPHIC LOG | LOCATION See Exploration Plan Latitude: 42.2722° Longitude: -89.092° Approximate Surface Elev.: 704 (Ft.) +/- ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | RECOVERY (%) | FIELD TEST RESULTS | LABORATORY HP (psf) | WATER CONTENT (%) |
|-------------|-------------|--|-------------|--------------------------|-------------|--------------|--------------------|---------------------|-------------------|
| | | FINE TO COARSE SAND (SW) , trace gravel, grayish brown, medium dense | 55 | | X | 18 | 5-8-9 N=17 | | 20 |
| | | FINE TO COARSE SAND (SW) , trace gravel, brown, medium dense | 60 | | X | 16 | 12-13-16 N=29 | | 15 |
| | | MEDIUM TO COARSE SAND (SP) , trace gravel, brown, dense | 65 | | X | 16 | 18-19-14 N=33 | | 23 |
| | | FINE TO MEDIUM SAND (SP) , trace gravel, brown, dense | 70 | | X | 15 | 22-18-16 N=34 | | 16 |
| | | MEDIUM TO COARSE SAND (SP) , with gravel, grayish brown, very dense | 75 | | X | 17 | 42-52-50/4" | | 15 |
| 3 | | GRAVEL (GP) , with sand, grayish brown, very dense | 80 | | X | 10 | 50-50/4" | | 9 |
| | | LEAN CLAY (CL) , with silt, grayish brown, stiff to very stiff | 85 | | X | 16 | 32-30-21/-2" | | 13 |
| 4 | | | 90 | | X | 18 | 7-9-12/-2" | 3000 (HP) | 24 |
| | | | 95 | | X | 17 | 7-11-12/-2" | 6000 (HP) | 18 |
| 5 | | FINE TO MEDIUM SAND (SP) , trace clay and gravel, dark brown, dense | 100 | | X | 15 | 19-18-21/-2" | | 14 |
| | | BOTTOM OF BORING <i>Boring Terminated at 100 Feet</i> | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite
Surface capped with concrete

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevation estimated post-demolition

WATER LEVEL OBSERVATIONS



Boring Started: 01-24-2019

Boring Completed: 01-24-2019

Drill Rig: D-50

Driller:

Project No.: 19185012

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. 19185012 NEW ROCKFORD PUBL.GPJ. MODEL LAYER.GPJ 2/19/19

BORING LOG NO. B-101

PROJECT: New Rockford Public Library

CLIENT: Rockford Public Library
Rockford, IL

SITE: 215 North Wyman
Rockford, IL

| MODEL LAYER | GRAPHIC LOG | LOCATION See Exploration Plan Latitude: 42.272° Longitude: -89.0927° Approximate Surface Elev.: 704 (Ft.) +/- ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | RECOVERY (%) | FIELD TEST RESULTS | LABORATORY HP (psf) | WATER CONTENT (%) |
|-------------|-------------|--|-------------|--------------------------|-------------|--------------|--------------------|---------------------|-------------------|
| | | 0.3 CONCRETE , Approximately 4" | 703.5+/- | | | | | | |
| | | 0.5 CRUSHED STONE AGGREGATE , Approximately 2" | 703.5+/- | | | | | | |
| 1 | | FILL - LEAN CLAY , trace sand, brown Hydrocarbon/chemical odor | 6.0 698+/- | | | 17 | 5-7-7 N=14 | | 24 |
| 1 | | FILL - SAND , with clay, trace gravel, brown Hydrocarbon/chemical odor | 12.0 692+/- | | | 16 | 3-5-8 N=13 | | 13 |
| 2 | | FINE TO MEDIUM SAND (SP-SC) , with clay, trace gravel, black, medium dense Hydrocarbon/chemical odor | 16.0 688+/- | | | 15 | 13-14-9 N=23 | | 12 |
| 2 | | FINE TO MEDIUM SAND (SP) , trace gravel, brown, medium dense | 22.0 682+/- | | | 6 | 3-4-6 N=10 | | 15 |
| 3 | | FINE SAND (SP) , light brown, medium dense | 27.0 677+/- | | | 17 | 4-4-7 N=11 | | 21 |
| 3 | | FINE TO COARSE SAND (SW) , brown, loose to medium dense | 30.0 677+/- | | | 18 | 3-5-6 N=11 | | 18 |
| 3 | | | 35.0 677+/- | | | 18 | 6-6-4 N=10 | | 15 |
| 3 | | | 40.0 677+/- | | | 18 | 3-4-5 N=9 | | 20 |
| 3 | | | 45.0 677+/- | | | 15 | 4-4-5 N=9 | | 18 |
| 3 | | MEDIUM TO COARSE SAND (SP) , trace gravel, brown, medium dense | 47.0 657+/- | | | 14 | 6-5-6 N=11 | | 13 |
| | | 52.0 652+/- | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with bentonite
Surface capped with concrete

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevation estimated post-demolition

WATER LEVEL OBSERVATIONS

None, While Drilling
None, After Boring



Boring Started: 01-23-2019

Boring Completed: 01-23-2019

Drill Rig: D-50

Driller:

Project No.: 19185012

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. 19185012 NEW ROCKFORD PUBL.GPJ. MODEL LAYER.GPJ 2/19/19

BORING LOG NO. B-101

PROJECT: New Rockford Public Library

CLIENT: Rockford Public Library
Rockford, IL

SITE: 215 North Wyman
Rockford, IL

| MODEL LAYER | GRAPHIC LOG | LOCATION See Exploration Plan Latitude: 42.272° Longitude: -89.0927° Approximate Surface Elev.: 704 (Ft.) +/- ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | RECOVERY (%) | FIELD TEST RESULTS | LABORATORY HP (psf) | WATER CONTENT (%) |
|-------------|-------------|--|-------------|--------------------------|-------------|--------------|--------------------|---------------------|-------------------|
| | | FINE TO COARSE SAND (SW) , brown, medium dense | 55 | | | 17 | 9-9-9 N=18 | | 18 |
| | | GRAVEL (GP) , with sand, brown, medium dense | 60 | | | 10 | 13-8-11 N=19 | | 17 |
| | | FINE TO COARSE SAND (SW) , with gravel, brownish gray, medium dense | 65 | | | 18 | 8-7-13 N=20 | | 15 |
| | | GRAVEL (GP) , with sand, brown, dense | 70 | | | 15 | 21-14-19 N=33 | | 7 |
| | | GRAVEL (GP) , with sand seams, brown, very dense | 75 | | | 18 | 35-50-50/4" | | 12 |
| | | | 80 | | | 15 | 49-50/4" | | 13 |
| | | LEAN CLAY (CL) , trace silt, grayish brown to gray, very stiff | 85 | | | 18 | 7-8-10/-2" | 4000 (HP) | 24 |
| | | | 90 | | | 18 | 6-10-14/-2" | 8000+ (HP) | 24 |
| | | FINE TO MEDIUM SAND (SP) , trace clay and gravel, reddish brown and brown, dense | 95 | | | 16 | 14-21-25/-2" | | 15 |
| | | FINE TO MEDIUM SAND (SP) , trace gravel, brown, dense | 100 | | | 18 | 18-22-20/-2" | | 10 |
| | | BOTTOM OF BORING <i>Boring Terminated at 100 Feet</i> | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with bentonite
Surface capped with concrete

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevation estimated post-demolition

WATER LEVEL OBSERVATIONS

None, While Drilling
None, After Boring



4836 Colt Rd
Rockford, IL

Boring Started: 01-23-2019

Boring Completed: 01-23-2019

Drill Rig: D-50

Driller:

Project No.: 19185012

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. 19185012 NEW ROCKFORD PUBL.GPJ. MODEL LAYER.GPJ 2/19/19

SUPPORTING INFORMATION

Contents:

General Notes

Unified Soil Classification System





Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

New Rockford Public Library ■ Rockford, IL

March 22, 2019 ■ Terracon Project No. 19185012

| SAMPLING | WATER LEVEL | FIELD TESTS |
|---|---|---|
|  Standard Penetration Test |  Water Initially Encountered  Water Level After a Specified Period of Time  Water Level After a Specified Period of Time | N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-ionization Detector (OVA) Organic Vapor Analyzer |
| | Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations. | |

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

| RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance | | CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance | | |
|---|---|---|---|---|
| Descriptive Term (Density) | Standard Penetration or N-Value Blows/Ft. | Descriptive Term (Consistency) | Unconfined Compressive Strength Qu, (psf) | Standard Penetration or N-Value Blows/Ft. |
| Very Loose | 0 - 3 | Very Soft | less than 500 | 0 - 1 |
| Loose | 4 - 9 | Soft | 500 to 1,000 | 2 - 4 |
| Medium Dense | 10 - 29 | Medium Stiff | 1,000 to 2,000 | 4 - 8 |
| Dense | 30 - 50 | Stiff | 2,000 to 4,000 | 8 - 15 |
| Very Dense | > 50 | Very Stiff | 4,000 to 8,000 | 15 - 30 |
| | | Hard | > 8,000 | > 30 |

| RELATIVE PROPORTIONS OF SAND AND GRAVEL | | RELATIVE PROPORTIONS OF FINES | |
|---|-----------------------|---|-----------------------|
| Descriptive Term(s) of other constituents | Percent of Dry Weight | Descriptive Term(s) of other constituents | Percent of Dry Weight |
| Trace | <15 | Trace | <5 |
| With | 15-29 | With | 5-12 |
| Modifier | >30 | Modifier | >12 |

| GRAIN SIZE TERMINOLOGY | | PLASTICITY DESCRIPTION | |
|---------------------------|--------------------------------------|------------------------|------------------|
| Major Component of Sample | Particle Size | Term | Plasticity Index |
| Boulders | Over 12 in. (300 mm) | Non-plastic | 0 |
| Cobbles | 12 in. to 3 in. (300mm to 75mm) | Low | 1 - 10 |
| Gravel | 3 in. to #4 sieve (75mm to 4.75 mm) | Medium | 11 - 30 |
| Sand | #4 to #200 sieve (4.75mm to 0.075mm) | High | > 30 |
| Silt or Clay | Passing #200 sieve (0.075mm) | | |

| Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A | | | | Soil Classification | | | |
|--|---|--|---|---------------------|-----------------------------------|------------------------------------|------|
| | | | | Group Symbol | Group Name ^B | | |
| Coarse-Grained Soils: More than 50% retained on No. 200 sieve | Gravels: More than 50% of coarse fraction retained on No. 4 sieve | Clean Gravels: Less than 5% fines ^C | $Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E | GW | Well-graded gravel ^F | | |
| | | | $Cu < 4$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E | GP | Poorly graded gravel ^F | | |
| | | Gravels with Fines: More than 12% fines ^C | Fines classify as ML or MH | GM | Silty gravel ^{F, G, H} | | |
| | | | Fines classify as CL or CH | GC | Clayey gravel ^{F, G, H} | | |
| | Sands: 50% or more of coarse fraction passes No. 4 sieve | Clean Sands: Less than 5% fines ^D | $Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E | SW | Well-graded sand ^I | | |
| | | | $Cu < 6$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E | SP | Poorly graded sand ^I | | |
| | | Sands with Fines: More than 12% fines ^D | Fines classify as ML or MH | SM | Silty sand ^{G, H, I} | | |
| | | | Fines classify as CL or CH | SC | Clayey sand ^{G, H, I} | | |
| Fine-Grained Soils: 50% or more passes the No. 200 sieve | Silts and Clays: Liquid limit less than 50 | Inorganic: | $PI > 7$ and plots on or above "A" | CL | Lean clay ^{K, L, M} | | |
| | | | $PI < 4$ or plots below "A" line ^J | ML | Silt ^{K, L, M} | | |
| | | Organic: | Liquid limit - oven dried | < 0.75 | OL | Organic clay ^{K, L, M, N} | |
| | | | Liquid limit - not dried | | | Organic silt ^{K, L, M, O} | |
| | Silts and Clays: Liquid limit 50 or more | Inorganic: | PI plots on or above "A" line | CH | Fat clay ^{K, L, M} | | |
| | | | PI plots below "A" line | MH | Elastic Silt ^{K, L, M} | | |
| | | Organic: | Liquid limit - oven dried | < 0.75 | OH | Organic clay ^{K, L, M, P} | |
| | | | Liquid limit - not dried | | | Organic silt ^{K, L, M, Q} | |
| | | Highly organic soils: | Primarily organic matter, dark in color, and organic odor | | | PT | Peat |

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

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

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

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

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

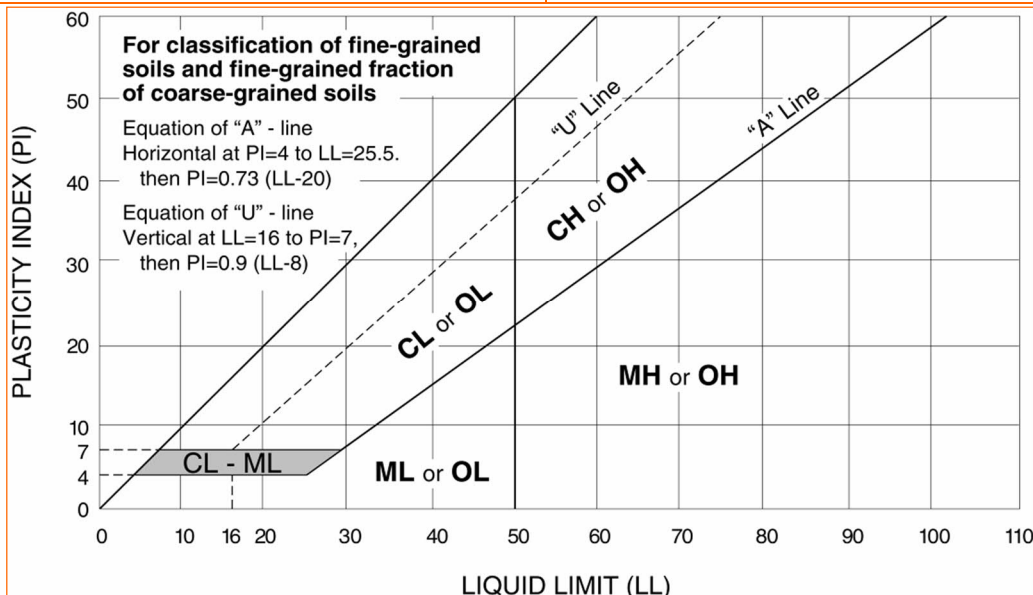
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.





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Daily Report of Testing and Inspection

| | | | |
|---------------------|---|-------------------|--|
| Report Date: | 03/09/2021 | Page: | 1 of 2 |
| Client: | Scandroli Construction 855 N. Madison Street Rockford, IL 61107 | Project #: | 20-G0931 |
| | | Project: | CT Rockford Library 215 N. Wyman Street Rockford, IL |

Results of Inspection: No deficiencies included in this report

Summary of Field Activities

GEOCON Personnel reported to the above referenced site to perform the following tests and/or inspections as requested by the client.

| | |
|-------------------|---------------|
| Job Tasks: | Grout Testing |
|-------------------|---------------|

| | |
|----------------------------|------------------|
| Weather Conditions: | 45 to 67°F Sunny |
|----------------------------|------------------|



| | |
|--|----|
| Attended Safety meeting, tool box talk: | No |
|--|----|

| | |
|---------------------|--|
| Safety Talk: | |
|---------------------|--|

Grout Testing.

Visited the site for Grout testing. The grout is injected into the ground to increase the soil stability. AECOM representative brought the sample out to test as onsite testing is not allowed for safety reasons. 4 Cylinders were cast for strength testing to be performed.

Distribution:
Jennifer Spencer (Studio GWA)
Kevin Gugliuzza (Scandroli Construction)

| | | | |
|----------------------|---|----------------------|---|
| Submitted By: |  | Reviewed By: |  |
| Printed Name: | Odi Enwia | Printed Name: | Karl Jacobson |



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Construction Materials Field Testing - Grout

| | | | |
|---------------------|---|-------------------|--|
| Report Date: | 03/09/2021 | Page: | 2 of 2 |
| Client: | Scandroli Construction 855 N. Madison Street Rockford, IL 61107 | Project #: | 20-G0931 |
| | | Project: | CT Rockford Library 215 N. Wyman Street Rockford, IL |

Mix Data

| | | | | | | |
|------------------|-----|----------------------------|------|--------|----|------|
| Producer: | N/A | Specified Strength: | 50 | psi at | 28 | days |
| Mix #: | N/A | Flow: | 11"+ | | | |

Field Data (ASTM C780)

| | | | |
|-------------------------------------|--|---|-----|
| Dimensions: | 4x8 | Concrete Masonry Unit Cells Clear: | N/A |
| Weather protection (if any): | N/A | Reinforcement per Plan: | N/A |
| Structure Placed: | Grout injected into ground | Grout Consolidated: | N/A |
| Location of Placement: | Grout injected into Ground at the site | | |

| Set # | # of Samples | Sample Temp (°F) (ASTM C1064) | Air Temp (°F) | Time Cast | Location of Test | Lab Break Summary | |
|-------|--------------|----------------------------------|---------------|-----------|--|-------------------|------------------|
| | | | | | | No. Cyls per set | Break Age (days) |
| 1 | 4 | 64 °F | 65 °F | 11:25 AM | Grout injected into Ground at the site | 2 | 7 days |
| | | | | | | 2 | 28 days |
| | | | | | | | |
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NOTE: All samples recorded on this report will follow the same break schedule as stated above.

Remarks

Submitted By:  Reviewed By: 
 Printed Name: Odi Enwia Printed Name: Karl Jacobson



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Grout Compressive Strength Testing Report

| | |
|--|--|
| Field Report #: 6770 | Page: 1 of 1 |
| Report Date: 04/06/2021 | Project #: 20-G0931 |
| Client: Scandroli Construction 855 N. Madison Street Rockford, IL 61107 | Project: CT Rockford Library 215 N. Wyman Street Rockford, IL |

Mix Data

| | | | |
|----------------------|----------------------------------|----------|---------|
| Producer: N/A | Required Strength: 50 psi | @ | 28 days |
| Mix #: N/A | | | |

Field Data (ASTM C31)

| | |
|------------------------------------|---|
| Set #: 2100331 | Air Temperature: 65 °F |
| Set Count: 1 of 1 | Sample Temperature (ASTM C1064): 64 °F |
| Cast Date: 03/09/2021 | Dimensions in inches: 4x8 |
| Field Technician: Odi Enwia | |

Location of Placement: Grout injected into Ground at the site



Test Data (ASTM C39)

| Specimen # | Test Date | Break Age | Average Diameter (in) | Area (in ²) | Maximum Load (lbf) | Correction Factor ^a | Cure Type ^b | Fracture Type ^c | Capping Method ^d | Compressive Strength (psi) |
|------------|------------|-----------|-----------------------|-------------------------|--------------------|--------------------------------|------------------------|----------------------------|-----------------------------|----------------------------|
| 2100331A | 03/16/2021 | 7 days | 4.00 | 12.57 | 5,570 | 1.00 | L | 2 | U | 440 |
| 2100331B | 03/16/2021 | 7 days | 4.00 | 12.57 | 5,230 | 1.00 | L | 5 | U | 420 |
| 2100331C | 04/06/2021 | 28 days | 4.00 | 12.57 | 9,940 | 1.00 | L | 3 | U | 790 |
| 2100331D | 04/06/2021 | 28 days | 4.00 | 12.57 | 8,630 | 1.00 | L | 2 | U | 690 |
| | | | | | | | | | | |
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Average Compressive Strength at: 28 days = 740

^a If L/D ratio is less than 1.75, the correction factor is based on values in the ASTM Standard C39, Section 9.2. (interpolation used if applicable)
^b Cure Type: L - Laboratory; F - Field
^c Fracture Type: Per ASTM C39 - descriptions available upon request.
^d Capping Method: U - Unbonded (ASTM C1231); B - Bonded (ASTM C617)
 Note: Defects not apparent unless otherwise noted in remarks section. Grout is tested in accordance with ASTM C109/C1107 when applicable.

Remarks

| | |
|--|--|
| Submitted By:  | Reviewed By:  |
| Printed Name: Nelson Hatheway | Printed Name: Karl Jacobson |

Grout Compressive Strength Testing Report

| | | | |
|----------------|--|-------------------|--|
| Client: | Scandrol Construction 855 N. Madison Street Rockford, IL 61107 | Page: | 1 of 1 |
| | | Project #: | 20-G0931 |
| | | Project: | CT Rockford Library 215 N. Wyman Street Rockford, IL |

Mix Data

| | | | | | |
|------------------|---------------------------|---------------------------|---------|---|---------|
| Producer: | Illinois Cement Company | | | | |
| Mix #: | 2101 - Type I IDOT #37601 | Required Strength: | 500 psi | @ | 28 days |

Field Data (ASTM C31/C31M)

| | | | |
|-------------------------------|------------------|---|-----------|
| Set #: | 2005914 | Air Temperature: | 36 °F |
| Set Count: | 1 of 1 | Sample Temperature (ASTM C1064): | 67 °F |
| Cast Date: | 12/22/2020 | Dimensions in inches: | Grout Box |
| Field Technician: | Douglas Petersen | | |
| Location of Placement: | Area D | | |



Test Data (ASTM C39/C39M)

| Sample # | Test Date | Break Age | Side (in) | Area (in ²) | Maximum Load (lbf) | Correction Factor ^a | Cure Type ^b | Fracture Type ^c | Capping Method ^d | Compressive Strength (psi) |
|----------|------------|-----------|-----------|-------------------------|--------------------|--------------------------------|------------------------|----------------------------|-----------------------------|----------------------------|
| 2005914A | 12/29/2020 | 7 days | 3.25 | 10.56 | 6,270 | 1.00 | L | 3 | U | 590 |
| 2005914B | 01/19/2021 | 28 days | 3.25 | 10.56 | 11,200 | 1.00 | L | 3 | U | 1,060 |
| 2005914C | 01/19/2021 | 28 days | 3.25 | 10.56 | 11,470 | 1.00 | L | 3 | U | 1,090 |
| 2005914D | 02/16/2021 | 56 days | 3.25 | 10.56 | 13,100 | 1.00 | L | 3 | U | 1,240 |
| | | | | | | | | | | |
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Average Compressive Strength at: 28 days = 1,080

^a If L/D ratio is less than 1.75, the correction factor is based on values in the ASTM Standard C39/C39M Section 8.2. (interpolation used if applicable)
^b Cure Type: L - Laboratory; F - Field
^c Fracture Type: Per ASTM - descriptions available upon request.
^d Capping Method: Unbonded - ASTM C1231; Bonded - ASTM C617
 Note: Defects not apparent unless otherwise noted in remarks section. Grout is tested in accordance with ASTM C109/C1107 when applicable.

Remarks

| | | | |
|----------------------|---|----------------------|---|
| Submitted By: |  | Reviewed By: |  |
| Printed Name: | Nelson Hatheway | Printed Name: | Karl Jacobson |