

JOHNSON COUNTY EMA STORAGE

CONSTRUCTION DOCUMENTS

October 16th, 2025

**Encite Architecture + Design
105 South H Ave
Washington, Iowa 52353
lukel@encitearchitecture.com
319-331-7424**

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

Luke Leyden

Printed or typed name

Signature	Date
06-30-27	3-13-20
Registration expires	Date issued

Pages or sheets covered by this seal:

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

Kyle Faillie
Printed or typed name

Signature	Date
12-31-25	12-07-17
Registration expires	Date issued

Pages or sheets covered by this seal:

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

Erik Danielson
Printed or typed name

<u>Signature</u>	<u>Date</u>
12-31-25	6-01-12
<u>Registration expires</u>	<u>Date issued</u>

Pages or sheets covered by this seal:

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ADVERTISEMENT FOR BIDS

DESCRIPTION OF WORK:

Construction of a new building to be used for Johnson County EMA Storage. Work includes, but is not limited to civil and site work, exterior shell including swing and overhead doors, interior metal framing, drywall, finishes, mechanical, plumbing, electrical, civil and site, etc. Work will be awarded in a single bid package for the entire project.

Architect:

Encite Architecture & Design
105 S H Avenue
Washington, IA 52353
Telephone: 319.331.7424

BID OPENING TIME, DATE AND LOCATION:

Johnson County EMA Commission will receive bids on or before 2:00 PM on December 8th, 2025 at the Johnson County, Auditors Office, 913 South Dubuque Street, first floor, Iowa City, IA 52240. Bids received after this time will not be accepted. Bids will be publicly opened and read aloud immediately following the closing of the above bid submission deadline.

The bids will be tentatively presented to and considered by the Johnson County EMA Commission at the Joint Emergency Communications Center & Emergency Management Agency Offices, located at 4529 Melrose Avenue, Iowa City, IA on December 18th, 2025, and such proposals received will be acted upon at such time and place or at such later time and place as may then be fixed.

Owner will issue an authorization letter and tax exemption certificate to the contractor and/or subcontractors for the purchase or use of building materials, supplies, and equipment to be used on this project only. DO NOT INCLUDE SALES TAX ON YOUR BID FORM.

No bid may be withdrawn for a period of 30 calendar days after the date of the scheduled closing time for the receipt of bids.

TYPE OF BID:

Bids shall be based on a stipulated sum contract for a single prime contract.

EXAMINATION OF THE DOCUMENTS:

The Bid Documents may be examined at the following:

Johnson County Auditor's Office in the Administration Building, 913 South Dubuque Street, 1st Floor, Iowa City

Bid Documents may be ordered by contacting Rapids Reproductions, 415 Highland Ave #100, Iowa City, IA 52240. There will be a \$250 refundable deposit required on the plans and specifications. Unsuccessful bidders must return their drawings and specifications to Rapids Reprographics in good condition, and within 14 days of the award of contracts in order to receive a refund of their deposit.

Deposit checks shall be sent to Rapids Reproductions and made payable to Johnson County EMA Commission.

Bidding Documents will be available for pickup/ordering after November 7th, 2025

JOHNSON COUNTY
EMA STORAGE

BID SECURITY AND OTHER BONDS:

All bids shall be accompanied by a bid security in a separate sealed envelope as allowed by Section 26.14A of the Iowa Code. Bid security in the amount of 5% of the total bid in the form of certified check, credit union share draft, or surety bond written on an original AIA Document A310, Bid Bond is required for this project. The successful bidder will be required to provide surety Performance and Payment Bonds in an amount equal to one hundred percent (100%) of the Contract Sum. The surety providing bonds must have an (A-) A.M. Best rating or better or be listed on the U.S. Department of Treasury listing of approved sureties (Department Circular 570). The cost of the Bonds shall be included in the Contract Sum.

SCHEDULE:

Notice of Award will be issued within 30 days of the receipt of the bids.

Construction Period: Completion 8 months from award

OWNER'S RIGHT TO REJECT BIDS:

The Johnson County EMA Commission reserves the right to reject any and all bids, to waive informalities and technicalities, and to enter such contracts as it deems in the best interest of Johnson County.

Bidders shall be prepared to submit a performance bond and payment bond conditioned on the faithful performance of the contract. Out-of-state bidders shall be prepared to submit an Out-of-State Contractor Bond to the Iowa Division of Labor in accordance with Chapter 91C of the Code of Iowa.

By virtue of statutory authority, a preference will be given to products and provisions grown and produced within the State of Iowa, and to Iowa labor to the extent lawfully required under Iowa law.

Iowa law provides that on public improvements a resident bidder shall be allowed preference as against a nonresident bidder from a state or foreign country which gives or requires a preference to bidders from that state or foreign country. The preference so allowed shall be equivalent to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. All Bidders must include a completed Bidder Status Form with their bid. Failure to include the Bidder Status Form may result in the bid being deemed nonresponsive and rejected.

It is the intent of the Owner to award a single contract to the lowest responsible, responsive bidder provided the bid has been submitted in accordance with the bidding requirements. The Owner reserves the right to waive informalities or irregularities. The Owner reserves the right to reject any or all bids.

END OF DOCUMENT 00 11 13

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

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

1.1 DEFINITIONS

- A. Definitions set forth in General Conditions of Contract for Construction, 2019 Construction Manager – Adviser Edition, per Section 007000.
- B. ARCHITECT refers to Encite Architecture + Design and their consultants.
- C. OWNER refers to Johnson County Emergency Management Commission.
- D. BIDDING DOCUMENTS include Instructions to Bidders, Bid Form, other sample bidding and contract forms, the Contract Documents, and any Addenda issued.
- E. ADDENDA are written or graphic instruments issued prior to execution of Contract which modify or interpret Bidding Documents. Addenda will become part of Contract Documents.
- F. BID refers to complete and properly signed proposal to do Project or designated portion thereof for sums stipulated therein, submitted in accordance with Bidding and Contract Documents.
- G. BASE BID refers to sum stated in Bid for which Bidder offers to perform the Work.
- H. ALTERNATE is an amount stated in Bid to be added and or deducted from Base Bid if corresponding change in Work, as described in Bidding Documents, is accepted.
- I. UNIT PRICE is an amount stated in Bid as a price per unit of measure for materials, equipment or services, or a portion of Work as described in Bidding Documents.
- J. BIDDER refers to a person or entity invited to submit a Bid. Any reference herein to Prime Bidder or Prime Contractor is to mean Bidder or Contractor, respectively.
- K. SUB-BIDDER refers to person or entity that submits a Bid to a Bidder for materials, equipment or labor for a portion of the Work.
- L. BID PACKAGES are defined in Section 011000, Summary of Work.

1.2 PROCUREMENT OF DOCUMENTS

- A. Procurement of Documents by Bidders: (See Section Advertisement for Bids)

1.3 EXAMINATION OF DOCUMENTS AND SITE

- A. Examination of Documents: Bidders shall carefully examine entire contents of Contract Documents prepared for the Work to become thoroughly familiar with all requirements. The Plans for this improvement and the Specifications accompanying them shall be considered as a whole, and anything shown or called for in one and omitted in the other is as binding as if called for or shown by both. Figure dimensions shall

in all cases be used in preference to scale dimensions. Any work not herein specified which may be fairly implied as included in this improvement shall be done by this Contractor without extra pay.

- B. Examination of the Site: Bidders should visit construction site to obtain first-hand knowledge of existing conditions, and conditions relative to the Work to be performed.
- C. Additional Compensation: Contractors shall not receive extra payments for conditions, which can be determined by examining site and Contract Documents.

1.4 AMBIGUITIES

- A. General Requirements: Submit written questions concerning Bidding Documents and existing site conditions at the construction site to the architect. Replies will be issued to Bidders and Plan Rooms in the form of an Addendum to the Drawings and Specifications, and will become part of the Contract. The Architect, and Owner will not be responsible for oral clarifications. In no case shall a Bid be submitted in uncertainty. Questions received less than 5 business days before bid opening cannot be answered. Sub-Bidders are responsible for contacting Bidders prior to bid date for Addenda relating to their work.

1.5 SUBSTITUTION OF MATERIALS

- A. General Requirement: To obtain approval to use unspecified products, Bidders shall have written requests submitted not less than 7 business days before bid date. Requests received after this time will not be considered. Requests shall be submitted on the form provided in Specification Section 002600 prior to bid, and Specification Section 012500 post bid and in accordance with Specification Section 016210, Product Options and Substitution Requirements. If the product is acceptable, the Architect will approve the substitution and notice of approval will be noted in an Addendum issued to plan holders and Bidders on record.

1.6 PREPARATION OF BIDS

- A. Bidding Procedure:
 - 1. Bids shall be submitted on unaltered Bid Form furnished in the Project Manual.
 - 2. Each Bid shall include the legal name of the Bidder, and shall show whether the Bidder is a corporation, a partnership, sole proprietor, or a joint venture.
 - a. Corporation – Signature of a duly authorized signing officer, their capacity in which the signing officer acts along with the corporate seal affixed to page.
 - b. Partnership – Signature of all partners in the presence of a witness who will also sign. Affix seal.
 - c. Joint Venture – Each party to the Joint Venture shall execute the Bid Form under their respective seals similar to the requirements of Partnership.
 - d. Sole Proprietor – Signature of Sole Proprietor in the presence of a witness who will also sign.
 - 3. Fill in all blank spaces for bid prices in ink or typewritten words, and submit one (1) copy. **No qualified or segregated bids will be accepted.**
 - 4. Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid submitted by an agent shall have a current Power of Attorney attached certifying the agent's authority to bind the Bidder.
 - 5. Bid shall be submitted in an opaque, sealed envelope bearing on the outside the Bidder's name, address and the Project's name.
 - 6. Bid Security shall be enclosed in a separate opaque envelope bearing on the outside the Bidder's name, address, Project's name and the words "BID SECURITY".
 - 7. Bids shall be deposited at the designated location prior to the time and date of receipt of Bids indicated in the Notice of Letting. Bids received after the time and date for receipt of Bids will not be considered for award.

8. Bidders shall complete and include a fully completed "Bidder Status Form" in the Bid Security Envelope. Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

B. Bid Security:

1. Bid shall be accompanied by a Bid Bond or a Cashier's check of a sum no less than five (5) percent of Bid Sum/Price.
2. Endorse Bid Bond in name of Owner as obligee, signed and sealed by principal and surety authorized to do business in the State of Iowa.
3. Bid Bond of accepted Bidder will be returned after delivery to the Owner of the required Payment and Performance Bond by the accepted Bidder.

C. Performance Bonds:

1. A Performance and Payment Bond in the amount of 100 percent of the Contract Sum shall be submitted in duplicate to the Construction Manager, together with the executed Owner-Contractor Agreement within seven days after the award of the Contract. Such bonds shall be issued by a surety company acceptable to the Owner and properly licensed in the State of Iowa, and shall be on AIA Document A312

1.7 MODIFICATION AND WITHDRAWAL OF BIDS

A. General Requirements:

1. A Bid may not be modified, withdrawn, or canceled by Bidder, without consent of Owner, during the 30-day period following time and date designated for receipt of Bids, and each Bidder so agrees in submitting its Bid.
2. Prior to time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to party receiving Bids at place designated for receipt of Bids. Such notice shall be in writing over signature of Bidder or by facsimile; if by facsimile, written confirmation over signature of Bidder shall be mailed and postmarked on or before date and time set for receipt of Bids. A change shall be so worded as not to reveal amount of original Bid.
3. Withdrawn Bids may be resubmitted up to date and time for receipt of Bids, provided that they are fully in conformance with these Instructions to Bidders.

1.8 DISQUALIFICATION OF BIDDERS

- A. General Requirements: Owner reserves the right to accept or reject any or all Bids, or parts of Bids, and to waive formalities or informalities therein. For the purpose of determining the successful Bidder in the consideration of all Bids submitted. Owner reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices upon the part of Bidder.
- B. Qualification of Bidder: In awarding the Contract, the Owner may take into consideration the Bidder's skill, facilities, capacity, experience, responsibility, previous work record, financial standing, safety and health experience. The inability of any Bidder to meet the requirements mentioned above may be cause for rejection of its Bid.
- C. Apparent low bidder to fill out the questionnaire at the end of this section for review by the owner.

1.9 EXECUTION OF CONTRACT

- A. Qualifications of Bidders: Bidders shall be prepared, if so requested by Owner, to present evidence of his experience, qualifications and financial ability to carry out terms of the Contract.
- B. Withdrawal of Bids: Bid may not be withdrawn for a period of 30 days after Bids are received and opened.

1.10 SALES TAX

A. Payment of Sales Tax:

1. The Owner shall furnish Contractor and all lower tier subcontractors with an Exempt Sales Tax Certificate Form for items incorporated into the Work and considered by State of Iowa to be exempt from Sales Tax. Taxpayer identification numbers will be required from all companies in order to issue the Exempt Sale Certificate.
2. This Exempt Sale Certificate does not apply to:
 - a. Purchase of materials to be used but not incorporated into the Contract work, including but not limited to concrete form lumber, scaffolding, etc.
 - b. Purchase or rental of machinery, equipment, or tools owned or leased by Contractor and used in performing the work.

1.11 EVALUATIONS OF BIDS

- A. Consideration of Bids: All properly identified bids and properly submitted bids received on time will be opened publicly and will be read aloud. An abstract of the bids will be made available to all bidders.

The Owner shall have the right to reject any and all bids, reject a bid not accompanied by the required check or security, reject a bid which is in any way incomplete or irregular, and to waive informalities.

The Owner will award the contract to the lowest responsible bidder, which will be based on factors pertinent to the matter, which may include the following:

1. The bidder's adherence to all conditions and requirements of the bid specifications.
2. The total bid price.
3. The bidder's general reputation and experience.
4. Evaluation of the bidder's ability to service Johnson County.
5. Prior knowledge of and experience with the bidder.
6. The needs and requirements of Johnson County.
7. The bidder's ability to meet delivery requirements.
8. All maintenance costs and warranty provisions.

- B. Examination of Bids: All bids submitted shall be made available for examination by interested parties, immediately following the bid opening. Each interested party is requested to initial each page reviewed, indicating that the Proposal was examined.

All bids will be placed in the custody of the Owner until the Contract for the project has been awarded.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF DOCUMENT 00 21 13

Homeland Security & Emergency Management Agency

Johnson County, Iowa.

4529 Melrose Avenue,

Iowa City, IA. 52246

PH: (319) 356-6761

FX: (319) 338-0028

E-mail: dave.wilson@jecc-ema.org



Post-Bid Information

GENERAL CONTRACTOR QUALITY ASSURANCE QUESTIONNAIRE

Pursuant to Iowa Code §26.9 which requires that contracts for public improvements be awarded to the "lowest responsive, responsible bidder," and also recognizing that a governmental entity may obtain information from the lowest responsive bidder to determine bidder's responsibility relating to the bidder's experience, number of employees, and ability to finance the cost of the public improvement, and in accordance with Iowa law allowing public entities to consider factors other than price in determining who is the lowest responsible bidder; the Homeland Security and Emergency Management Agency does hereby provide the following Questionnaire to the bidder to whom award of a Contract is under consideration ("Contractor") submitting bids for work on the _____ ("Project"). The fully completed Questionnaire, with attachments, shall be submitted to the Project Lead within 14 calendar days of notification to the apparent lowest bidder. Contractors who do not complete the following questionnaire may be deemed to be non-responsive or non-responsible.

1. Full name of Contractor _____
Address _____
Telephone _____ Fax _____
Email _____
2. All other names under which Contractor has operated in the past five (5) years: _____

3. Provide Contractors' Registration Number and full names of Registration Holders as per Iowa Construction Contractor Registration requirements: _____

Contractor Registration Expiration Date _____

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4. Has Registration ever been suspended or revoked in any jurisdiction?
 - a. Yes ____
 - b. No ____If "yes", provide information regarding suspension/revocation and attach all relevant documents.
5. Within the past five (5) years, has Contractor been debarred by any federal, state or local governmental entity from bidding on projects?
 - a. Yes ____
 - b. No ____If "yes", provide information related to debarment.
6. On a separate sheet, list construction projects in value in excess of \$5 million dollars that Contractor has in progress, giving the name of the project, owner, architect, contract amount, key Contractor personnel, percent complete and scheduled completion date.
7. On a separate sheet, list the major projects Contractor has completed in the past three (3) years, giving the name of the project, owner, architect, contract amount, Officer in Charge, Project Manager, Project Superintendent and any other key Contractor personnel, date of completion and percentage of the total project performed by your own employees.
8. On a separate sheet, identify the individuals Contractor intends to be the Officer in Charge, Project Manager, Project Superintendent and any other key personnel on this project.
9. On a separate sheet, list the Contractors last five (5) completed projects, and for each, the scheduled completion date and the final completion date, noting any owner approved extensions.
10. Within the past three (3) years, has Contractor defaulted on a contract, or been disqualified, removed or otherwise prevented from bidding on or completing any project?
 - a. Yes ____
 - b. No ____If "yes", provide the year of the incident, name, address and telephone number of the owner of the project, project name and location.

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11. Has Contractor ever been unable to obtain a bond or been denied a bond?

a. Yes ____

b. No ____

If "yes", please provide all relevant details.

12. On a separate sheet, list all surety/bonding companies Contractor has utilized in the past five (5) years.

13. Has Contractor ever declared bankruptcy or been in receivership?

a. Yes ____

b. No ____

If "yes", please provide all relevant details.

14. Is Contractor currently being investigated for or previously been found to have violated in the past five (5) years any of the following state or federal laws: Iowa Minimum Wage Act; Iowa Non-English Speaking Employees Act; Iowa Child Labor Act; Iowa Labor Commissioner's Right to Inspect Premises, Iowa Compensation Insurance Act; Iowa Employment Security Act; Iowa Competition Act; Iowa Income, Corporate and Sales Tax Code; a "willful" violation of the Iowa or Federal Occupational Safety and Health Act; Iowa Employee Registration Requirements; Iowa Hazardous Chemical Risks Act; Iowa Wage Payment Collection Act; Federal Income and Corporate Tax Code; The National Insurance and Social Security Act; The Fair Labor Standards Act:

a. Yes ____

b. No ____

If "yes", please explain:

15. Has Contractor ever failed to complete any work awarded to it?

a. Yes ____

b. No ____

If "yes", please provide all relevant details.

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16. Are there any judgments, arbitration proceedings or suits pending or outstanding against Contractor or its officers that relate to, arise out of or are in the course of the Contractor's business?

a. Yes ____

b. No ____

If "yes", please provide all relevant details.

17. Has Contractor filed any lawsuit or demanded arbitration with regard to any construction contract within the past five (5) years?

a. Yes ____

b. No ____

If "yes", please provide all relevant details.

18. Has Contractor been found by a court or agency of competent jurisdiction to be delinquent in meeting its obligations under local, state or federal tax laws within the last five (5) years? ("delinquent" shall include, but is not limited to: failure to file, failure to pay or imposition of tax liens)

a. Yes ____

b. No ____

If "yes", please provide all relevant details.

19. Contractor affirms that it will retain only subcontractors who can fully comply with the bid specifications, including those that address requirements concerning the Subcontractor Quality Assurance Bid Requirements.

a. Yes ____

b. No ____

20. Contractor affirms that it will be responsible for ensuring that each subcontractor meets the Subcontractor Quality Assurance Bid Requirements.

a. Yes ____

b. No ____

SECTION 00 26 00
PROCUREMENT SUBSTITUTION PROCEDURES

1.1 DEFINITIONS

- A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.
- B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

1.2 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.

1.3 PROCUREMENT SUBSTITUTIONS

- A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.
- B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:
 - 1. Extensive revisions to the Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
 - 3. The request is fully documented and properly submitted.

1.4 SUBMITTALS

- A. Procurement Substitution Request: Submit to Architect. Procurement Substitution Request must be made in writing in compliance with the following requirements:
 - 1. Requests for substitution of materials and equipment will be considered if received no later than 10 days prior to date of bid opening.
 - 2. Submittal Format: Submit one copy of each written Procurement Substitution Request, using CSI Substitution Request Form 1.5C.
 - a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and drawing numbers.

- b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:
 - 1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
 - 2) Copies of current, independent third-party test data of salient product or system characteristics.
 - 3) Samples where applicable or when requested by Architect.
 - 4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. 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.
 - 5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - 6) Research reports, where applicable, evidencing compliance with building code in effect for Project, from ICC-ES.
 - 7) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.
- c. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
- d. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.

B. Architect's Action:

- 1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.

C. Architect's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

SECTION 00 26 00

PRODUCT SUBSTITUTION REQUEST FORM

To:	Project:
Attn:	
Specified Item:	
	Proposed Substitute:

1. The following are attached (Mark all that apply):

☐ Complete Description ☐ Laboratory Tests ☐ Information on the availability of maintenance services and replacement materials for proposed substitute(s)	☐ Catalog ☐ Spec Data ☐ Names, addresses, and phone numbers of fabricators and suppliers for proposed substitute(s)
--	---
2. This substitution will have the following effects on dimensions, gauges, weights, etc.:
3. This substitution will have the following effects on wiring, piping, ductwork, etc.:
4. This substitution will have the following effects on other trades:
5. This substitution will have the following effect on construction Schedules:
6. The proposed substitute(s) differs from the specified product(s) in quality and performance as follows:
7. Manufacturers guarantees for the substitute(s) and the specified product(s) are (check one):

☐ the same	☐ different (if different, explain below)
--	---

8. If the proposed substitution is accepted, it will result in:
☐ no cost impact ☐ a cost increase of _____
☐ a cost decrease of _____
(If change in cost is indicated, itemization on specified Cost Itemization Form is attached)

9. License fees or royalties are pending on the proposed substitute.
☐ No ☐ Yes (if yes, explain below)

10. The undersigned or the firm represented shall pay for additional studies, investigations, submittals, redesign, and analysis by the Designer necessitated by this substitution request.

Substitutions must be requested in accordance with applicable Contract requirements. After bidding, substitutions are to be submitted only by Contractor. Substitute products should not be ordered or installed without written acceptance.

Submitted by:

Date:

Sign here: _____

Name:

Telephone:

type or print: _____

for:

Name of firm: _____

Address:

Street

address: _____

and mailing

address

if different: _____

City, State,
and Zip Code: _____

Designer's Review Comments:

☐
☐

Accepted
Accepted as noted

☐
☐
☐

Rejected
Rejected (received too late)
Rejected (submittal incomplete)

Additional comments:

For the Designer:

Date:

Signature here: _____

END OF SECTION

SECTION 00 41 26 - BID FORM

CONTRACT BASED ON A STIPULATED SUM

PROJECT: JOHNSON COUNTY EMA STORAGE BUILDING

OWNER: JOHNSON COUNTY EMA COMMISSION

SUBMITTED TO: JOHNSON COUNTY EMA COMMISSION

DATE: _____ (*Bidder to enter date*)

SUBMITTED BY: (*Bidder to enter name and address*)

(Contractor)

(Address)

(City, State, Zip)

(Phone No., Fax No.)

(Email Address)

- ☐ a corporation organized and existing under laws of the State of _____.
- ☐ a partnership
- ☐ a sole proprietor

OFFER:

Having examined the Place of the Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Encite Architecture + Design for the above-mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Bid Package #(s) _____ Work for the Sum of:

Base Price: _____ Dollars

(\$ _____) in lawful money of the United States of America.

We have included the *Bid security* and a *Bidder Status Form* as required by the Instructions to Bidders.

All Iowa State Sales and Use Tax on materials incorporated into the Work are not included in the Bid Sum and a Sales Tax Exemption Certificate will be provided by the Owner. Sales tax for all materials not incorporated into the Work have been included in the Bid Sum.

ACCEPTANCE:

This offer shall be open to acceptance and is irrevocable for (30) sixty days from the bid closing date.

If this offer is accepted by the Johnson County EMA Commission within the time period stated above, we will:

- Execute a Contract Agreement within fourteen days of receipt of Notice of Award.
- Commence work in strict accordance with the Construction Manager's master schedule.
- Furnish the required Bonds and Insurance Certificates within seven days of receipt of Notice of Award in the forms described in General Conditions.

CONTRACT TIME:

We will complete the Work in accordance within 8 months of notice of award.

ADDENDA:

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Price.

Addendum(s) ____ through ____.

SUBCONTRACTS:

The following Work will be performed by Subcontractors and coordinated by us:

SCOPE OF WORK

SUBCONTRACTOR

_____	_____
_____	_____
_____	_____

BID FORM SIGNATURE(S)

(Bidder – print the full name of your firm)

(Authorized signing officer, Title)

END OF DOCUMENT 00 41 26

SECTION 00 52 00 – AGREEMENT FORM

PART 1 – GENERAL

1.1 FORM OF AGREEMENT: AIA A101-2017 Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

1.2 RELATED REQUIREMENTS

A. Section 00 72 00 – General Conditions

PART 2 – NOT USED

PART 3 – NOT USED

END OF SECTION 00 52 00

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SECTION 007300
SUPPLEMENTARY CONDITIONS

A GENERAL CONDITIONS

1. AIA Document A201 "General Conditions of the Contract for Construction", 2017 Edition, Articles 1 through 15 inclusive, is a part of the construction contracts, and is incorporated herein as fully as if herein set forth.
2. Copies of this document are on file at and available from the Architect's office.

B SUPPLEMENTARY CONDITIONS

The following supplements modify, change, delete from, or add to the "General Conditions of the Contract for Construction." Where any article of the General Conditions is modified or any paragraph, subparagraph or clause thereof is modified or deleted by these supplements, the unaltered provisions of that article, paragraph, subparagraph, or clause shall remain in effect.

MODIFICATIONS OF ARTICLE 1 – GENERAL PROVISIONS

1.1 Miscellaneous Definitions

The term "Product" as used in these Supplementary Conditions includes materials, systems, and equipment.

The term "Project Manual" as used in these Supplementary Conditions includes the Quote Submittal Requirements, Conditions of the Contract and the Specifications.

MODIFICATIONS OF ARTICLE 3 – CONTRACTOR

3.6 Taxes

Change subparagraph 3.6 to the following

3.6.1 Iowa Sales Tax Exemption. In accordance with provisions of the Code of Iowa and the Iowa Administrative Rules, "Iowa Construction Sales Tax Exemption Certificates" will be issued for this project. DO NOT include Iowa sales tax or local option sales tax in determining the project quote amount. The successful quote Submitter, within 48 hours of the receipt of "Owner's Notice of Intent to Award a Contract," shall provide to the Owner a list of all Subcontractors selected to perform work on this project. The subcontractor list shall include each firm's name, tax identification number, and address.

3.6.2 Using information provided by the successful quote Submitter, the Owner will apply to the Iowa Department of Revenue and Finance for 1) Authorization Letters and 2) Iowa Construction Sales Tax Exemption Certificates, to be issued to the Contractor and each Subcontractor to purchase materials and products for this project free of sales/use tax and local options taxes that might otherwise apply.

MODIFICATIONS OF ARTICLE 7 – CHANGES IN THE WORK

7.2.2 Add: Cost shall be limited to the following: Cost of materials, including cost of delivery, cost of labor, including Social Security, old age and unemployment insurance, and fringe benefits under collective bargaining agreements; Workman's Compensation insurance; bond premiums; and rental value of power tools and equipment. Overhead shall include the following: Supervision, superintendence, wages of timekeepers, watchmen and clerks, hand tools, incidentals, general office expense, and all other expenses not included in cost. The maximum percentage of combined overhead and profit for changes in the work performed by the Contractor shall be 10%. If the changed work is performed by a Subcontractor, a maximum of 10% may be added by that Subcontractor on his work for combined overhead and profit and an additional maximum of 5% may be added by the Contractor for administration and coordination of said Subcontractor work. The Contractor shall verify compliance of the Subcontractors and shall not sign Change Orders which do not comply with the maximum limits.

MODIFICATIONS OF ARTICLE 9 – PAYMENTS AND COMPLETION

At the end of Subparagraph 9.10.1, add the following:

- i. In accordance with Iowa law, Final Payment (retainage amount) shall not be released until at least thirty-one (31) days after completion and final acceptance by the Owner of all Work required by the Contract.

MODIFICATIONS OF ARTICLE 10 – PROTECTIONS OF PERSONS & PROPERTY

10.1.1 Add: Attention is directed to the regulations issued by the Secretary of Labor pursuant to Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333) entitled "Safety and Health Regulations for Construction" (29 CFR Part 1926). The Contractor shall be required to comply with those regulations to the extent that any resulting Contract involves construction.

MODIFICATIONS OF ARTICLE 11 – INSURANCE AND BONDS

WORK SHALL NOT BEGIN UNTIL THE CERTIFICATE OF INSURANCE AND ALL REQUIRED ENDORSEMENTS ARE RECEIVED AND APPROVED BY JOHNSON COUNTY EMERGENCY MANAGEMENT COMMISSION.

Delete original Subparagraph 11.1.1 and replace with the following:

A. Section 11.1.1 of the General Conditions of the Contract for Construction (AIA Document A201-2017) as included in this Project Manual (the "General Conditions") provides that Contractor shall purchase and maintain insurance coverage for limits as specified in the Contract Documents. The limits of liability for the insurance required by Section 11.1.1 of the General Conditions shall not be less than the following amounts or greater where required by laws and regulations:

1. Workers' Compensation: Statutory

2. Employer's Liability

Bodily Injury by Accident, Each Accident: \$ 500,000

Bodily Injury by Disease, Each Employee \$ 500,000

Policy Limit \$ 500,000

3. General Liability, including completed operations and product liability coverages and eliminating the exclusion with respect to property under the care, custody and control of Contractor

General Aggregate: \$ 2,000,000

Products – Completed Operations Aggregate: \$ 2,000,000

Personal and Advertising Injury (Per Person/Organization): \$ 1,000,000

Each Occurrence (Bodily Injury and Property Damage): \$ 1,000,000

Fire Legal Liability Damage Limit (any One Fire): \$ 50,000

Medical Expense Limit (Any One Person): \$ 5,000

Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages. Policy shall include as a minimum the following coverages:

a. Broad Form Property Damage Coverage.

b. An elimination of the exclusions with respect to property under the care, custody or control of Contractor. In lieu of elimination of the exclusion, Contractor may provide Builder's Risk or Installation Floater coverage for property under the care, custody, or control of Contractor.

c. Contractual Liability Coverage.

d. Independent Contractor Coverage.

4. Automobile Liability

a. Bodily Injury, Each Person: \$ 1,000,000; Each Accident: \$ 1,000,000

b. Property Damage, Each Accident: \$ 1,000,000

c. Combined Single Limit: \$ 1,000,000

d. Policy shall include contractual liability coverage and coverage on all owned, non-owned, and hired vehicles.

5. The Contractual Liability coverage required by Sec. 11.1.1.8 of the General Conditions shall provide coverage for not less than the following amounts:

a. Bodily Injury, Each Accident: \$ 1,000,000; Annual Aggregate \$ 2,000,000

b. Property Damage, Each Accident: \$ 1,000,000; Annual Aggregate \$ 2,000,000

6. Additional insurances required:

a. Umbrella. The stated limits of paragraphs A(1) through A(5) of this Article 3 can be obtained through individual policies or if Contractor desires to reduce underlying limits to minimums required by its insurance carrier, an umbrella policy must accordingly be provided to maintain overall total level of coverage. Any Umbrella insurance shall be written on an occurrence basis and pay on behalf form and shall include the same endorsements and additional insureds as required of the primary policies.

b. An excess umbrella policy (pay on behalf form) with limits of \$2,000,000 for Employer's liability, Contractor's General Liability, (bodily injury, personal injury and property damage), Automobile Liability, and Contractual Liability on a combined basis shall be provided. Any Excess insurance shall be written on an occurrence basis and pay on behalf form and shall include the same endorsements and additional insureds as required of the primary policies. Policy shall include Owner, Architect and any others required by Section 11.1 of the General Conditions as additional insureds.

B. Section 11.3.1.3 of the General Conditions is hereby deleted and replaced in its entirety with the following:

If the property insurance requires deductibles, the Contractor shall pay costs not covered because of such deductibles in the event of a claim arising from the Contractor's error or negligence.

C. Section 11.1.4 of the General Conditions provides that Contractor shall cause the commercial liability coverage required by the Contract Documents to include the Owner, among others, as an additional insured for certain claims.

1. Additional insureds coverage:

a. Insurance certificates shall specifically indicate by name the additional insureds which are to include Owner and Architect as well as other persons or entities so identified:

- 1) "Johnson County Emergency Management Commission, its officers and employees, and Architect shall be named as additional insureds" on the Contractor's, subcontractor's and independent contractor's liability insurance policies and certificates of insurance.
- 2) No Others

2. General Aggregate Limits specified above shall apply separately to this project by attachment of Additional Insured Endorsement, and Governmental Immunities Endorsement, text as given below.

**JOHNSON COUNTY EMERGENCY MANAGEMENT COMMISSION
ADDITIONAL INSURED ENDORSEMENT**

Johnson County Emergency Management Commission, including all its elected and appointed officials, all its employees and volunteers, all its boards, commissions and/or authorities and their board members, employees, and volunteers, are included as Additional Insured with respect to liability arising out the Insured's work and/or services performed for Johnson County Emergency Management Commission. This coverage shall be primary to the Additional Insured, and not contributing with any other insurance or similar protection available to the Additional Insureds, whether available coverage be primary, contributing or excess.

A COPY OF ONE (1) ENDORSEMENT IS REQUIRED:

Cancellation and Material Changes Endorsement

Thirty (30) days Advance Written Notice of Cancellation, Non-Renewal, Reduction in insurance coverage and/or limits and ten (10) days written notice of non-payment of premium shall be sent to:

Dave Wilson, Director
Johnson County Emergency Management Agency
4529 Melrose Avenue
Iowa City, IA. 52246
Email: Dave.Wilson@jecc-ema.org

(Please note that Johnson County does accept a signed letter on the agent's letterhead, from the insured's insurance agent, confirming that the agent will provide notice as indicated above.)

The Contractor is required to purchase and maintain insurance coverage to protect the Contractor and

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Johnson County EMA throughout the duration of this Contract as enumerated above in the minimum limits above written and the requirement shall be a part of the Contract. Failure on the part of the Contractor to maintain this insurance in full effect will be treated as a failure on the part of the Contractor to comply with these requirements and be considered sufficient cause to suspend the work, withhold payment(s), and/or be disqualified in the future.

The insurance policies shall be issued by insurers authorized to do business in the State of Iowa and currently having an A.M. Best Rating of "B+" or better. All policies shall be occurrence form. If Professional Liability coverage is written on a claim made policy form, the certificate of insurance must clearly state coverage is claims made and coverage must remain in effect for at least two years after final payment with the Contractor continuing to furnish Johnson County EMA certificates of insurance.

The Contractor shall be responsible for deductibles and self-insured retentions in the Contractor's insurance policies.

The Contractor is required to give Johnson County EMA notice of any change in coverage, specifically, any reduction in coverage and cancellation of coverage no less than thirty (30) days prior to the effective date of any non-renewal or cancellation of any policies required by the Contract.

JOHNSON COUNTY EMERGENCY MANAGEMENT COMMISSION intends to be an Additional Insured with coverage being primary and not contributing with any other insurance or similar protection available to JOHNSON COUNTY EMA whether any other coverage is primary, contributing or excess. JOHNSON COUNTY EMA may require an endorsement preserving JOHNSON COUNTY EMA's governmental immunities under such coverage. See attached.

In the case of any work sublet, the Contractor shall require subcontractors and independent contractors working under the direction of either the Contractor or a subcontractor to carry and maintain the same workers compensation and liability insurance required of the Contractor.

A Certificate of Insurance is required evidencing all required insurance coverage as provided above with any required endorsements attached so as to evidence their inclusion in the coverage. The Certificate of Insurance is due before the Contract can be approved.

The following address must appear in the Certificate Holder section:

Johnson County Emergency Management Commission
4529 Melrose Avenue
Iowa City, IA. 52246

Email: Dave Wilson, Dave.Wilson@jecc-ema.org

The Producer's contact person's name, phone number and e-mail address are required.

Certificate may be sent by e-mail (Dave.Wilson@jecc-ema.org).

At the end of Subparagraph 11.1.1 add the following:

Bonding Requirements: Applicable for construction or facility improvement contracts or subcontracts exceeding the simplified acquisition threshold (\$150,000), the awarding agency may accept the bonding policy and requirements of the recipient (State of Iowa) or sub-recipient (JOHNSON COUNTY) provided the awarding agency has made a determination that the awarding agency's interest is adequately protected. If such a determination has not been made, the minimum requirements shall be as follows:

- a. A bid guarantee from each Contractor equivalent to five percent (5%) of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the Contractor will, upon acceptance of its bid, execute such contractual documents as may be required within the time specified.

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- b. A performance bond on the part of the Contractor for 100 percent (100%) of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the Contractor's obligations under such contract.
- c. A payment bond on the part of the Contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

JOHNSON COUNTY EMERGENCY MANAGEMENT COMMISSION
GOVERNMENTAL IMMUNITIES ENDORSEMENT

1. Nonwaiver of Government Immunity. The insurance carrier expressly agrees and states that the purchase of this policy and the including of Johnson County Emergency Management Commission as Additional Insured does not waive any of the defenses of governmental immunity available to Johnson County Emergency Management Commission under Code of Iowa Section 670.4 as it now exists and as it may be amended from time to time.
2. Claims Coverage. The insurance carrier further agrees that this policy of insurance shall cover only those claims not subject to the defense of governmental immunity under the Code of Iowa Section 670.4 as it now exists and as may be amended from time to time.
3. Assertion of Government Immunity. Johnson County Emergency Management Commission shall be responsible for asserting any defense of governmental immunity, and may do so at any time and shall do so upon the timely written request of the insurance carrier. Nothing contained in this endorsement shall prevent the carrier from asserting the defense of governmental immunity on behalf of Johnson County Emergency Management Commission.
4. Non-Denial of Coverage. The insurance carrier shall not deny coverage under this policy and the insurance carrier shall not deny any of the rights and benefits accruing to Johnson County Emergency Management Commission under this policy for reasons of governmental immunity unless and until a court of competent jurisdiction has ruled in favor of the defense(s) of governmental immunity asserted by Johnson County Emergency Management Commission.
5. No Other Change in Policy. The insurance carrier and Johnson County Emergency Management Commission agree that the above preservation of governmental immunities shall not otherwise change or alter the coverage available under the policy.

END OF SECTION 007300

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SECTION 01 10 00 – SUMMARY OF WORK

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Description of construction delivered under single prime contract.
2. Restrictions that affect construction operations.
3. Use of buildings, premises, and site.
4. Concurrent work by the Owner.

1.2 GENERAL SUMMARY OF WORK AND ADDITIONAL DEFINITIONS

A. Owner: Johnson County EMA

B. Project Location: Tiffin, IA

C. General Scope: Project consists of Construction Activities required for the Johnson County EMA Building Project as described in the Contract Documents.

1. Work Included: Provide labor, materials, articles, equipment, incidentals, items, tools, services, supplies, methods, operations, skills in such quantities as may be necessary to complete Project within intent of Contract Documents.
2. Singular notations shall be considered plural where plural application is reasonably inferable. Mention or indication of extent of work under work division or specification section is done only for convenience of Contractor and shall not be construed as describing all work required under that Division or Section.

D. Construction Contract: Construction will be accomplished under a single Prime Contract.

E. Construction Limits: Except as specifically indicated or as may be necessary to complete the Work under the Contract, activities of the Contract shall be limited to within the limits designated on Drawings.

1.3 SUBCONTRACTORS

A. Do not award work to Subcontractor without prior approval of the Architect. Approval will not be given until Contractor submits List of Subcontractors containing such information as required concerning the proposed Subcontractor and scope of subcontract. (Refer to Section 01 33 00 - Submittals).

1.4 USE BY OWNER

- A. Owner reserves the right to let other contracts in connection with this Project or in connection with existing buildings. This Contractor must afford other contractors' reasonable opportunity for the introduction and storage of their materials and execution of their work, and shall properly connect and coordinate the contractor's work with theirs.
- B. Owner reserves the right to jointly occupy the premises with Contractor in performance of Owner's duties and functions. Owner also reserves the right to: enter into the Project and premises; make installations of materials and equipment at appropriate times as the Work progresses; install equipment, furniture and furnishings when spaces are at appropriate stages of completion. Coordinate work with Owner and cooperate with Owner to minimize undue interferences.
- C. If any part, unit, phase, or the entire Project is substantially complete or ready for occupancy, Owner may, upon notice to Contractor, and without prejudice to rights of Owner or Contractors, enter into and make use of work that is substantially complete.

1.5 FIELD CONDITIONS

A. Conditions existing at the time of inspection for bidding purpose will be maintained by Owner as far as practical.

1.6 MAINTAINING SERVICES AND FUNCTIONS

- A. Work at Occupied Facilities: After Owner's occupancy (full or partial) of Project or unit, stage, phase or area, work remaining to be accomplished in the occupied spaces shall be done in cooperation with, and approval by, Owner and scheduled in advance with Owner. In general, work in occupied spaces shall be done when the space is not in use, such as after hours in administrative areas or public spaces when public use hours are over for the day, unless specifically approved by Owner. Where necessary, overtime shall be used if work cannot reasonably be accomplished during normal work periods, at no extra cost to Owner. Perform work in occupied areas in a manner and at such time as will not significantly interfere with, hamper or inconvenience Owner's program or functions.

1.7 OTHER BONDS, PERMITS, FEES

- A. The overall Building Permit will be paid for by the Owner.
- B. Provide and pay for bonds, fees, permits, and connection fees that may be required by the City and other jurisdictions having authority. This shall also include connecting/tapping permits and fees required by municipalities to directly accomplish work under the scope of this project. Additional, specific trade permit, connections, right-of-way, and excavation permits & fees shall be paid for by contractor installing a utility.

1.8 WARRANTIES

- A. In the event of conflict, inconsistency, or difference between a warranty issued by a supplier or contractor and terms of specifications, Owner, if it becomes necessary to enforce terms and provisions of warranty or specifications, may elect to enforce either submitted warranty or specifications.

1.9 ELECTRONIC FILES

- A. Upon request, one copy of the electronic files of the Contract Documents in PDF form will be provided. Contractor making request for CAD/Revit file shall submit to the architect the file transfer request form prior to the receipt of CAD/electronic files. Architect or Architect's consultants will provide request form for the Contractor's signature.
- B. Architect, and Owner provide no warranties express or implied with respect to electronic files, including but not limited to, Spear in type warranties, warranties of merchantability and/or fitness for a particular purpose. Please provide the applicable Terms and Conditions with a list of drawing files requested.

1.10 COPIES OF DRAWINGS AND SPECIFICATIONS

- A. Contractor will be provided with one paper and one portable document format (.pdf) file copy of the Drawings and Specifications free of charge. Dedicate one set for the on-site set to record changes as Record Set.

1.11 SAFETY

- A. Contractor shall submit their written safety program which shall comply with the minimum project requirements specified in Section 01 31 50 – Site Safety Policy.
- B. Contractor shall appoint a responsible employee to act as Safety Director (fire and accident or separate individuals for each) whose duty it shall be to prevent accidents and minimize fire hazards and to enforce safety precautions. Safety Director shall develop procedures and regulations to guide Contractor, subcontractors, and workers. With respect to existing buildings, facilities, and Owner's staff, Safety Director shall consult with and be guided by directions of Owner.
- C. Compliance: Contractor and Subcontractors shall conform to and abide by requirements of Safety Director.
- D. Inspection: Site Safety Officer shall periodically inspect spaces of work under this Contract and operations of Contractor and shall promptly remove or correct hazards and provide written documentation of the inspections and corrections to the CM.

1.12 SCHEDULE REQUIREMENTS

- A. Contractor shall prepare and submit a detailed schedule that meets or exceeds the dates listed in the construction schedule provided under section 01 43 00 – Project Schedule.

PART 2 – SCOPE OF WORK

2.1 SUMMARY

- A. This section generally summarizes the work, exclusions, and special considerations as a guide to aid in the assignment of work. If a conflict regarding assignment of work exists between the drawings and specifications and this description, the Scope of Work will take precedence.
- B. Contractor shall be responsible for identifying, and bringing to the attention to the architect, potential conflicts in scheduling or the interface with the work of others.
- C. Unless specifically stated otherwise, incidental work required to accomplish the work shall be included in the Bid for this project. This would include, but not be limited to, temporary facilities, protection of the work, security of equipment, etc.
- D. Contractor shall be responsible to protect, repair and/or replace all items of the Project damaged as a result of its operations, included but not limited to: seeding/sod, subgrade ruts from vehicles, equipment, or deliveries, scratches in finishes, temporary covers, temporary enclosures, etc.
- E. Contractor shall protect (or maintain existing protection measures) any finished or in place work and furnishings previously completed by other contractors, or owner provided. This includes but not limited to: heavy craft paper, plastic sheeting, and hardened barriers.
- F. Contractor shall complete the mockup construction and participate in testing and evaluation per the drawings and specifications.
- G. Contractor shall coordinate with and assist the Commissioning Providers to coordinate and complete the work outlined in the specifications.

2.2 BID PACKAGES

- A. Single Prime Contracts: The Owner reserves the right and fully intends to enter into a single prime contract for work to be completed for this Project.
- B. Points of Clarification: It is the responsibility of the Bidder to review all Bid Documents to ascertain the total scope of work.
- C. General Notes:
 - 1. Contractor is responsible for keeping their tools, equipment, and materials neat and organized. Contractor shall participate in a daily cleaning program.

2.3 SINGLE PRIME CONTRACT SCOPE INFORMATION

- A. Include scope covered by all Specifications and Drawings.
 - 1. General
 - a. Provide all required submittals for this bid package within 30 days after award of contract. The submittal process for this project will be critical to meet the schedule.
 - b. This Contractor shall be solely responsible for verification that the work has been installed per the Contract Documents.
 - c. Compliance with OSHA guidelines, Site Safety Policy, and the Excavation Safety Standard.
 - d. Maintaining a clean worksite by providing daily cleaning.
 - e. Provide dumpsters and be responsible for all costs associated with removing construction waste from the site.
 - f. Include all mobilizations required to perform the work.
 - g. Provide hoisting and equipment to complete the work.

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- h. Request, schedule, and coordinate all inspections with authorities having jurisdiction.
- i. Coordinate material testing from with Owner's testing agency and submit results to owner.
- j. Provide all layout required to complete the work.
- k. Install all items in accordance with ADA and other requirements having jurisdiction. Choose strictest guidelines in areas of jurisdiction overlap.
- l. Construction Trailers: Refer to specification section 01 51 00. In the event the Contractor chooses to have office or tool trailers on site they will be required to extend temporary electrical as needed. The Owner will pay for electrical utility consumption costs. The Internet is not available for the Contractor.
- m. Contractor is responsible for providing porta-potties for their workers.
- n. When site space does not allow the Contractor is responsible for storage of materials until needed at the jobsite.
- o. Provide temporary fire extinguishers in the building as required by regulations and/or local jurisdiction.
- p. Contractor is required to have a representative attend coordination meeting on site. Meeting schedule is not to exceed every other week.
- q. Contractor is responsible for building signage indicating building is under construction. They are also responsible for temporary construction fencing and flagging for any work performed outside of the building and for storage areas.
- r. It is recommended that the contractor document, before the start of construction, the condition of the existing roads and sidewalks. Damage to roads and sidewalks as a result of construction will need to be repaired.
- s. As-built drawings are to be submitted within 2 weeks of the final completion of each building.
- t. Contractor shall ensure the building is secure and locked when workers are not present.

PART 3 - EXECUTION
Not Used.

END OF SECTION 01 10 00

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.
- B. Related Requirements:

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 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 form in this section.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or 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 substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.

- g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research reports evidencing compliance with building code in effect for Project.
 - i. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. 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.
 - l. 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 7 days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 14 days of receipt of request, or 7 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.

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.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 14 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.

- h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.
 - i. Requested substitution provides specified warranty.
 - j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

**SECTION 01 25 00
PRODUCT SUBSTITUTION REQUEST FORM**

To:
Attn:
Specified Item:

Project:
Proposed Substitute:

1. The following are attached (Mark all that apply):
- | | |
|---|--|
| ☐ Complete Description | ☐ Catalog |
| ☐ Laboratory Tests | ☐ Spec Data |
| ☐ Information on the availability of maintenance services and replacement materials for proposed substitute(s) | ☐ Names, addresses, and phone numbers of fabricators and suppliers for proposed substitute(s) |
2. This substitution will have the following effects on dimensions, gauges, weights, etc.:
3. This substitution will have the following effects on wiring, piping, ductwork, etc.:
4. This substitution will have the following effects on other trades:
5. This substitution will have the following effect on construction Schedules:
6. The proposed substitute(s) differs from the specified product(s) in quality and performance as follows:
7. Manufacturers guarantees for the substitute(s) and the specified product(s) are (check one):
- | | |
|--|---|
| ☐ the same | ☐ different (if different, explain below) |
|--|---|

8. If the proposed substitution is accepted, it will result in:
☐ no cost impact ☐ a cost increase of _____
☐ a cost decrease of _____
(If change in cost is indicated, itemization on specified Cost Itemization Form is attached)

9. License fees or royalties are pending on the proposed substitute.
☐ No ☐ Yes (if yes, explain below)

10. The undersigned or the firm represented shall pay for additional studies, investigations, submittals, redesign, and analysis by the Designer necessitated by this substitution request.

Substitutions must be requested in accordance with applicable Contract requirements. After bidding, substitutions are to be submitted only by Contractor. Substitute products should not be ordered or installed without written acceptance.

Submitted by:

Date:

Sign here:

Name:

Telephone:

type or print:

for:

Name of firm:

Address:

Street

address:

and mailing

address

if different:

City, State,
and Zip Code:

Designer's Review Comments:

☐
☐

Accepted
Accepted as noted

☐
☐
☐

Rejected
Rejected (received too late)
Rejected (submittal incomplete)

Additional comments:

For the Designer:

Date:

Signature here:

END OF SECTION 012500

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SECTION 01 29 00

PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Procedural requirements for processing the following:

1. Schedule of Values.
2. Cash flow projections for the project.
3. Unit Prices (if any).
4. Payment applications.
5. Payments at substantial completion.
6. Payment at final completion.
7. Identification of substitutions and alternatives in payment requests.
8. Accounting of Change Order amounts and allowances, and similar cost and payout related requirements.

1.2 SCHEDULE OF VALUES

A. General:

1. Prepare the Schedule of Values, as required by General Conditions, in coordination with the preparation of the progress schedule.
2. Correlate the line items of the Schedule of Values with other administrative schedules and forms required for the work, including the following:
 - a. Progress schedule.
 - b. Payment request form.
 - c. Listing of subcontractors.
 - d. Schedule of alternates.
 - e. Listing of products and principal suppliers and fabricators.
 - f. Schedule of submittals.
3. Provide breakdown of Contract Sum in sufficient detail to facilitate continued evaluation of payment requests and progress reports.
4. A breakdown of principal subcontract amounts will be required (several line items).
5. At Contractor's option, values may be rounded off to nearest whole dollar, but total must equal the Contract Sum.
6. Submit 3 copies of Schedule of Values to Architect.

B. Time Coordination:

1. In the coordination of initial submittals and other administrative "start-up" activities, submit the Schedule of Values to the Architect no later than 7 days before the initial payment request is to be submitted.

1.3 PAYMENT REQUESTS

A. General:

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1. Except as otherwise indicated in the Contract Documents, comply with the procedures and requirements of the General Conditions, including the submittal of supporting documentation and waivers or releases of lien.
 2. Retainage to be set at 3%. Refer to Special Conditions for requirements concerning "retainage" by Owner on payment.
 3. Except as otherwise indicated, sequence of progress payments shall be made on a regular basis, and each must be consistent with previous applications and payments.
- B. Payment Application Times:
1. The period of construction work covered by each payment request is the period indicated in the Supplementary Conditions.
- C. Application Preparation:
1. Payment Application Forms: AIA Document G702-1992 and G703-1992 Continuation Sheet.
 2. Except as otherwise indicated, complete every entry provided for on the form, including the notarization and execution by authorized persons.
 3. Incomplete applications shall be returned by the Architect without action.
 4. Entries must match current data of both the Schedule of Values and Progress Schedule and Report.
 5. Listing must include amounts of Change Orders approved prior to the last day of the "period of construction" of the application.
- D. Initial Payment Application: The following must be received by the Architect prior to submittal of the first payment application.
1. Listing of subcontractors and principal suppliers and fabricators.
 2. Schedule of values.
 3. Progress schedule.
 4. Schedule of submittals.
- E. Application at Time of Substantial Completion:
1. Following the issuance of the Architect's "Certificate of Substantial Completion", and also, in part as applicable to prior certificates on portions of completed work as designated, a "special" payment application may be prepared and submitted by the Contractor.
 2. The principal administrative actions and submittals which must precede or coincide with such special applications are specified in the General Condition, and elsewhere in the Contract Documents.
- F. Final Payment Application:
1. The administrative actions and submittals which must proceed or coincide with submittal of the final payment application can be summarized as follows, but not necessarily limited to these:
 - a. Completion of project closeout requirements.
 - b. Completion of items specified for payment application at time of substantial completion (regardless of whether such application was made).
 - c. Assurance, satisfactory to Architect, that unsettled claims will be settled and that work not actually completed and accepted will be completed without undue delay.
 - d. Transmittal of required project construction records to architect.
 - e. Proof, satisfactory to architect that taxes, fees and similar obligations of the Contractor have been paid.
 - f. Removal of temporary facilities, services, surplus materials, rubbish and similar provisions.
 - g. Change over of door locks and other Contractor access to Owner's property.
 - h. Consent of Surety for Final Payment.
- G. Application Transmittal:

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1. Submit four executed copies of each payment application, include one copy with completed waivers of lien and similar attachments.
2. Transmit each copy with a transmittal form listing those attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.
3. Transmit to architect to ensure receipt within 24 hours.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 29 00

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SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Coordination of Work of Contract from beginning of construction activity through Project closeout and warranty periods.

B. Related Sections:

1. General Conditions.
2. Section 011000 - Summary of Work.
3. Section 013300 - Submittal Procedures.
4. Section 015100 - Construction Facilities and Temporary Controls.
5. Section 017800 - Closeout Submittals.

1.2 SUBMITTALS

- A. Coordination Drawings: Submit in accordance with Section 013300, and as specified herein.

1.3 COORDINATION SCHEDULING

- A. Schedule Coordination: Special coordination and cooperation efforts are required for certain interrelated phases of the work, such as:

1. Sequencing of work.
2. Construction of temporary spaces and facilities;
3. Removals and relocations of existing services and facilities;
4. Ceiling work; connecting the Owner's equipment;
5. Installation of and connections to new utilities;
6. Providing and maintaining temporary heat and other temporary facilities; and similar work.

- B. Coordinate scheduling, work activities, submittals, including deferred approvals (if any), Owner's separate contracts (if any), Owner's material/product direct purchase (if any), and work of the various sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.

- C. Coordinate sequence of Work to accommodate any Owner's separate contracts and Owner Occupancy as specified in Section 011000.

- D. General: The nature of the Project makes it imperative that the Contractor and all subcontractors coordinate their work and cooperate with each other and the Owner from the start of the Project to completion.

- E. Notice: Give adequate and timely notice of various work phases and operations which will affect the work of, or will require installations or other action by others.

1. After timely notification of the need to accomplish a particular phase or element of the Work, the Contractors shall, within a reasonable time, perform their work as not to delay or impede others or the progress of the Project.
- F. Set up control procedures so that approved schedules are adhered to. Contractor's responsibility is to properly notify the architect and owner of anticipated and actual time delays.
 1. Refer to General Conditions.
- G. Contractor's job supervisor shall be on the job during the execution of the work of the contract. This includes supervision of subcontractors.
 1. Refer to General Conditions.
 2. Full time supervision is required during self-performed work.
 3. Supervision, as necessary, of subcontractors to ensure drawings, specifications, and safety requirements are met.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 COORDINATION/ENGINEERING DRAWINGS:

- A. Prepare and submit complete 1/4 inch = 1 foot 0 inches coordination drawings, including plans, sections, details, etc., indicating the complete layout and all mechanical and electrical equipment in all areas and within the ceiling spaces for new and existing conditions, including bottom of duct, pipe, conduit and elevations.
- B. Each of these Contractors shall be responsible to ensure that all relevant mechanical and electrical equipment, piping, conduit, ceiling hangers, etc., is shown and will fit.
- C. Conflicts shall be resolved by the Contractors and Architect.
 1. Submit completed and fully coordinated drawings and provide six (6) copies, together with Contractor's comments indicating possible areas of conflict for review prior to start of construction.
- D. Contractor is responsible for providing all vertical sections through floors showing structural physical restraints, architectural restraints, plenum spaces and all other physical obstructions that may affect the work.
 1. Provide for integration of the work, including work first shown in detail on shop drawings or product data.
 2. Show sequencing and relationship of separate units of work which must interface in a restricted manner to fit in the space provided, or function as indicated.
 3. Coordination drawings are considered shop drawings and must be definitive in nature.
- E. Electronic reproduction or photo reproduction of Architectural drawings will not be acceptable.
- F. At completion of work, all coordination drawings shall be submitted together with record drawings of general, mechanical, electrical, plumbing and fire protection trades in accordance with Section 013300 – Submittal Procedures.
- G. Review of Coordination/Engineering Drawings is for design intent only and shall not relieve the Contractor from overall responsibility for coordination of all work performed pursuant to the Contract, or from any other requirements of the Contract.

3.2 EQUIPMENT COORDINATION

- A. Install equipment in accordance with manufacturer's recommendations and instructions.
- B. Equipment Coordination: With respect to mechanical and electrical features of Contractor and Owner supplied equipment, complete data must be exchanged directly between the Contractor and those vendors and subcontractors involved as the progress of the Project requires.
 - 1. The person requesting the information shall advise when it will be required.
 - 2. Examine Owner's existing equipment and determine the rough-in data. Owner will furnish data for equipment purchased by Owner. Owner will disconnect equipment and relocate to new space for connections by Contractor.
 - 3. Consult Owner to verify status of rough-in data.
 - 4. If rough-in details are not available at the time service systems are being installed, postpone final rough-in until data is available.
- C. Subcontractors for casework and equipment are expressly required to provide large scale layout drawings for casework and equipment showing the required rough-in locations of all services (dimensioned from building features) service characteristics, and locations of studs where the location is critical to mounting or otherwise installing equipment and casework.
 - 1. Furnish sizes and spacing required for mechanical and electrical cutouts, and a complete brochure of fittings, sinks, outlets, or other information to provide complete data on the items and accessories being furnished.
- D. In the event of incorrect, incomplete, delayed or improperly identified information, the entity causing the delay or error shall be responsible and pay for any modifications or replacements necessary to provide a correct, proper and new installation, including relocations required.
- E. Services: Rough-in sleeves for waste and other services passing through the floor shall be installed prior to pouring the floors if data is available.
 - 1. Core drilling for holes may be done to facilitate job progress or to more accurately locate holes with permission of the Architect, without additional reimbursement.
- F. Sleeves are required at core drilled holes. Where permission is obtained to omit sleeve, drill hole one inch larger than the outside diameter of the pipe or conduit, or one inch larger than outside diameter of insulation, where insulated.

3.3 FIELD DIMENSIONS FOR CASEWORK AND EQUIPMENT

- A. Accurate field dimensions are required in ample time to permit fabrication of casework and equipment for delivery and installation in accordance with the schedule.
 - 1. To obtain dimensions and to prevent fabrication delay, cooperate in completing work phases to accommodate the schedule.
- B. Be responsible for obtaining correct field dimensions and informing the various fabricators before start of construction.

3.4 MEETINGS

- A. Pre-Construction Meeting: After award of contract, the Contractors shall attend a Pre-Construction Meeting.
 - 1. Procedures to be followed, critical work sequencing, coordination efforts and similar matters will be reviewed.

- B. Progress Meetings: During construction, periodic site meetings will be held with the Contractors and major Subcontractors.
 - 1. These meetings will be held weekly and may be held more frequently if job progress and needs indicate.
 - 2. Contractors and major Subcontractors shall have one or more responsible representatives in attendance.

3.5 COORDINATION OF SPACE

- A. Coordinate use of Project space and sequence of installation of mechanical and electrical work which is indicated diagrammatically on Drawings.
 - 1. Follow routings shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building.
 - 2. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- B. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.
- C. Off-Site Fabrication: Off-site fabrication is encouraged as much as possible and deliveries scheduled so materials and equipment can be installed immediately after delivery.
 - 1. Alert and advise others of the need to hold deliveries until they are notified the materials are required on the site.
- D. Notice: Give adequate and timely notice of various work phases and operations which will affect the work of, or will require installations or other action by others.
 - 1. After timely notification by the Contractor of the need to accomplish a particular phase or element of the Work, the Contractor shall, within a reasonable time, perform their work as not to delay or impede others or the progress of the Project.
- E. Coordination of phases of the work: Special coordination and cooperation efforts are required for certain interrelated phases of the work, such as:
 - 1. Sequencing of remodeling work; construction of temporary spaces and facilities; removals and relocations of existing services and facilities; ceiling work; connecting the Owner's equipment; installation of and connections to new utilities; connections to existing buildings; demolition work; providing and maintaining temporary heat and other temporary facilities; and similar work.

3.6 LABELS, NAMEPLATES AND TRADEMARKS

- A. Provide permanent nameplate on each item of service-connected or power-operated equipment. Locate nameplate on easily accessible surface.
 - 1. Nameplate shall indicate manufacturer, model number, serial number, capacity, speed, electrical characteristics and similar essential operating data.
- B. UL fire rating labels and other labels which must be visible after installation shall be located on inconspicuous surfaces.
 - 1. Other labels and trademarks shall be located on concealed surfaces or shall be removable without damaging surfaces.
 - 2. Do not permanently attach or imprint labels or trademarks on surfaces which will be exposed to view in occupied spaces.

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- C. Do not paint, deface or conceal required nameplates or labels.

3.7 COORDINATION OF CLOSEOUT PROCEDURES

- A. Coordinate completion and cleanup of work of separate trades in preparation for Owner occupancy.
- B. After Owner occupancy of premises, coordinate access to site by various trades for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- C. Assemble and coordinate closeout submittals specified in Section 017700.

END OF SECTION 01 31 00

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SECTION 01 31 50

SITE SAFETY POLICY

PART 1 - GENERAL

1.1 GENERAL SAFETY AND HEALTH PROVISIONS

- A. All contractors assume the responsibility for complying with 29 CFR 1926, OSHA Standards for the Construction Industry for their portion of the work, including any portion of their work which is subcontracted.
- B. Each contractor shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury. Contractors shall maintain records of all employees' safety training.
- C. The use of any machinery, tool, material or equipment which is not in compliance with any applicable OSHA requirement is prohibited. Such machine, tool, material or equipment shall either be immediately repaired, identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from the job site.
- D. In order to maintain the highest levels of safety, a representative will conduct and document at least one weekly job site safety audit. Safety observations will be made during all work activities. Contractor site management will be notified of identified hazards or unsafe behavior. Failure to correct the identified hazards or unsafe behavior will result in the following:
 - 1. 1st repeat - A letter being sent to the contractor's main office requesting follow up; any individual not complying with the Site Safety Policy can be removed from the job site at the owner's request.
 - 2. 2nd repeat - A letter to the owner recommending that all pay requests be withheld until the contractor corrects all identified hazards and unsafe behavior observed and has provided details of the corrective action in writing.
 - 3. 3rd repeat - A letter to the owner recommending a 3-day contract termination notice be issued to the contractor.
- E. Accident Reporting
 - 1. All employees shall be instructed to report all injuries or damage to equipment or property to their Supervisor immediately. Supervisors shall contact the Owner's Representative as soon as practical once they have been notified of an employee injury. The supervisor shall report:
 - a. Name of injured employee
 - b. Accident location
 - c. Witnesses, if any
 - d. Nature of injury
 - 2. All accidents that result in injury to workers, regardless of their nature, shall be investigated and reported. Written accident investigation reports shall be submitted to the owner. If the contractor does not have their own form, they shall use an Accident Investigation form which can be provided by the owner.
 - 3. Each contractor shall have emergency contact information posted on-site. As a minimum, it will include emergency numbers, the name and phone number for a doctor and hospital designated for treatment by the Company.
 - 4. Contractor supervisors, managers, directors and officers shall participate in incident analysis as requested by the owner.
- F. All contractors shall provide and maintain a first-aid kit on site for employee use.

- G. Work areas must be kept clean and free from hazards. Housekeeping shall be conducted at the end of each shift or more frequently as requested by the owner.
- H. AM/FM Radios, CD players, MP3 players, DVD players and similar audio-visual equipment with or without ear buds are prohibited on site.
- I. Prior to taking any photos on site, each contractor shall get approval from the Owner.
- J. Tobacco is prohibited on all jobsite grounds, including the use of E and Vape type cigarettes.
- K. Contractors shall provide an adequate supply of drinking water for all of their employees. Disposable drinking cups shall be provided for the employees and a trash receptacle for the disposable drinking cups shall be provided by the contractor.
- L. The contractor shall provide toilet facilities for contractors and employees.
- M. Contractor employees are prohibited from using the owner's lavatory/bathroom, eating or drinking facilities unless directed otherwise.
- N. Contractors shall maintain a copy of all Safety Data Sheets (SDS) for all applicable chemicals brought on site. Contractors are responsible for employee training in accordance with 29 CFR 1926.59, Hazard Communication.
- O. All contractor employees must attend a jobsite safety orientation and sign an attendance sheet prior to starting work onsite.

1.2 PERSONAL PROTECTIVE EQUIPMENT

- A. Basic PPE requirements shall be in accordance with 29 CFR 1926 Subpart E and contract documents.
- B. Dress Code - All employees shall wear a minimum of 3" sleeve on shirts. Sleeveless shirts and tank tops are prohibited. Employees shall wear long pants made of denim or equivalent material; shorts are prohibited. All clothing shall be free of large holes and offensive language or illustrations. Type 2 Hi-Vis clothing to be worn while construction equipment is operating, bright or "Hi-Vis" (ex: safety orange or green) for all other activities. The owner has the sole discretion to determine if clothing meets the requirements of this rule.
- C. The worksite requirements are 100% use of hard hats, safety glasses and appropriate work boots, no sneakers or sandals. Appropriate gloves are to be worn for assigned work activity and materials to be handled. Full-face shields are required when operating chop saws or similar power tools. Hard hats shall meet ANSI standards, no backwards hard hats or ball caps under hard hats; they must be free of offensive language or illustrations. The owner has the sole discretion to determine if PPE meets the requirements of this rule.
- D. Safety glasses and hard hats will be issued to contractor employees who do not have them at the beginning of the shift. The contractor shall be charged \$25 for each pair of safety glasses and \$50 for each hard hat issued to their employee(s). Once issued, safety glasses and hard hats cannot be turned in for credit.
- E. Additional PPE requirements may be required based on the hazards present when performing a specific task. The owner may identify additional PPE requirements as necessary for OSHA compliance.

1.3 FIRE PREVENTION AND PROTECTION

- A. Basic Fire Prevention and Protection requirements shall be in accordance with 29 CFR 1926 Subpart F and contract documents. Each contractor shall provide the number and type of fire extinguishers

appropriate for their type of work activity. After the building is enclosed the General Construction/Trades Contractor will provide according to the standard.

- B. A Hot Work Permit shall be submitted by the contractor to and approved by the owner for any activity or operation which produces a source of ignition (spark or flame). Such activities include but are not limited to:
 - 1. Gas welding and cutting
 - 2. Electric arc welding
 - 3. Heating torches and other open flames
 - 4. Soldering
 - 5. Thawing
 - 6. Portable heaters (electric or gas)
 - 7. Tar pots or kettles
 - 8. For any work involving flame, or high heat, producing equipment used in any area of moderate fire exposure.
 - 9. For any work involving flame, or high heat, producing equipment used in any area of high fire exposure.
- C. The following fire prevention actions shall be completed before hot work begins:
 - 1. Combustibles shall be moved at least 35 feet from the hot work operation. If combustibles cannot be moved, they shall be protected by fire blankets.
 - 2. Flammable liquids shall be removed from the area or totally isolated from the vicinity of the hot work operation.
 - 3. Floor wall and other openings shall be closed or covered, this includes floor drains.
 - 4. Combustible dust shall be cleaned from the vicinity of the hot work operations.
 - 5. Where surrounding floors are of combustible construction, they shall be protected by fire blankets.
- D. Disabling existing fire or smoke detection equipment is prohibited except by a certified contractor in coordination with the owner.
- E. Disabling existing fire suppression equipment (sprinklers) is prohibited except by a certified contractor in coordination with the owner.
- F. Fire watches shall be required whenever:
 - 1. Hot work is performed in locations where other than a minor fire might develop.
 - 2. Hot work is performed inside of or any portion of the existing buildings.
 - 3. Appreciable combustible materials are closer than 25' to the point of operation.
 - 4. There are wall or floor openings within 35 ft of the point of operation.
- G. When required, Fire Watches shall be maintained for at least 30 minutes after completion of the hot work to look out for any smoldering or other fire.
- H. The Contractor shall coordinate flammable storage area locations with the owner. Flammable Storage Areas shall be fenced in with orange snow fence. Signage for flammable storage area and no smoking shall be placed on all four sides of the fence.
- I. Oxygen and other incompatible materials shall not be stored within 25 feet of the flammable storage area.

1.4 SIGNS, SIGNAL AND BARRICADES

- A. Basic sign, signal and barricade requirements shall be in accordance with 29 CFR 1926 Subpart G and contract documents. The Contractor shall provide the number and type of signs, signals and barricades appropriate for their type of work.

1.5 MATERIAL HANDLING, STORAGE, USE AND DISPOSAL

- A. Basic Material Handling requirements shall be in accordance with 29 CFR 1926 Subpart H and contract documents.
- B. No material shall be stored within 6 feet of an access or egress of the existing building.
- C. All lay down areas and staging areas shall be approved by the owner. All Material Handling Equipment (MHE) operators shall be trained and/or certified on the equipment they operate in accordance with applicable OSHA standards.
- D. Rigging equipment shall be used only for it's intended use and shall not be loaded in excess of its rated capacity.
- E. Free rigging from fork lift tines is prohibited unless the contractor has written approval from the rigging and forklift manufacturer.
- F. Contractor must follow all EPA, DNR and other applicable regulations relating to the handling and disposal of all hazardous or other regulated material and waste.

1.6 TOOLS - HAND AND POWER

- A. Basic Material Handling requirements shall be in accordance with 29 CFR 1926 Subpart I and contract documents.
- B. The contractor shall not restrict the operation of, remove or otherwise disable the guard or other safety device on any tool.
- C. The T-handle must be installed on all ½" or larger portable drills.
- D. All pneumatic hose line connections must be secured with cotter pins and whip lines or equivalent.
- E. Air used for cleaning shall be regulated, by the user, to a maximum of 30 psig.
- F. Hand tools shall be kept in good condition - sharp, clean, oiled, dressed. Damaged or defective tools shall be taken out of service and tagged "DO NOT USE" until properly repaired, removed from job or disposed of.

1.7 WELDING AND CUTTING

- A. Basic Welding and Cutting requirements shall be in accordance with 29 CFR 1926 Subpart J and contract documents.
- B. Prior to starting any welding or cutting operation, a Hot Work Permit shall be completed and approved as described in Section F, Fire Protection and Prevention
- C. All welding equipment shall be inspected daily prior to use. Damaged or defective equipment shall be taken out of service and tagged "DO NOT USE" until repaired.
- D. A minimum one 10 lb. ABC rated fire extinguisher shall be readily accessible (within 25 feet of travel distance) to all welding and cutting operations.
- E. Arc welding and cutting operations shall be shielded by noncombustible or flameproof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.
- F. Spark containment shall be utilized during all welding, burning and grinding operations. Spark containment may include laying fire blankets, placing barricades, totally enclosing the spark producing

operation, or by the use of a fire watch. Employees working around or below the welding, burning or grinding operation shall be protected from falling or flying sparks

- G. Areas where welding or cutting operations are performed shall be monitored for 30 minutes after the last welding or cutting operation to check for smoldering or fires which may have gone undetected during the welding or cutting operation. All welding and cutting must be completed 30 minutes prior to the end of a shift.
- H. All oxygen and acetylene equipment shall have a check valve between the torch and the regulator.
- I. Acetylene shall not be adjusted above 15 psig.

1.8 ELECTRICAL SAFETY

- A. Basic Electrical Safety requirements shall be in accordance with 29 CFR 1926 Subpart K and contract documents.
- B. All temporary 120 VAC outlets on the job site shall be protected by GFCI.
- C. All temporary electrical installations, including temporary lighting shall meet the requirements of latest edition of NFPA 70 National Electric Code.
- D. All electrical work shall be performed in accordance with NFPA 70E, Electrical Safety Related Work Practices.
- E. All extension cords shall have a permanent and continuous path to ground. They shall be rated for hard or extra hard usage and shall be a rated S, SJO, SJT, SJTO, SO, ST and STO. Cords shall be inspected daily; damaged or defective cords will be tagged "DO NOT USE" and removed from use for repair, removed from job or disposed of.
- F. All electrical equipment shall be listed and labeled as to its intended use and purpose. Electrical equipment shall only be used in accordance with its listing and labeling.

1.9 SCAFFOLDS

- A. Basic Scaffold Safety requirements shall be in accordance with 29 CFR 1926 Subpart L and contract documents.
- B. Rolling scaffolding shall have all wheels locked when personnel are aloft. Moving rolling scaffold with personnel on board is prohibited.
- C. Ladders rungs shall not be used to support scaffold planking.
- D. Contractor employees must know the capacity of the scaffold they are working on and must not exceed the rated capacity of the scaffolding.

1.10 FALL PROTECTION

- A. Basic Fall Protection requirements shall be in accordance with 29 CFR 1926 Subpart M and contract documents.
- B. 100% Fall Protection at 6 feet is required.
- C. At the OWNER's request the contractor shall provide a Site Specific Fall Protection Plan which contains all the details and requirements in Appendix E to Subpart M. When required, the contractor shall not start work until the Site Specific Fall Protection Plan has been reviewed and approved by the Owner's and the

contractor employees have been trained on the Site Specific Fall Protection Plan. Documentation of the training must be available on site.

1.11 HELICOPTERS, HOISTS, ELEVATORS AND CONVEYORS

- A. Basic requirements for Helicopters, Hoists, Elevators and Conveyors shall be in accordance with 29 CFR 1926 Subpart N and contract documents.
- B. Contractors shall operate and maintain elevators and hoisting equipment in accordance with equipment manufacturer's specifications and limitations applicable to its operation.

1.12 MOTOR VEHICLES AND MECHANIZED EQUIPMENT

- A. Basic requirements for Motor Vehicles and Mechanized Equipment shall be in accordance with 29 CFR 1926 Subpart O and contract documents.
- B. The use of seat belts is mandatory in all motor vehicles and mechanized equipment.
- C. A minimum of a 2 lb ABC rated fire extinguisher shall be maintained in all mechanized equipment.
- D. All bi-directional equipment with an obstructed view to the rear shall be equipped with a back-up alarm.
- E. Contractors who track mud or other debris onto public roadways and walkways shall be responsible for the immediate clean-up of the roadway(s).
- F. Motor vehicles and mechanized equipment shall not be left unattended while engines are running.

1.13 EXCAVATIONS

- A. Basic requirements for Excavations shall be in accordance with 29 CFR 1926 Subpart P and contract documents.
- B. The excavating contractor shall be responsible for obtaining underground utility locates prior to the start of excavation operations. Underground locates must be updated every 20 days.
- C. A Competent Person shall daily evaluate the soil and document the inspection to assure proper sloping, benching or protective systems and egress are in place for the safety of personnel in and around the excavation.

1.14 CONCRETE AND MASONRY CONSTRUCTION

- A. Basic requirements for Concrete and Masonry shall be in accordance with 29 CFR 1926 Subpart Q and contract documents.
- B. Employees should wear appropriate clothing, boots and gloves to avoid contact with skin of hands and feet while working with concrete.
- C. When concrete is being pumped, employees on the discharge end of the hose shall be provided with and wear a full face shield.
- D. Power trowels must be equipped with "dead man" switch.

- E. A Limited Access Zone (LAZ) shall be established in accordance with Subpart Q, whenever a masonry wall is being constructed.
- F. Temporary bracing shall be provided in accordance with Subpart Q for all masonry walls over 8 feet high. Temporary bracing shall meet the design requirements detailed in the Standard Practice for Bracing Masonry Walls Under Construction developed by the Council for Masonry Wall Bracing, July 1999. Temporary bracing may be omitted if approved in writing by the Project Engineer of Record.
- G. An independent testing agency shall confirm the concrete has met a minimum of 75% of its design strength based on cylinder testing and that there were no field modifications to any anchor bolts. If there was a field modification to any of the anchor bolts, the contractor shall acknowledge the modification and provide approval for the modification by the Project Engineer of Record.

1.15 STEEL ERECTION

- A. Basic Fall Protection requirements shall be in accordance with 29 CFR 1926 Subpart R and contract documents.
- B. The contractor shall provide a Site Specific Steel Erection and Fall Protection Plan which contains all the details and requirements in Appendix A to Subpart R.
- C. The contractor shall not start work until the Site Specific Steel Erection and Fall Protection Plan has been reviewed and approved by the owner and the contractor employees have been trained on the Site Specific Erection and Fall Protection Plan. Documentation of the training must be available on site.
- D. The contractor shall not begin erection until they receive written approval to begin erection from the owner.

1.16 DEMOLITION

- A. Basic Demolition requirements shall be in accordance with 29 CFR 1926 Subpart T and contract documents.

1.17 POWER TRANSMISSION AND DISTRIBUTION

- A. Basic Power Transmission and Distribution requirements shall be in accordance with 29 CFR 1926 Subpart V and contract documents.

1.18 ROLLOVER PROTECTIVE STRUCTURES; OVERHEAD PROTECTION

- A. Basic requirements for Rollover Protective Structures and Overhead Protection shall be in accordance with 29 CFR 1926 Subpart W and contract documents.

1.19 STAIRWAYS AND LADDERS

- A. Basic requirements for stairways and ladders shall be in accordance with 29 CFR 1926 Subpart X and contract documents.
- B. Stepladders must be set level on all four feet, with spreaders locked in place. Do not use as a straight ladder.
- C. When stepladders are used close to the edge of an elevated platform, roof or floor opening, and when location requirements so specify, they must be tied off.

- D. All trailers and other temporary field facilities that employees must access that have a change of elevation of 19" or more shall have a temporary stairway installed.

1.20 TOXIC AND HAZARDOUS SUBSTANCES

- A. Basic requirements for Toxic and Hazardous Substances shall be in accordance with 29 CFR 1926 Subpart Z and contract documents.
- B. Contractors must have approval prior to bringing and hazardous or toxic substances listed in Subpart Z on site or prior to disturbing any of these substances if found on site.

1.21 CRANES AND DERRICKS

- A. Basic requirements for Cranes and Derricks in construction shall be in accordance with 29 CFR 1926 Subpart CC and contract documents.
- B. Contractors will only use trained and qualified operators and riggers as per the standard and will supply any documentation including but not limited to operator training documents and maintenance records as requested by the OWNER.
- C. Contractor will operate crane within the manufacturer's specifications during all activities.
- D. Contractor will assure the ground conditions have the ability to support the equipment and the equipment will not be assembled or used unless the ground conditions are firm, drained and grade is adequate for use.
- E. No part of the crane, support equipment or rigging will be within 20 feet of a power line during operations, assembly or disassembly; unless power line in question is verified to be de-energized.
- F. Critical lifts are lifts that exceed 75% of the rated crane capacity or multi crane lifts; they must have the OWNER approval before the lifting activity. Lifts greater than 95% of the load capacity in any configuration are NOT permitted.

1.22 SITE AND SAFETY POLICIES

- A. This is not intended to be an all-inclusive list of health, safety or environmental regulations and is intended to be an overview for the health and safety of each person on the jobsite. Any changes or deviations from this policy must have prior written permission from the OWNER safety department.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 013150

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Procedures for submittals.
- B. Related Sections:
 - 1. General Conditions: General Requirements.
 - 2. Section 011000 - Summary of Work.
 - 3. Section 013100 - Project Management and Coordination.
 - 4. Section 017700 - Closeout Procedures.
 - 5. Section 017800 - Closeout Submittals.

1.2 SUBMITTAL SCHEDULE

- A. Prepare and submit "Submittal Schedule" within 10 days after award of Contract, and prior to execution of Contract. Include following information.
 - 1. Specification Section Number.
 - 2. Type of submittal required.
 - 3. Estimated time for submittal.
- B. Coordinate, organize and plan submittal schedule so submittals are sent with appropriate time allowed for review and so submittals do not accumulate into unreasonably large groups.
- C. Some submittals may require additional time for routing and review including, but not limited to, following:
 - 1. Unreasonably large groups of submittals.

1.3 TRANSMITTAL FORM

- A. Send submittals with "Submittal Transmittal Form" completely filled out with appropriate information. Submittals shall be sent to architect.
- B. Submittals sent without properly completed "Submittal Transmittal Form" may be considered incomplete and marked "Not Accepted" and returned without review.
- C. Send separate transmittal forms for each Section and separate transmittals for each type listed:
 - 1. Shop Drawings.
 - 2. Product Data.
 - 3. Samples.
- D. If shop drawings, samples or product data describe the same product or item, send submittals together under same transmittal otherwise send each type submittal under separate transmittals.

1.4 SUBMITTAL ACCEPTANCE

- A. Refer to General Conditions for scope of submittal review and acceptance.
- B. Maintain copies of "Accepted" and "Conditionally Accepted" submittals with record set per Section 017800.
- C. "Accepted" submittals have no exceptions noted. One set of accepted submittals will be returned to Contractor. Make appropriate copies for use and distribution.
- D. "Conditionally Accepted" submittals have exceptions noted but resubmission is not required. Make appropriate copies for use and distribution.
- E. "Not Accepted" submittals are incomplete and/or need corrections. Complete and/or correct and resubmit until final acceptance is obtained.
- F. "Not Reviewed" means submittals were not required or were provided for information only.

1.5 CONTRACTOR'S PLAN OF OPERATION

- A. Submit at Pre-Construction Conference. See Section 013100.
- B. Outline in writing approach to meeting schedule for completing Work.
- C. Plan to include, but not limited to, following:
 - 1. Sequence of Work.
 - 2. Construction Schedule.
 - 3. Schedule of Submittals.
 - 4. Schedule of Temporary Utilities.
 - 5. Staging requirements/street permits.
 - 6. Normal work hours.
 - 7. Parking exceptions
 - 8. Material delivery coordination.
 - 9. Name of person to be liaison to adjacent property Owners.
 - 10. Name of duly authorized representative with whom business may be conducted in connection with administration of Contract.
 - 11. Name of duly authorized superintendent written notices may be given in accordance with Conditions of the Contract.
 - 12. Labor and equipment availability
 - 13. List of Subcontractors
 - 14. Names of contact persons with Owner, Architect and Contractor
 - 15. Proposed schedule of Progress Meetings in accordance with Section 013100 and schedule of submittals per Section 013300 and payment requests per Section 012900 and other reports required by Contract Documents.

1.6 COORDINATION

- A. **Contractor to provide design team, and owners access to electronic system for submitting and approving submittals and shop drawings. System to be Procore or an equivalent.**
- B. Send submittals in logical groups of related items including but not limited to the following groups:
 - 1. Submittal schedule, list of materials, list of subcontractors, schedule of values
 - 2. Doors, frames and hardware.
 - 3. Glass and curtain wall system.
 - 4. Closeout submittals: Refer to Section 017800.

- C. Architect's Digital Data Files: Electronic digital data PDF files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.
1. Architect will furnish Contractor one set of digital data PDF drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
 2. Upon request, copies of electronic CAD files in Architect's current file format, including applicable layers, for each issue (bid packages, construction packages, addenda, etc.) will be provided via e-mail at the Architect's option to Contractor. 3D models will NOT be available.
 3. Architectural 2D CAD Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 4. Contractor shall execute a data licensing agreement in the form of Agreement included in Project Manual.
- D. 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. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- E. 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 ten (10) days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Resubmittal Review: Allow five (5) days for review of each resubmittal.
- F. Electronic Submittals: Identify and incorporate information in each electronic submittal file 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.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
 2. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
- G. 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 action stamp.
- H. 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.
- I. 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/Construction Manager's action stamp.

1.7 DISTRIBUTION

- A. Contractor is responsible for duplication and distribution of accepted submittals including shop drawings. Exchange directly with subcontractors and others involved, not through Owner or Architect.
- B. Provide and exchange submittals as needed to coordinate Work.
- C. Provide copies to Owner if Owner requests copies during construction. Otherwise Owner will receive accepted submittals as part of Record Set submitted during project closeout.

1.8 SHOP DRAWINGS

- A. Use of Architect's Drawings: Do not reproduce Architect's drawings (whether CAD files, electronic files, hard copy drawings or other publication method) to serve as shop drawings until Architect's written permission is received and then only under following conditions.
- B. Drawings that include unnecessary information will be marked "Not Reviewed" or "Not Accepted" and returned.
- C. Shop drawings submitted without requested information and without Contractor's approval will not be reviewed and will be returned to Contractor marked "Not Accepted."
- D. Drawings Submittal Requirements:
 - 1. Submit electronic copy of each drawing unless otherwise specified.
 - 2. Provide additional copies for other contractors for purposes of information and coordination.
 - 3. Number in submittal sequence.
 - 4. Include contractor's stamp of approval, as evidence that drawings are approved in accordance with General Conditions except that field dimensions must be verified prior to approval and submittal.
 - 5. Show field verified dimensions on final shop drawings and identify verified dimensions.
 - 6. Show actual adjacent construction and how each item coordinates with other contractors, subcontractors, trades and suppliers.
 - 7. Drawings must be clear, sharp and readable quality acceptable to Architect/Engineer.
 - 8. Provide clear space on each drawing of not less than 40 square inches for Architect's stamp.
 - 9. Transmit shop drawings, product data, and other appropriate electronically.
- E. Maintain accepted shop drawings as part of "Record Set." See Section 017800.

1.9 PRODUCT DATA AND EQUIPMENT BROCHURES

- A. Provide multiple originals of brochures, cuts, etc., if they are multi-page bound catalogs which would be difficult to photocopy or if they are intended to illustrate color or other appearance characteristics which cannot be adequately represented by photocopies.
- B. Photocopies of original brochures are acceptable except as specified above. Photo copies must be clear and readable. Unreadable or unclear photocopies will be returned "Not Accepted."
- C. Provide layout drawings where necessary for field use or as required by Architect.
- D. Number of Copies of Product Data:
 - 1. Submit electronically unless otherwise specified.
 - 2. Submit additional copies required for 2 Owner's manuals per Section 017800.
 - 3. Additional copies for other contractors for purposes of information and coordination.
 - 4. Number in submittal sequence.
 - 5. Include contractor's stamp of approval, as evidence that drawings are approved in accordance with General Conditions (including field dimensions).

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6. Indicate field verified information as applicable.
 7. Provide clear space of not less than 40 square inches for Architect's stamp.
- E. Provide an index of each page in submittal with space for notes and acceptance stamps.
- F. Warranties:
1. Where warranty is indicated, submit manufacturers' sample warranty with shop drawings.
 2. Submit actual executed warranties or guarantees per Section 017700 and 017800.

1.10 SAMPLES

- A. Deliver samples of materials, equipment, assemblies and components as required by specifications to Construction Manager with delivery costs prepaid. At Architect's/Engineer's direction, remove samples after approval.
1. Provide samples representative of actual product including finishes and other specified characteristics.
 2. Indicate type of construction and quality proposed for installation in Project.
- B. Number Samples:
1. Submit a minimum of 3 samples unless otherwise specified.
 - a. One set of samples to be retained by Architect, one by CM, and one returned to the Contractor.
 2. Provide additional samples for other contractors for purposes of information and coordination.
- C. Maintain record samples of accepted samples with other record documents at project site.

1.11 LIST OF MATERIALS

- A. Submit within 10 days after award of Contract and prior to purchase.
- B. Submit electronic copies of complete list of materials, products, and equipment proposed to be used to Architect/Engineer for acceptance.
- C. Do not order materials or equipment until proposed list of materials is accepted.
- D. Materials and equipment are subject to Architect's and Owner's acceptance.
- E. Arrange list in order of specification sections and in form indicated by Architect/Engineer.
1. Items listed shall fully conform to project requirements and specifications.
 2. Specifically identify each material, product or equipment item by manufacturer, brand and model and other identifying designations including those where only 1 material or product is specified.
 3. Name products specified by reference standards, described by performance requirements and descriptive language.
 4. Do not list "as specified."
- F. Where 2 or more makes or kinds of items are named in specifications (or additional names are listed in an addendum), state which particular make or kind of each item is to be provided.
- G. If list is not received within 10 days, mechanical and electrical equipment under Divisions 21, 22, 23, 25, 26, 27, 28, 40, 41, 42, 43, 44, 45, and 48 will be as scheduled.

1.12 LIST OF SUBCONTRACTORS

- A. Submit within 10 days after award of Contract, and prior to execution of Contract.
- B. Submit with List of Materials.
- C. Submit electronic copies of a complete list.
- D. Do not execute subcontracts until proposed list of subcontractors is accepted by Owner.
- E. List to include the following information.
 - 1. Description of work proposed to be done by subcontract.
 - 2. Names of subcontractors and major material suppliers proposed to perform portions of Work.
 - 3. Names of sub-subcontractors.
 - 4. Include proposed sub-subcontractors for other trades as requested by Architect and Engineers.
- F. Proposed subcontractors or sub-subcontractors (and material supplier installers) shall be established, reputable firms of recognized standing with a record of successful and satisfactory past performance with type work and/or items proposed to be provided or installed by them.
 - 1. Only those subcontractors (and sub-subcontractor when appropriate) who Owner have no reasonable objection to shall be used on Work.
- G. Reasonable objection may arise when, in opinion Owner, there exists a rational belief that proposed subcontractor, sub-subcontractor or material supplier:
 - 1. Cannot provide materials, equipment, facilities or other products as specified or required by Contract Documents;
 - 2. Cannot provide labor and skill necessary to accomplish part of Work for which they are proposed, including but not limited to quality of work;
 - 3. Lacks adequate and appropriate experience for that part of Work proposed, including materials or methods required;
 - 4. Has previously failed to perform in timely or satisfactory manner, including in cooperation and in necessary services after project completion;
 - 5. Proposes deviations in materials or methods that are unacceptable to Architect or Owner, such as proposing materials or products that were not specified or not listed in addenda;
 - 6. Cannot satisfactorily perform part of Work for which contractor is proposed, within time schedule, due to size of organization or existing work load.
 - 7. Cannot demonstrate ability through quality of representative work to perform part of Work for which contractor is being considered;
 - 8. Of questionable integrity;
 - 9. Shows evidence of similar considerations bearing on possibility of unsatisfactory performance.
- H. If Owner has a reasonable objection to person or entity proposed by Contractor to do portion of Work, Contractor must submit substitute to whom Owner has no reasonable objection; no increase in Contract Sum shall be allowed as a result of such substitution.
- I. After acceptance of proposed list, no change of subcontractor, sub-subcontractor or supplier not objected to by Owner, shall be made, except for cause acceptable to Owner.
 - 1. In event of a proposed change, submit reasons for change, in writing, along with alternate proposed subcontractor, sub-subcontractor or material supplier.
 - 2. Proposed change is subject to conditions of this Article and requirements of General Conditions.

1.13 CLOSE-OUT SUBMITTALS

- A. Submit documents specified under Section 017700 and 017800.

- B. Submit 3 hard copies and 1 electronic copy of operating instructions and maintenance manuals to CM at time of CM's instructions. Electronic copy shall be of the original document (scanned or faxed copies will not be accepted).

1.14 OTHER SUBMITTALS

- A. Provide other required submittals as specified.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. Electronic Submittal Procedures

1. Summary:

- a. Shop drawing and product data submittals shall be transmitted to Architect/Construction Manager in electronic (PDF) format.
- b. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
- c. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
- d. **Contractor to provide design team, and owners access to electronic system for submitting and approving submittals and shop drawings. System to be Procore or an equivalent.**

2. Procedures:

- a. Submittal Preparation – Contractor may use any or all of the following options:
 - 1) Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor.
 - 2) Subcontractors and Suppliers provide paper submittals to Contractor who electronically scans and converts to PDF format.
 - 3) Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.
- b. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer/product, dimensions and coordination of information with other parts of the work.
- c. Contractor shall transmit each submittal to Architect.
- d. Architect/Engineer/Construction Manager review comments will be made on the electronic (PDF) document and shall transit each submittal to Contractor
- e. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
- f. Construction Manager will maintain a Bluebeam Studio project for access to all submittals.
- g. Submit paper copies of reviewed submittals at project closeout for record purposes for all mechanical and electrical equipment in accordance with Section 017800 "Closeout Submittals."

3. Costs:

- a. Internet Service and Equipment Requirements:
 - 1) Email address and Internet access at Contractor's main office.

- 2) Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments
- B. 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 not suitable 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. Submit Product Data before or concurrent with Samples.
 4. Submit Product Data in the following format:
 - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm), but no larger than 30 by 42 inches (750 by 1067 mm).
 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 3. Retain first subparagraph below for projects using electronic submittals to provide complete electronic submittal record of Sample items.
 4. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 5. 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.
 6. 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 (1) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 - 7. 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 (3) sets of Samples. Architect will retain two (2) Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
 - 1) 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.
 - E. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
 - F. Maintenance Data: Comply with requirements specified in Section 017700 "Closeout Procedures."
- 2.2 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.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, 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.

3.2 ARCHITECT'S ACTION

- A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as required.

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- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- D. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 013300

SECTION 01 43 00 – PROJECT SCHEDULE

PART 1 - GENERAL

1.1 PROJECT SCHEDULE.

- A. Contractor shall submit detailed construction schedule that shall meet or exceed the following:
 - 1. Contractor will mobilize within 3 weeks of award.
 - 2. Contractor will substantially complete all work, including civil work within 8 months of award.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 014300

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SECTION 01 51 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Procedures:

1. Contractor shall leave clean all tires of vehicles prior to leaving project site and entering public roadways. Any mud tracked onto the owners paving or city streets shall be immediately cleaned by the Contractor.
2. No vehicles or equipment with oil leaks, fuel leaks, or other contaminates will be allowed on site.
3. Construction staging area shall be fenced or taped off when the area is being used as a staging area. An office/tool trailer, if needed, can be located adjacent to staging area shown. In the event additional trailer locations or staging areas are needed we will having a meeting with the users of the site to see if additional space can be provided.
4. Hard hats, safety glasses, long pants, high visibility shirts with sleeves, and OSHA approved work boots are required at all times. Clothing with objectionable language or symbolism will not be permitted.
5. All visitors to the project site must have a legitimate purpose connected with the construction activity and have specific approval of the CM.
6. As the site will have occupied buildings, parking for construction workers shall be limited to the minimum possible (contractors are encouraged to carpool to minimize vehicles) and shall be located along the west side of the parking lot and will be at the discretion of the Owner. Vehicles that stain any pavement will not be allowed on site.

1.2 PROJECT IDENTIFICATION AND CONSTRUCTION SIGNS

A. Size and Layout.

1. The contractor will provide identification signs and No Trespassing signs around the perimeter of the building under construction.
2. Each Contractor is responsible for furnishing signs specific to the safety at the work site (i.e. caution, warning, danger, etc.).
3. No other signs will be permitted at the site unless approved by the owner.

1.3 SITE ACCESS

A. Site access and egress shall be as designated by the owner.

1.4 TEMPORARY UTILITIES

A. Temporary Electricity and Lighting

1. It shall be the Contractor's responsibility to provide and maintain the needed temporary electrical and lighting to meet the construction needs and in compliance with authorities having jurisdiction. The Owner will pay consumption fees related to the electrical, water, gas, etc. services serving the buildings.
2. Contractor shall remove all temporary power and temporary lighting upon completion.

B. Temporary Phone Service

1. Temporary phone service shall be provided for and paid for by Contractor requiring same.

C. Temporary Water

1. Drinking water and wash facilities shall be provided for and paid for by Contractor requiring same.

D. Temporary Fire Protection

1. Contractor shall provide an adequate number of temporary fire extinguishers placed around the work areas. Activities requiring fire extinguishers in the immediate area or fire watch personnel shall be provided by the contractor performing the work.

E. Temporary Sanitary Facilities

1. Contractor shall arrange for and pay for temporary toilet units including installation, service, maintenance, and removal or allow contractors to use a designated toilet room inside the building being renovated. Contractors will not be allowed to use toilet facilities within existing buildings that are not under renovation.

F. Temporary Cooling, Heating, and Venting

1. Temporary heating and ventilation needed for construction shall be provided by the Contractor. Assuming the systems can utilize the existing utilities serving the buildings the Owner will pay the utility consumption fees. If the temporary systems require utilities beyond the capabilities of the existing utilities the Contractor shall pay for the services and the consumption fees.

1.5 TEMPORARY PROTECTION

- A. Contractor shall provide temporary coverings and/or enclosures to protect materials and finishes from damaging conditions, including damaging conditions caused by other trades.
- B. Work damaged by inadequate protection from damaging conditions shall be repaired or replaced as directed and approved by owner and Architect at no cost to Owner.

1.6 REMOVAL

- A. Prior to final inspection, the Contractor shall remove temporary lamps and install new lamps.
- B. At substantial completion of the Project and at least one week prior to final inspection date, complete HVAC systems installed under Contract shall be thoroughly inspected and cleaned by Contractor and turned over to Owner in new condition.
- C. All existing conditions on and off the immediate project site which are disturbed due to the Contractor's activities must be repaired to equal or better condition, as determined and approved by the owner.
- D. Clean and repair any damage caused by installation or use of construction facilities and temporary controls. Cleaning and repair shall be acceptable to the owner.

1.7 TRAFFIC BARRICADES

- A. Barricades and/or other traffic directing devices shall be provided by Contractor requiring same.

1.8 CLEANING DURING CONSTRUCTION

- A. Dumpsters will be provided by the Contractor.
- B. Contractor shall execute daily cleaning to keep the work, the site, the building, and adjacent properties free from accumulation of waste materials, rubbish, and windblown debris resulting from construction operations.
- C. A clean worksite is required. Contractor working on site shall participate in a daily cleanup program. Floors shall be swept clean. Dust shall be contained. During finishing stages of the project, surfaces shall be wiped down and floors shall be vacuumed.
- D. Cleaning operations shall be scheduled as appropriate to the stage of the project. The more finishes installed, the cleaner the building shall be kept. The building shall be maintained dust free when the HVAC system is operating.

1.9 SECURITY

- A. Contractor is responsible for security of its own equipment, materials, and property.
- B. The General Construction Bid Package shall provide for lockable temporary doors at each entrance until the final doors are installed.

1.10 DUST CONTROL

- A. Contractor shall execute work by methods to eliminate raising dust from construction operations. Contractors shall provide their own sweeping compound and vacuums.
- B. Temporary dust partitions shall be installed by contractor requiring same.

1.11 SNOW REMOVAL

- A. Snow removal will be provided by the Owner for access roads and parking.
- B. Snow removal for individual work areas shall be provided by Contractor requiring same.

1.12 FUEL STORAGE

- A. In event a fuel storage area is needed Contractor will need to get approval from architect and Owner on location. All fuel shall be contained in accordance with all current laws, codes, requirements, and authorities having jurisdiction.

1.13 WORKING HOURS

- A. Normal working hours begin at 7:00 AM Monday through Friday.
- B. Normal working hours end at 5:00 PM Monday through Friday.
- C. Working hours that fall outside the normal project working hours shall be approved by the owner.

1.14 TEMPORARY ACCESS ROADS

- A. When temporary access roads and laydown areas are required, the Contractor shall provide and maintain and shall be removed at the end of the project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 51 00

SECTION 01 71 23

FIELD ENGINEERING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Contractors are to provide such field engineering services as are required for the proper completion of the Work, including, but not necessarily limited to:
 - 1. Establishing and maintaining lines and levels;
 - 2. Designing shores, forms and similar items provided by the Contractor as part of its means and methods of construction.
 - 3. Employing a licensed land surveyor to establish and maintain all lines and levels necessary for the location and construction of the Work. Tolerances for anchor bolts and reinforcing for columns are critical. Employ a program to ensure that the surveyor coordinates this activity. Submit a program to the architect for review prior to commencing work.
 - 4. Verifying the dimensions and levels shown on the Drawings with existing dimensions and levels and notifying the architect of any discrepancies before proceeding with the Work.
- B. Related Work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. Additional requirements for field engineering also may be described in other Sections of these Specifications.

1.2 OWNER'S RESPONSIBILITIES

- A. Construction Monuments: The Owner will provide no more than four (4) control points if required for the work.

1.3 CONTRACTOR'S RESPONSIBILITIES

- A. Locate and protect owner provided control points before starting work on the Jobsite as shown on the Drawings.
- B. Preserve permanent control points during the progress of the Work. Do not change or relocate control points or items of the Work without specific approval from the architect.
- C. Promptly advise the architect when a control point is lost or destroyed, or requires relocation because of other changes in the Work:
 - 1. Upon direction of the architect, require the field engineer to replace reference stakes or markers, and
 - 2. Locate such replacements according to the original survey control.
- D. Establish line and levels, locate and layout, by instrumentation:
 - 1. Building foundation, column locations, and floor elevations.
 - 2. Controlling lines and levels required for mechanical and electrical trades.

1.4 SUBMITTALS

- A. Comply with the pertinent provisions of Section 013000, Submittals.
- B. Submit to the architect for review:
 - 1. Data demonstrating the qualifications of the persons proposed to be engaged for field engineering services.
 - 2. Documentation verifying the accuracy of field engineering work.
 - 3. Certification, signed by the Contractor's retained field engineer, certifying that elevations and locations of improvements are in conformance or non-conformance with requirements of the Contract Documents.
- C. Maintain a complete, accurate log of all control and survey work as it progresses.

1.5 QUALITY ASSURANCE

- A. Use adequate numbers of licensed, skilled professionals and workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 017123

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. A Section Includes:
 - 1. Closeout procedures.
 - 2. Systems and equipment testing.
 - 3. Instructions to Owner.
 - 4. Clean-up.
- B. Related Sections:
 - 1. Section 013100 – Project Management and Coordination.
 - 2. Section 014300 – Project Schedule.
 - 3. Section 015100 – Construction Facilities and Temporary Controls
 - 4. Section 017800 – Closeout Submittals.

1.2 SUBSTANTIAL COMPLETION AND OWNER OCCUPANCY

- A. Owner has urgent need to occupy Project to commence its intended use.
- B. Plan an efficient, orderly and coordinated completion process including organizing, scheduling and coordinating the following:
 - 1. Work of contractor's own forces.
 - 2. Work of subcontractors.
 - 3. Establish firm commitments for on-time completion
 - 4. Owner's needs for accommodations and time to occupy project during closeout per schedule of Substantial Completion and final completion.
- C. After Substantial Completion expedite completion of remaining work in an organized, efficient manner that maintains quality standards. Perform such work according to following requirements:
 - 1. Scheduled work in advance with owner / architect.
 - 2. Perform Work in occupied spaces when space is not in use, such as after hours in administrative areas or public spaces when public use hours are over for the day, unless otherwise approved by the owner / architect..
 - 3. When necessary, use overtime to accomplish work not able to be completed during normal work hours at no extra cost to the Owner.
 - 4. Perform Work in occupied areas in a manner and at such time as will not significantly interfere with, hamper or inconvenience Owner's program or functions.

1.3 PROJECT CLOSEOUT

- A. Insurance: Refer to General Conditions.

1. Upon completion of work and written acceptance by Owner, provide a Certificate of Insurance indicating specified Completed Operations insurance will be provided a minimum of one year after Owner's acceptance of entire Project.
 2. Specified Property Insurance shall be maintained until final acceptance by Owner of entire Project.
- B. Supplemental Agreements: Resolve supplemental agreements prior to final payment, including adjustment of allowances.
- C. Consent of Surety: Refer to General Conditions – obtain consent of surety prior to reduction in retained percentage and prior to final payment.
- D. Broken Glass: Repair.
- E. Guarantees - Warranties: Refer to General Conditions for general guarantee requirements.
1. In addition to general guarantee, provide written guarantees specified in technical sections of Specifications per Section 017800.
- F. Test Reports and Certificates: Refer to Section 017800.
- G. Retention of Records: Retain records required by law and good business practice.
- H. Record Set of Drawings:
1. Refer to General Conditions and Section 017800.
 2. Deliver record set to CM upon Final Completion of Project.
 3. Review set with Architect to clarify or explain changes that may be necessary.
- I. Temporary Utilities:
1. Refer to Section 015100.
 2. Remove temporary facilities and utilities as job progress permits.
 3. Read meters at times specified for transfer of services cost to Owner for light/power.
- J. Sanitary Facilities:
1. Refer to Section 015100.
 2. Remove temporary fixtures and restore rooms as specified.
- K. Temporary Facilities:
1. Remove as work progresses and facilities are no longer needed at time acceptable to Architect.
 2. Prior to final payment, remove temporary sheds, offices, fences (including perimeter fence), barricades, surplus materials, debris and other material or items not part of Project.
- L. Extra Materials: Refer to Section 017800
- M. Construction Cores and Keys:
1. At time of Substantial Completion, just prior to occupancy, replace construction cores and install permanent cores in locks.
 2. Thereafter, access to spaces will be provided by the Owner.
- N. Identification of Equipment:
1. Prior to Substantial Completion, provide identification tags or plates, or other identification means, as specified under Technical Sections of Specifications, such as at valves, panelboards and similar items.
 2. Apply directions on plates for circuit data and similar information.

1.4 SYSTEMS AND EQUIPMENT TESTING

- A. Test equipment and systems to demonstrate each system and piece of equipment is installed and operating properly.
- B. Provide a written record of tests and results per Section 017800.
- C. After operation and testing of systems, instruct Owner's representatives with Architect's representative present.

1.5 INSTRUCTIONS TO OWNER

- A. Provide instructions before final payment is made. Submit evidence that instruction/maintenance manuals were delivered to and were acceptable to Owner.
- B. Requirements herein supplement specific requirements provided under individual specification sections.
- C. Collect information and data so complete manuals are provided in sufficient time to permit review prior to time for final payment. Refer also to Section 017800.
- D. Provide qualified representatives of Contractor or subcontractors to give explanations and instructions.
- E. Provide instruction manuals per Section 017800 to be used and reviewed during instructions.
- F. Thoroughly and properly instruct the Owner in use, operation, care and maintenance of Project, especially various systems and equipment installed under Contract. Give instructions methodically and carefully. Cover various phases of work and in sufficient detail so Owner fully understands entire Project.
- G. Orient and familiarize designated Owner Representatives with locations, methods, materials, uses and operation of systems and equipment, as well as specialized materials installed under Contract.
- H. Instruct and demonstrate to the Owner regarding full use, sequence or function and similar information to fully acquaint Owner in proper use, care and control of equipment, systems and devices installed under Contract.
- I. Precautionary Measures and Dangers of Misuse.
 - 1. Specifically explain precautions and dangers of misuse.
 - 2. Establish specific and agreed upon periods of time with the Owner, adequate to thoroughly present pertinent information.
 - 3. Owner will record length of time and number of days spent on these instructions.
- J. Refer to Section 013100 for additional information and data for maintenance manual such as coordination drawings.
- K. Information Not Required:
 - 1. Normal and routine cleaning of normal floor and wall finishes.
 - 2. Maintenance of light fixtures.
 - 3. Cleaning of radiation covers.
 - 4. Hardware maintenance.
 - 5. Other similar housekeeping matters.

1.6 CLEAN-UP

- A. Refer to General Conditions for cleaning requirements during construction.
- B. Clean materials and equipment. Remove (haul away) debris, cartons, crates, surplus materials.
- C. Maintain work neat and orderly.
- D. Definitions
 - 1. Thorough Cleaning:
 - a. Thorough cleaning required unless otherwise specified.
 - b. Remove dust, dirt, debris, laitance, grease, oil, stains, discolorations, droppings, markings, and other soil or foreign matter or substance.
 - c. Remove labels except labels specifically designated to remain as part of listed, rated or labeled item.
 - d. Use appropriate methods such as sweeping, scrubbing, mopping, washing, dusting vacuuming so surface is completely clean and streak free.
 - e. Broom Clean: Remove visible dirt or dust from surface with a new, high quality, clean broom by thoroughly and properly sweeping or brooming so no dust or dirt is visible on surface.
- E. Each Contractor shall perform general "final" cleaning prior to inspection for Substantial Completion and occupancy. The intent is for this to be a composite effort of all trades working on the site. Each contractor shall participate, participation will be based on the number of workers at the site during the finishing stages of the project. Plan, organize and coordinate cleaning to avoid working in spaces once cleaned. Coordinate timely cleaning with owner / architect especially for cleaning of glass.
- F. Clean entire Project. Each Contractor is responsible for final clean up of the work.
 - 1. Cleaning required under each Section.
 - 2. Remove accumulated dust, dirt and debris. Wipe down all surfaces.
 - 3. Materials, equipment or other items.
 - 4. Glass - both sides, interior and exterior, and mirrors.
 - 5. Infection Control Area Clean Up:
 - a. Vacuum clean above ceiling, pipes, and ventilation ducts after construction is completed.
 - b. Check ventilation filters for breaks or leaks.
 - c. Use damp mopping for dust control.
 - d. Minimize traffic between construction area and patient control areas.
 - e. Obtain Owner/CM approval of cleaned area before proceeding.
- G. Electrical Contractor Cleaning: Includes but is not limited to:
 - 1. Normally occupied areas, service areas, passages and corridors and similar spaces.
 - 2. Interiors of cabinets, panelboards and other equipment.
 - 3. Wipe down of surfaces, cleaning of lights and devices.
 - 4. Other work under contract needing cleaning.
- H. Mechanical Contractor Cleaning: Includes but is not limited to:
 - 1. Remove filters used during construction and install permanent new filters.
 - 2. Ductwork.
 - 3. Fixtures and fittings.
 - 4. Insides of convectors.
 - 5. Unit heaters or similar units
 - 6. Radiation.
 - 7. Piping and equipment in equipment rooms.
 - 8. Wipe down of surfaces.
 - 9. Other work under contract needing cleaning.

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- I. "Broom Clean" is allowed in following areas:
 - 1. Tunnels, shafts, air shafts and air plenums not constructed of ductwork.
 - 2. Similar areas.
 - 3. Floors in equipment rooms (including rooms such as electrical equipment rooms).
 - a. Except also wash floors and apply final coat of sealer if specified.
- J. Floors (including concrete) must be free of stains and discoloration
- K. Hardware: Adjust and polish as needed
- L. Perform other cleaning as required to turn over to Owner Project in new, well maintained condition, ready for full use and occupancy.
- M. Clean areas made dirty by work done after Substantial Completion so building is clean as specified prior to Final Completion. This final cleaning shall be a composite participation by all trades working at the site during the finishing stages of the project.

1.7 FINAL ACCEPTANCE AND FINAL PAYMENT

- A. Final payment will not be made until final acceptance inspection, completion of punch list items and final sign-off by Owner and Architect.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 77 00

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SECTION 01 78 00 - CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Closeout submittals.
2. Warranties and guarantees.
3. Test reports and certificates.
4. Extra materials.
5. Maintenance manuals.
6. Record drawings and specifications.

B. Related Sections:

1. Section 013300 - Submittal Procedures.
2. Section 017700 - Closeout Procedures.

1.2 WARRANTIES AND GUARANTEES

- A. Provide written guarantees specified in technical sections of Specifications.
- B. Where guarantee terms are included in Specifications or a specific guarantee is referenced, submit guarantee in specified form.
- C. Submit guarantees prior to final payment.
- D. Submit a checklist of required guarantees, by section numbers.

1.3 TEST REPORTS AND CERTIFICATES

- A. Provide test reports and certificates required in technical sections prior to final payment.
- B. Provide a written record of systems and equipment testing and results.
- C. Provide a check list of required reports and certificates, by Specifications sections.

1.4 EXTRA MATERIALS

- A. Prior to final completion, deliver extra materials specified in various technical sections.
- B. Do not allow materials to "collect" in various parts of Project. Deliver to Owner together.
- C. Obtain receipt for specified extra materials. Without such evidence of delivery, no credit will be given for fulfilling specified requirements.
- D. Provide a checklist of specified extra materials.

1.5 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS

- A. Coordinate submittals from Section 013300 that will be needed to fulfill following requirements.
- B. Provide operating instruction data and maintenance manuals in accordance with Section 017700 Closeout Procedures.
- C. Organize information by classes or types of equipment and systems as follows:
 - 1. Manual shall consist of neatly edited and typed instruction manuals (in hard cover, indexed, loose-leaf notebook) to explain use, function and control of equipment, materials and systems. Printed information shall include:
 - a. Warranties and guarantees.
 - b. Common errors made, which will "abuse" equipment or system
 - c. Use, function and control of equipment and systems
 - d. Clean installation data and pamphlets (not to be left at equipment but included in manuals)
 - e. Instructions and explanations.
 - f. Cleaning instructions.
 - g. Wiring and piping diagrams.
 - h. Various types of maintenance procedures.
 - i. Lubrication data and schedules.
 - j. Maintenance materials to be used.
 - k. Maintenance information.
 - l. Maintenance instructions with frequency.
 - m. Other maintenance information.
 - n. Adjustment and repair data.
 - o. Parts list with numbers and recommended parts for Owner's stock.
 - p. Names, addresses, and telephone numbers parts distributor.
 - q. Names, addresses, and telephone numbers of appropriate service organizations for various items and equipment.
 - 2. Manuals shall include systems and equipment as, but not limited to following information:
 - a. Heating plant
 - b. Heating and ventilating equipment
 - c. Fan units
 - d. Air conditioning
 - e. Controls for mechanical systems
 - f. Alarm systems
 - g. Electrical distribution systems
 - h. Operating equipment of general construction
 - i. Mechanical and electrical work
 - j. Elevators
 - k. Kitchen equipment
 - l. Operable partitions
 - m. Power operated doors
 - n. Other similar systems and equipment.

1.6 RECORD SET OF DRAWINGS AND SPECIFICATIONS

- A. Provide record set of Drawings and Specifications to owner at completion of Contract.
 - 1. Refer to General Conditions for general requirements.
 - 2. Refer to Section 013300 - Submittal Procedures for posted (updated) job site contract documents.
- B. During construction, maintain clean set of Drawings and Specifications for sole purpose of recording changes to Contract.

- C. Mark record set methodically as work progresses, clearly and neatly, in color.
- D. Include information cut and pasted into appropriate location of documents to reference change, adjustment, or clarification. Type of information to be recorded on record set includes but is not limited to:
 - 1. Addendum items sent during bidding
 - 2. Changes, deviations or revisions made, except minor or non-critical dimensions, including those made by Change Order or Supplementary Instructions.
 - 3. Accepted submittals including shop drawings, product data and samples.
 - 4. Omissions, including work omitted by accepted alternates.
 - 5. Dimensioned locations of major or main utility lines, such as main conduit runs, piping mains and similar work.
 - 6. Locations of control valves.
 - 7. Additions to the work.
 - 8. Changes in significant details.
 - 9. Changed footing or other elevations.
 - 10. Locations of electrical home run boxes, including circuit numbers and panel designations for each box.
 - 11. Coordination drawings.
 - 12. Changes in locations of panelboards, outlets, drains, piping, openings, dampers and similar features.
 - 13. Other similar data.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION 017800

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SECTION 03 35 00
CONCRETE FINISHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. **Single application cure-densifier-hardener for all new concrete floors in this project.**
2. Precautions for avoiding staining concrete before and after application.

B. Related Section:

1. Cast-In-Place Concrete: Division 03 Cast-In-Place Concrete sections.

1.2 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI B101.1 Test Method for Measuring Wet SCOF of Common Hard-Surface Floors.
2. ANSI B101.3 Test Method for Measuring Wet DCOF of Common Hard-Surface Floors.

B. ASTM International (ASTM):

1. ASTM C779 Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
2. ASTM C805 Standard Test Method for Rebound Number of Hardened Concrete.
3. ASTM D3359 Standard Test Methods for Measuring Adhesion by Tape Test.
4. ASTM F150-06(2018) Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring.
5. ASTM G23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials (Withdrawn 2000).

C. National Floor Safety Institute (NFSI):

1. Certified as High Traction by the National Floor Safety Institute (NFSI), Phase 2 testing.

D. Health Product Declaration Collaborative (HPD)

1. HPD v1.0.
2. HPD v2.1.

1.3 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Section 01 33 00 - Submittal Procedures.

B. Product Data: Submit product data, including manufacturer's Data sheet, installation instructions and technical bulletins for specified products.

C. Certificates: Manufacturer's certification that the installer is acceptable.

D. Maintenance Data: Maintenance instructions, including precautions for avoiding staining after application.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Acceptable to the manufacturer.

1.5 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 01 Product Requirements section.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

- D. Handling: Protect materials from dirt, corrosion, oil, grease and other contaminants.

PART 2 PRODUCTS

2.1 MATERIAL

- A. Basis of Design: Ashford Formula - Curecrete Distribution, Inc
1. Contact: 1203 Spring Creek Place, Springville, UT 84663-0551; Telephone: (800) 998-5664, (801) 489-5663; Fax: (801) 489-3307; Email: info@ashfordformula.com; Website: www.ashfordformula.com.
- B. Cure-Densifier-Hardener: Transparent, chemically reactive, water-based treatment that penetrates into the concrete surface, forming a chemical reaction of crystalline growth that fills in the natural pores and voids in the concrete surface.
1. Abrasion Resistance to Revolving Disks: At least a 32.5% improvement over untreated samples when tested in accordance with ASTM C779.
 2. Surface Adhesion: At least a 22% increase in adhesion for epoxy when tested in accordance with ASTM D3359.
 3. Hardening: As follows when tested in accordance with ASTM C39:
 - a. After 7 Days: An increase of at least 40% over untreated samples.
 - b. After 28 Days: An increase of at least 38% over untreated samples.
 4. Rebound Number: An increase of at least 13.3% over untreated samples when tested in accordance with ASTM C805.
 5. Electrical Resistance: To ASTM F150.
 6. Light Exposure Degradation: No evidence of adverse effects on treated samples when tested in accordance with ASTM G23.
 7. Test Method for Measuring Wet SCOF of Common Hard-Surface Floors in accordance with ANSI B101.1.
 8. Test Method for Measuring Wet DCOF of Common Hard-Surface Floors in accordance with ANSI B101.3.
 9. Certified as High Traction by the National Floor Safety Institute (NFSI), Phase 2 testing.
 10. Certified Compliant according to California Department of Public Health CDPH/EHLB/Standard Method Version 1.2, 2017.

2.2 PRODUCT SUBSTITUTIONS

- A. Substitutions: Substitutions in accordance with Section 01 25 13 - Product Substitution Procedures.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.2 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared and are suitable for application of product.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.3 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Do not use frozen material. Thaw and agitate prior to use.

- D. If construction equipment must be used for application, diaper all components that might drip oil, hydraulic fluid or other liquids.

3.4 INSTALLATION

- A. New Concrete: Apply cure-densifier hardener to new concrete as soon as the concrete is firm enough to work on after troweling; with colored concrete, wait a minimum of 30 days before application.
 - 1. Spray on at rate of 200 ft²/gal (5 m²/L).
 - 2. Keep surface wet with cure-densifier-hardener for a minimum soak-in period of 30 minutes without allowing it to dry or become slippery. If slipperiness occurs before the 30 minute time period has elapsed, apply additional cure-densifier-hardener, as needed, to keep the entire surface in a non-slippery state for the first 15 minutes; for the remaining 15 minutes, mist the surface as needed with water to keep the material in a non-slippery state. In hot weather conditions, follow manufacturer's special application procedures.
 - 3. When the treated surface becomes slippery after this period, lightly mist with water until slipperiness disappears.
 - 4. Wait for surface to become slippery again, and then flush entire surface with water to remove all cure-densifier-hardener residue.
 - 5. Squeegee surface completely dry, flushing any remaining slippery areas until no residue remains.
 - 6. Wet vacuum or scrubbing machines can be used in accordance with manufacturer's instructions to remove residue.
- B. Existing Concrete: Apply cure-densifier-hardener only to clean, bare concrete.
 - 1. Thoroughly remove previous treatments, laitance, oil and other contaminants.
 - 2. Saturate surface with cure-densifier-hardener; respray or broom excess onto dry spots.
 - 3. Keep surface wet with cure-densifier-hardener for a minimum soak-in period of 30–40 minutes.
 - 4. If most of the material has been absorbed after the 30 minute soak-in period, remove all excess material, especially from low spots, using broom or squeegee.
 - 5. If most of the material remains on the surface after the 30 minute soak-in period, wait until the surface becomes slippery and then flush with water, removing all cure-densifier-hardener residue. Squeegee completely dry, flushing any remaining slippery areas until no residue remains.
 - 6. If water is not available, remove residue using squeegee.

3.5 PROTECTION

- A. Protect installed floors for at least 3 months until chemical reaction process is complete.
 - 1. Do not allow traffic on floors for 3 hours after application.
 - 2. Do not allow parking of vehicles on concrete slab.
 - 3. If vehicles must be temporarily parked on slab, place drop cloths under vehicles during entire time parked.
 - 4. Do not allow pipe cutting using pipe cutting machinery on concrete slab.
 - 5. Do not allow temporary placement and storage of steel members on concrete slabs.
 - 6. Clean up spills immediately and spot-treat stains with degreaser or oil emulsifier.
 - 7. Clean floor regularly in accordance with manufacturer's recommendations.

END OF SECTION 033500

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SECTION 042000
UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Split Face Concrete masonry units for dumpster enclosure.

1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 PERFORMANCE REQUIREMENTS

- A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.
 - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each type and color of the following:
 - 1. Split Face CMUs.

1.6 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type and size of the following:
 - 1. Masonry units.
 - 2. Cementitious materials. Include brand, type, and name of manufacturer.
 - 3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
 - 4. Grout mixes. Include description of type and proportions of ingredients.
 - 5. Reinforcing bars.
 - 6. Joint reinforcement.

7. Anchors, ties, and metal accessories.
- B. Mix Designs: For each type of mortar Include description of type and proportions of ingredients.
 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- C. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.7 QUALITY ASSURANCE

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.
- C. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Build mockups in sizes approximately 48 inches long by 48 inches high by full thickness, including face and backup wythes and accessories.
 2. Clean **one-half of** exposed faces of mockups with masonry cleaner as indicated.
 3. Protect accepted mockups from the elements with weather-resistant membrane.
 4. Approval of mockups is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.
 - a. Approval of mockups is also for other material and construction qualities specifically approved by Architect in writing.
 - b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect in writing.
 5. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.9 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

2.2 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged units for outside corners unless otherwise indicated.
3. Products: Subject to compliance with requirements, provide

- 1) Kings Material, Rockface, 8x12x16; color TBD
- 2) Architect Approved Equal

2.3 MORTAR AND GROUT MATERIALS

- A. Regional Materials: Aggregate for mortar and grout shall be extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.
- B. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- C. Mortar Cement: ASTM C 1329, type N.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Lafarge North America Inc.;
 - b. Spec Mix
 - c. Architect Approved Equivalent
- D. Aggregate for Mortar: ASTM C 144.
 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
 3. White-Mortar Aggregates: Natural white sand or crushed white stone.
 4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- E. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Euclid Chemical Company (The); Accelguard 80.
 - b. Grace Construction Products, W. R. Grace & Co. - Conn.; Morset.
 - c. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.
- F. Water: Potable.

2.4 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.
- B. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.
 1. Exterior Walls: Hot-dip galvanized, carbon steel.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

2.5 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.6 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Use mortar cement mortar unless otherwise indicated.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
 - 1. For exterior, above-grade, load-bearing and non-load-bearing walls, use Type N.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow

units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- F. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 TOLERANCES

- A. Dimensions and Locations of Elements:
 - 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
 - 2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
 - 3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.
- B. Lines and Levels:
 - 1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
 - 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
 - 3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
 - 4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
 - 5. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
 - 6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
- C. Joints:
 - 1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
 - 2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
 - 3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

- D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- E. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- G. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- H. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
 - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
 - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
 - 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Set trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
 - 1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
 - 2. Allow cleaned surfaces to dry before setting.
 - 3. Wet joint surfaces thoroughly before applying mortar.
- D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.6 MASONRY REINFORCEMENT

- A. Use #5 rebar at 48" O.C. for vertical reinforcement.

3.7 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches o.c.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at corners by using prefabricated L-shaped units.
- D. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.8 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
 - 1. Crush masonry waste to less than 4 inches in each dimension.
 - 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Section 312000 "Earth Moving."
 - 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 061000
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Framing with dimension lumber.
- B. Related Requirements:
 - 1. Section 061600 "Sheathing."

1.3 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
 - 3. Cants.
 - 4. Furring.
- B. For items of dimension lumber size, provide Standard, Stud, or No. 3 grade lumber and any of the following species:
 - 1. Hem-fir (north); NLGA.
 - 2. Mixed southern pine; SPIB.

3. Spruce-pine-fir; NLGA.
 4. Hem-fir; WCLIB or WWPA.
 5. Spruce-pine-fir (south);
 6. Western woods;.
 7. Northern species;
 8. Eastern softwoods;
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.2 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- D. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- E. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.

3.3 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

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SECTION 061600

SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Wall sheathing.
- B. Related Requirements:
 - 1. Section 061000 Rough Carpentry
 - 2. Section 072500 "Weather Barriers" for water-resistive barrier applied over wall sheathing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

- A. Plywood: Either DOC PS 1 or DOC PS 2 unless otherwise indicated.
- B. Oriented Strand Board: DOC PS 2.
- C. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.

- D. Factory mark panels to indicate compliance with applicable standard.

2.2 WALL SHEATHING

- A. Plywood Wall Sheathing: Exterior, Structural I sheathing.

- 1. Span Rating: Not less than 24/0.
- 2. Nominal Thickness: Not less than 1/2 inch.

2.3 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

- 1. For wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M

- B. Nails, Brads, and Staples: ASTM F 1667.

- C. Power-Driven Fasteners: NES NER-272.

- D. Wood Screws: ASME B18.6.1.

- E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

- 1. For wall sheathing panels, provide screws with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
 - 3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's "International Residential Code for One- and Two-Family Dwellings."
- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

- E. Coordinate wall sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Wall Sheathing:
 - a. Nail to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels.
 - b. Space panels 1/8 inch apart at edges and ends.

END OF SECTION 061600

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SECTION 06 40 20
INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Plastic-laminate cabinets.
 - 2. Plastic-laminate custom fabrications.
 - 3. Solid-surfacing material countertops.
 - 4. Solid-surfacing material custom fabrications.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 06 10 00 - ROUGH CARPENTRY for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

1.2 REFERENCES

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards.
- B. BHMA A156.9 - American National Standard for Cabinet Hardware.

1.3 SUBMITTALS

- A. Product Data:
 - 1. Submit manufacturer's technical literature indicating physical properties and performance criteria for sheet materials and related components.
 - 2. For each type of product specified, including cabinet hardware and accessories, and finishing materials and processes.
 - 3. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, with plans, elevations and large-scale details, attachment devices, and other components.
 - 1. Show layout, dimensions, materials, finishes, colors, cutouts, and attachments.
 - 2. Show thickness, fabrication details, tolerances, and jointing methods.
 - 3. Show full-size installation, edging and finishing details, thermoforming requirements, method of support and anchorages.
 - 4. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 5. Show locations and sizes of cutouts and holes for plumbing fixtures, electrical components and other items installed in architectural woodwork.
- C. Coordination Drawings:
 - 1. Shall be prepared indicating:
 - a. Plumbing work.
 - b. Electrical work.

- c. Miscellaneous steel for the general work.
 - d. Indicate location of all walls (note rated and non-rated), blocking locations and recessed wall items, etc.
- 2. Content:
 - a. Project-specific information, drawn accurately to scale.
 - b. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data.
 - c. Indicate dimensions shown on the contract drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements.
 - d. Provide alternate sketches to designer for resolution of such conflicts.
 - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.
- 3. Drawings shall be produced in 1/2-inch scale for all fabricated items.
- 4. Drawings must be complete and submitted to the Design Professional within 60 days after award of Contract for record only.
 - a. No review or approval will be forthcoming.
 - b. Coordination drawings are required for the benefit of Contractor's fabricators/installers as an aid to coordination of their work so as to eliminate or reduce conflicts that may arise during the installation of their work.
- D. Samples for Verification:
 - 1. Plastic laminates, 8 by 10 inches for each type, color, pattern, and surface finish, with 1 sample applied to core material, and specified edge material applied to 1 edge.
 - 2. Solid-surfacing materials, 4 inches square, representative of colors, textures, finishes and edge treatments.
- E. Manufacturer's Instructions: Submit manufacturer's printed installation instructions. Indicate preparation of openings required, with rough-in sizes.
- F. Qualification Data: For Installer and fabricator.
 - 1. Submit proof of minimum qualifications for fabricator and installer.
 - 2. Work must be performed by a Manufacturer Certified Commercial Fabricator.
- G. Maintenance Data:
 - 1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions.
 - 2. Maintenance kit for finishes shall be submitted.
 - 3. Include in project closeout documents.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate and install products similar to those required for this Project and whose products have a record of successful in-service performance.
- B. Installations shall meet AWI Standard for all specific items to the quality levels specified herein.
- C. Solid Surfacing Materials Custom Fabrications:
 - 1. Fabricator Qualifications: Company specializing in fabricating solid surface components with minimum 5 years documented experience, working with complex solid surfacing fabrications.
 - 2. Source Limitations: Obtain materials and products from single source.
 - 3. Fabricator / Installer shall meet the following requirements:

- a. Be a certified fabricator / installer, certified in writing by the material manufacturer for a minimum 5 years.
 4. Fabricator must assume undivided responsibility for design and fabrication of designated as Solid-Surfacing Material Custom Fabrications.
- D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.
- F. Warranty:
1. Warranty shall provide material and labor to repair or replace defective materials.
 2. Manufacturer agrees to repair or replace defective components that fail(s) in materials within specified warranty period.
 - a. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
 3. Warranty period:
 - a. Ten (10) year(s) from date of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where materials of this section are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
 2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. All casework bases shall be fabricated with either pressure-treated solid hardwood lumber or solid surface materials. Install ¼" high nylon glides under base of all sink vanities to create anti-wicking gap.
- C. Wood Products: Comply with the following:
 - 1. Hardboard: AHA A135.4.
 - 2. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no added urea formaldehyde.
 - 3. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 - 4. Softwood Plywood: DOC PS 1, Medium Density Overlay.
 - 5. Softwood Plywood: DOC PS 1, Medium Density Overlay
- D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering high-pressure decorative laminates that may be incorporated into the Work include, but are not limited to, the following:
 - a. Wilsonart International; Div. of Premark International, Inc.
 - b. Formica Group
- E. Solid-Surfacing Material: Cast, one piece, non-porous, filled polymer with through body colors meeting ANSI Z124.3 or ANSI Z124.6. ASTM E84, Class I flammability index. Stain, burn and scratch resistant, including molded shapes. Coated, laminated or composite construction will not be accepted.
 - 1. Superficial damage to a depth of 0.010 inch shall be repairable by sanding and/or polishing.
 - 2. Basis-of-Design:
 - a. Corian Surfaces by E. I. duPont de Nemours and Company.
 - 3. Solid-Surfacing Material Manufacturer's allowed:
 - a. Architect approved equivalent
- F. Formaldehyde Free materials – Provide all wood products to be formaldehyde free to meet requirements of DHHS and CMS.
- G. Lumber fabricated from old growth timber is not permitted.
- H. Provide wood and wood products harvested and manufactured within a 500 mile radius of the project site; see Section 016000 for requirements for locally-sourced products.

2.2 CABINET AND COUNTERTOP HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Section 087100 - DOOR HARDWARE.
- B. Countertop Supports:
 - 1. Rakks, Surface Mount EH-1824, wall bracket secured to structural steel at 30" + deep counters. 24" O.C. unless noted otherwise.

2. Rakks, Surface Mount EH-1818, at 24" deep counters. Support secured to wall framing at full height walls or structural steel at partial height walls / casework. 32" O.C. unless noted otherwise.
 3. Finish to be Painted white.
- C. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
1. Satin Stainless Steel: BHMA 630.
 2. Satin Aluminum, Clear Anodized: BHMA 628.
- D. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.
- E. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening, self-closing. Rooms: Hafele, Blum, Architect approved equal.
- F. Adjustable Wall Shelving : Knappe & Vogt 82 Series, installed at 16" O.C., color white. Provide shelving and brackets as shown on plans.
- G. Shelving – ¾" MDF, white melamine finish with 3 mm PVC edge. Provide shelves as shown on drawings for all locations including but limited to slatwall, cabinets and adjustable wall shelving.

2.3 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed- steel or lead expansion sleeves for drilled-in-place anchors.
- C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- D. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Wood Glues: 30 g/L.
 2. Contact Adhesive: 80 g/L.
 3. Special Purpose Contact Adhesive: 250 g/L.

2.4 FABRICATION, GENERAL

- A. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- B. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch.
- C. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

- D. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove burrs.
- E. Install glass to comply with applicable requirements in Section 08 80 00 - GLAZING and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

2.5 PLASTIC-LAMINATE CABINETS

- A. Grade: Custom.
- B. AWI Type of Cabinet Construction: As indicated.
- C. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the Following requirements:
 - 1. Edges: Matching edgebanding
- D. Materials for Semi-exposed Surfaces:
 - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade VGS.
 - a. Edges of Plastic-Laminate Shelves: Edgebanding.
 - b. For semi-exposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS.
 - 2. Drawer Sides and Backs: White melamine MDF with 3 mm PVC edge.
 - 3. Drawer Bottoms: White melamine MDF.
 - 4. Cabinet interior sides, bottom and shelves: White melamine particleboard with PVC edge
- E. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL.
- F. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As indicated on the Finish Legend and as approved by the Design Professional.

2.6 SOLID-SURFACING MATERIAL COUNTERTOPS

- A. Grade: Premium.
- B. Solid-Surfacing Material: As indicated on the Finish Legend and as approved by the Design Professional.
- C. Colors, Patterns, Translucency and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
 - 1. Provide as indicated on the Finish Legend and as approved by the Design Professional.
- D. Solid-Surfacing-Material Thickness:
 - 1. Horizontal application: 1/2", unless otherwise noted.
 - 2. Impact resistant: 1/2", unless otherwise noted.
- E. Joint Adhesive:
 - 1. Hardseaming: Manufacturer's standard one or two-part adhesive kit to create inconspicuous, nonporous joints.
 - 2. Provide continuous solid surface batten strips behind each hardseamed joint for reinforcement.

3. All solid surfacing material to solid surfacing material joints to be hardseamed.
 4. Back and side splashes to be integral with no visible seams.
- F. Sealant:
1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.
- G. Sink / Lavatory mounting hardware:
1. Manufacturer's standard bowl clips, panel inserts and fasteners for attachment of under- mount sinks/lavatories.
- H. Conductive tape:
1. Manufacturer's approved 4mil aluminum foil tape for use with cutouts near heat sources.
- I. Insulating felt tape:
1. Manufacturer's approved felt tape that is standard for use with conductive tape in insulating Solid Surface Product from adjacent heat source.
- J. Fabricate countertops in one piece, unless otherwise indicated. Comply with solid-surfacing- material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
1. Fabricate countertops with shop-applied edges of materials and configuration indicated.
 2. Fabricate countertops with loose backsplashes for field application.
 3. Fabricate components to the greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instruction and technical bulletins.
 4. Form joints between components using manufacturer's standard joint adhesion without conspicuous seams/joints.
 - a. Rout and finish component edges with clean, sharp returns.
 - b. Rout cutouts, radii and contours to template.
 - c. Smooth edges.
 - d. Repair or reject defective and inaccurate work.

2.7 SHOP FINISHING

- A. Grade: Provide finishes of same grades as items to be finished.
- B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
- C. Shop Priming: Shop apply the prime coat including backpriming, if any, for transparent-finished items specified to be field finished. Refer to Section 09 91 00 - PAINTING AND COATING for material and application requirements.
- D. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels. All exposed wood shall be primed.

2.8 JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Stain-Test-Response Characteristics: Elastomeric sealants shall be nonstaining to porous substrates and finish materials. Provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for the Project.
- C. Single-Component Mildew-Resistant Acid-Curing Silicone Sealant:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Dow Corning Corporation; 786 Mildew Resistant.
 - b. GE Construction Sealants; Sanitary SCS1700.
 - c. Tremco, Inc.; Tremsil 200.
 - 2. Color to match adjacent architectural woodwork product, as approved by the Design Professional.
- D. Latex Sealant: Comply with ASTM C 834, Type P, Grade NF.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Pecora Corporation; AC-20+.
 - b. Sonneborn, Division of Degussa; Sonolac.
 - c. Tremco, Inc.; Tremflex 834.
- E. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant- substrate tests and field tests.
- F. Masking Tape: Nonstaining, nonabsorbent material compatible with joints and surfaces adjacent to joints.
 - 1. Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas. Examine substrates and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
 - 1. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, too small to fabricate with proper jointing arrangements, or with defective surfaces, sizes or patterns.
- B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops and vertical panels and cladding) to a tolerance of 1/8 inch in 96 inches.
- D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Maintain veneer sequence matching of cabinets with transparent finish.
- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 3. Secure backsplashes to tops with concealed metal brackets at 16 inches and to walls with adhesive.
 - 4. Caulk space between backsplash and wall with 100% Silicone Sealant.
 - 5. Molded plastic grommets for wire management shall be drilled for and located by the Owner after countertop installation.
- H. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance. Replace damaged work which cannot be repaired to Architect's satisfaction.
- B. Remove adhesives, sealants and other stains. Clean, lubricate, and adjust hardware. Do not use abrasive or harsh cleaning materials or methods that could damage the finish.

- C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06 40 20

SECTION 072100
THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Foam-plastic board insulation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.

1.5 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
 - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site before installation time.
 - 3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 - PRODUCTS

2.1 FOAM-PLASTIC BOARD INSULATION

- A. Extruded-Polystyrene Board Insulation: ASTM C 578, of type and minimum compressive strength indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. DiversiFoam Products.
 - b. Dow Chemical Company (The).
 - c. Owens Corning.
 - d. Pactiv Building Products.
 - e. Architect Approved Equivalent
 - 2. Type IV, 25 psi, R 5.0 per inch

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.3 INSTALLATION OF BELOW-GRADE INSULATION

- A. On vertical surfaces, set insulation units loosely laid according to manufacturer's written instructions.
 - 1. If not otherwise indicated, extend insulation a minimum of 48 inches below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
 - 1. If not otherwise indicated, extend insulation a minimum of 48 inches in from exterior walls.

END OF SECTION 072100

SECTION 072500 –
WEATHER BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Commercial weather barrier assemblies.
 - 2. Weather barrier flashing.
 - 3. Weather barrier accessories.
 - 4. Under Slab Vapor Barrier
- B. Related Requirements:
 - 1. Section 061600 "Sheathing" for wall sheathing.

1.3 DEFINITIONS

- A. Weather Barrier: A combination of materials and accessories that do the following:
 - 1. Prevent the accumulation of water as a water-resistive barrier.
 - 2. Minimize the air leakage into or out of the building envelope as a continuous air barrier.
 - 3. Provide sufficient water vapor transmission to enable drying as a vapor-permeable membrane.
- B. Water-Resistive Barrier: A combination of materials and accessories that prevent the accumulation of water within the wall assembly per International Building Code Section 1403.2.
- C. Continuous Air Barrier: The combination of interconnected materials, assemblies, and sealed joints and components of the building envelope that minimize air leakage into or out of the building envelope per ASHRAE 90.1 section 5.4.3.1.
- D. Vapor Diffusion: A slow movement of individual water vapor molecules from regions of higher to lower water vapor concentration (higher to lower vapor pressure).
- E. Vapor Permeable Membrane: The property of having a water-vapor permeance rating of 10 perms (575 ng/Pa x s x sq. m) or greater, when tested in accordance with the desiccant method using Procedure A of ASTM E96 per definition in International Building Code. Vapor permeable material permits the passage of moisture vapor through vapor diffusion.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For weather barrier, include data on air and water-vapor permeance based on testing in accordance with referenced standards.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not store near heat source or open flame.

1.6 WARRANTY

- A. Manufacturer's Product Warranty: To repair or replace weather barrier product that fails in materials within specified warranty period.
 - 1. Warranty Period: 10 years from date of purchase.
- B. Manufacturer's Product and Labor Warranty: Manufacturer agrees to repair or replace weather barrier that fails in materials within specified warranty period, including removal and replacement of affected construction up to manufacturer's limits.
 - 1. Warranty Period: 10 years from date of purchase.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain weather barrier assembly components, including weather barrier flashing from the same manufacturer as weather barrier.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed weather barrier and accessories shall withstand specified wind pressures, liquid water penetration, and water vapor pressures without failure due to defective manufacture of products.

2.3 WEATHER BARRIER

- A. Commercial Building Wrap: ASTM E2357 passed, ABAA (Air Barrier Association of America) evaluated air barrier assembly, and assembly water resistance per ASTM E331; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested in accordance with ASTM E84; UV stabilized for nine-month exposure; and acceptable to authorities having jurisdiction.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont de Nemours, Inc.; Tyvek CommercialWrap or comparable product by one of the following:
 - a. Architect approved equivalent.

2. System Description, Single-Layer Weather Barrier: Single-layer weather barrier, including flashing and sealing of penetrations and seams.
3. Drainability:
 - a. 90 percent or greater when tested in accordance with ASTM E2273
4. Air Permeance, Product: Not more than 0.001 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.005 L/s x sq. m at 75 Pa) when tested in accordance with ASTM E2178.
5. Air Permeance, Assembly: Not more than 0.04 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.2 L/s x sq. m at 75 PA) when tested in accordance with ASTM E 2357 and evaluated by ABAA.
6. Water Penetration Resistance, Product: Hydrostatic head resistance greater than 22 inches (55 cm) in accordance with AATCC 127.
7. Water-Vapor Permeance: Not less than 23 perms (1300 ng/Pa x s x sq. m) per ASTM E96/E96M, Desiccant Method (Procedure A) or not less than 28 perms (1600 ng/Pa x s x sq. m) per ASTM E96/E96M, Water Method (Procedure B).
8. Allowable UV Exposure Time: Not less than 9 months (270 days) when tested in accordance with ASTM G155 (Accelerated Weathering).

2.4 WEATHER BARRIER FLASHING

- A. Conformable Weather Barrier Flashing: Composite flashing material composed of micro-creped, polyethylene laminate with a 100 percent butyl-based adhesive layer; AAMA 711 Class A (no primer), Level 3 thermal exposure, 176 deg F (80 deg C) for seven days.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont de Nemours, Inc.; DuPont™ FlexWrap™ or comparable product by one of the following:
 - a. Architect approved equivalent.
 2. Conformability: Able to create a seamless sill pan extending up the jambs without cuts, patches, or fasteners.
 3. Water Penetration: No leakage at 15 psf (720 Pa) per ASTM E331.
 4. Low Temperature Adhesion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm) at 25 deg F (minus 4 deg C) as Class A (without primer use).
 5. Adhesion After Water Immersion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm), after AAMA 800, Sections 2.4.1.3.1/2.4.1.4.3, Test B.
- B. Conformable Weather Barrier Flashing for Sealing Penetrations: Composite flashing material composed of micro-creped, polyethylene laminate with a 100 percent butyl-based adhesive layer; AAMA 711 Class A (no primer), Level 3 thermal exposure, 176 deg F (80 deg C) for 7 days.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont Safety & Construction: DuPont de Nemours, Inc.; DuPont™ FlexWrap™ EZ or comparable product by one of the following:
 - a. Architect approved equivalent.
 2. Conformability: Able to create a continuous watertight seal around penetrations from weather barrier to penetration without cuts, patches, or fasteners.
 3. Water Penetration: No leakage at 15 psf (720 Pa) per ASTM E 331.
 4. Low Temperature Adhesion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm) at 25 degrees F (minus 4 deg C) as Class A (without primer use).
 5. Adhesion After Water Immersion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm), after AAMA 800, Sections 2.4.1.3.1/2.4.1.4.3, Test B.

- C. Strip Flashing: Composite flashing material composed of spunbonded polyethylene laminate with 100 percent butyl-based, dual-sided, adhesive layer; AAMA 711, Class A (no primer), Level 3 thermal exposure, 176 deg F (80 deg C) for seven days.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont de Nemours, Inc.; DuPont™ StraightFlash™, DuPont™ Flashing Tape or comparable product by one of the following:
 - a. Architect approved equivalent.
 - 2. Water Penetration: No leakage at 15 psf (720 Pa) per ASTM E331.
 - 3. Low Temperature Adhesion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm) at 25 deg F (minus 4 deg C) as Class A without primer use.
 - 4. Adhesion After Water Immersion: Exceeds minimum value of 1.5 lb./in. (0.26N/mm), after AAMA 800, Sections 2.4.1.3.1/2.4.1.4.3, Test B.

2.5 WEATHER BARRIER ACCESSORIES

- A. Building Wrap Tape: Pressure-sensitive plastic tape recommended by weather barrier manufacturer for sealing joints and penetrations in commercial building wrap.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont de Nemours, Inc.; Tyvek® Tape or comparable product.
- B. Closed-Cell Polyurethane Foam Insulation: Low-pressure, low-expansion, single-component polyurethane foam, with maximum flame-spread and smoke-developed indexes of 15 and 25, respectively, per ASTM E84.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont de Nemours, Inc.; DuPont™ Great Stuff Pro or comparable product.
- C. Primer for Flashings: Synthetic rubber-based product; spray applied. Strengthen adhesive bond at low temperature applications between weather products such as self-adhered flashing products, commercial building wraps, and common building sheathing materials.
 - 1. Peel Adhesion Test: Passes in accordance with ASTM D3330, Test Method F, for the following.
 - a. Peel Angles: 0, 25, 72, and 180 degrees.
 - b. Substrates: Concrete masonry units (CMUs), exterior gypsum sheathing, oriented strand board (OSB), aluminum, and vinyl.
 - 2. Chemical Compatibility: Pass; AAMA 713.
 - 3. Flame Spread Index: 5; ASTM E84.
 - 4. Smoke Development Index: 0; ASTM E84.

2.6 UNDER SLAB VAPOR BARRIER

- A. Vapor barrier shall have all of the following qualities:
 - 1. Maintain permeance of less than 0.01 Perms [grains/(ft² · hr · inHg)] as tested in accordance with mandatory conditioning tests per ASTM E1745 Section 7.1 (7.1.1-7.1.5).
 - 2. Other performance criteria:
 - a. Strength: ASTM E1745 Class A.
 - b. Thickness: 15 mils minimum
 - 3. Provide third party documentation that all testing was performed on a single production roll per ASTM E1745 Section 8.1

- A. Vapor barrier products:
 - 1. Basis of Design: Stego Wrap Vapor Barrier (15-mil) by Stego Industries LLC.,
 - 2. Architect Approved Equivalent

2.7 UNDER SLAB VAPOR BARRIER ACCESSORIES

- A. Seams:
 - 1. Stego Tape by Stego Industries LLC,
- B. Sealing Penetrations of Vapor barrier:
 - 2. Stego Tape by Stego Industries LLC,
- C. Perimeter/edge seal:
 - 1. Stego Crete Claw by Stego Industries LLC,
 - 2. StegoTack Tape (double-sided sealant tape) by Stego Industries LLC

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements.
- B. Verify that substrate and surface conditions are in accordance with commercial weather barrier manufacturer recommendations prior to installation.
 - 1. Verify that rough sill framing for doors and windows is sloped downwards towards the exterior and is level across width of the opening.
- C. Verify that surfaces to receive weather barrier flashing are clean, dry, and free of frost.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 COMMERCIAL BUILDING WRAP INSTALLATION

- A. General: Comply with weather barrier manufacturer's written installation guidelines and warranty requirements.
- B. Cover exposed exterior surface of sheathing with weather barrier securely fastened to framing immediately after sheathing is installed.
 - 1. Maintain continuity of air and water barrier assemblies.
 - 2. Install weather barrier horizontally starting at lower portion of wall surface.
 - 3. Provide minimum 6 inches overlap at horizontal- and vertical-wrap seams in a shingle manner to maintain continuous downward drainage plane and air and water barrier.
- C. Seams: Seal seams with building wrap tape per manufacturer's recommended installation instructions.
 - 1. Shiplap horizontal seams in weather barrier to facilitate proper drainage.
- D. Fasteners: Use weather barrier manufacturer's recommended fasteners to secure weather barrier and install fasteners according to weather barrier manufacturer's installation guidelines.
 - 1. Do not use temporary fasteners to permanently attach weather barrier.
 - 2. Do not place fasteners with gasketing washers where weather barrier flashing will be installed.
 - 3. Install fasteners with gasketing washers through flashing where recommended by manufacturer.

- E. Openings: Completely cover openings with weather barrier, then cut weather barrier membrane to openings in accordance with weather barrier manufacturer's installation guidelines.
 - 1. Provide head and jamb flaps and seam overlaps to maintain continuous drainage.
 - 2. Repair damage to weather barrier using method recommended by weather barrier manufacturer.
 - 3. Install flashing in accordance with weather barrier manufacturer's installation guidelines.

3.3 WEATHER BARRIER FLASHING INSTALLATION

- A. Installation: Remove wrinkles and bubbles, reposition weather barrier as necessary to produce a uniform, smooth surface.
 - 1. Ensure that ambient and substrate surface temperatures are acceptable in accordance with manufacturer instructions and recommendations.
 - 2. Wipe surfaces to remove moisture, dirt, grease and other debris that could interfere with adhesion.
 - 3. Lap weather barrier flashing a minimum of 2 inches (50 mm) onto weather barrier.
 - 4. Apply pressure over entire surface using roller or firm hand pressure
- B. Rough Openings: Shiplap flashing with weather barrier in a shingle manner to maintain a continuous downward drainage plane and air and water barrier in accordance with manufacturer's written instructions.
 - 1. Apply 9-inch- (230-mm-) wide conformable weather barrier flashing at door and window sills.
 - 2. Ensure that sill flashing does not slope to the interior.
 - 3. Install backer rod in joint between frame of opening product and flashed rough opening on the interior.
 - 4. Apply sealant or closed-cell polyurethane foam insulation around entire opening/fenestration product to create air seal around interior perimeter of window openings in accordance with weather barrier manufacturer's instructions.
 - 5. Around door and window openings, apply butyl-based flashing to flaps of weather barrier.
 - 6. Use strip flashing with wrap cap screws to secure head flap of the windows.
- C. Terminations: Provide minimum 2 inches (50 mm) overlap using strip flashing on adjoining roof and base of wall systems to maintain continuous downward drainage plane.
 - 1. Secure weather barrier with fasteners and weather barrier flashing.
 - 2.

3.2 UNDER SLAB VAPOR BARRIER INSTALLATION

- A. Install vapor barrier in accordance ASTM E1643.
- B. Ensure that subsoil is approved by Architect or Engineer. Level and compact base material.
 - 1. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement and face laps away from the expected direction of the placement whenever possible.
 - 2. Extend vapor barrier to the perimeter of the slab. If practicable, terminate it at the top of the slab, otherwise (a) at a point acceptable to the structural engineer or (b) where obstructed by impediments, such as dowels, waterstops, or any other site condition requiring early termination of the vapor barrier. At the point of termination, seal vapor barrier to the foundation wall, grade beam or slab itself. Seal vapor barrier to the entire perimeter wall or footing/grade beam with double sided StegoTack Tape, per manufacturer's instructions. Ensure the concrete is clean and dry prior to adhering tape. Overlap joints 6 inches and seal with manufacturer's seam tape.
 - 3. Apply seam tape to a clean and dry vapor barrier.
 - 4. Seal all penetrations (including pipes) per manufacturer's instructions.
 - 5. For interior forming applications, avoid the use of non-permanent stakes driven through vapor barrier. Use Beast Form Stake and Beast Foot as a vapor barrier-safe forming system. Ensure Beast Foot's peel-and-stick adhesive base is fully adhered to the vapor barrier.
 - 6. If non-permanent stakes must be driven through vapor retarder, repair as recommended by vapor retarder manufacturer.

7. Use reinforcing bar supports with base sections that eliminate or minimize the potential for puncture of the vapor barrier.
8. Repair damaged areas with vapor barrier material of similar (or better) permeance, puncture and tensile.

3.4 CLEANING

- A. Immediately remove release paper and scrap from work area and dispose of material in accordance with requirements.

3.5 PROTECTION

- A. Protect installed weather barrier from the following:
 1. Damage from cladding, structure, or a component of the structure (for example, window, door, or wall system).
 2. Contamination from building site chemicals, premature deterioration of building materials, or nonstandard use or application of products.
 3. Foreign objects or agents, including the use of materials incompatible with weather barrier products.
 4. UV exposure in excess of products' stated limits.

END OF SECTION 072500

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SECTION 074200
PANELIZED STONE VENEER

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Panelized stone veneer wall cladding for exterior applications.

1.2 SUBMITTALS

- A. Product Data: Submit data on product characteristics and general installation information.
- B. Shop Drawings: Submit shop drawings indicating layout and elevations indicating coursing, trim, flashing and terminations with adjacent materials.
- C. Verification Samples: Submit for each finish product specified, two samples, minimum size 8 inches square, representing actual product.
- D. Evaluation Reports: Submit copy of ICC-ES Evaluation Service Report
- E. Warranty: Submit copy of manufacturer's standard warranty.

1.3 QUALITY ASSURANCE

- A. Testing Agency: Provide certificate/s showing testing performed by all testing agencies that have demonstrated compliance with ANSI/ISO/IEC Standard 17025 and is accredited as a Testing Laboratory (TL-144) by International Accreditation Service, Inc.
- B. Mock-Up: Provide a mock-up for evaluation of substrate preparation, detailing trim, and application workmanship.
 - 1. Locate mock-up in area designated by Architect.
 - 2. Do not proceed with remaining work mock-up is accepted by Architect.
 - 3. Modify mock-up if required until accepted by Architect.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Transport and store in original shipping packaging until ready to use. When sub-packs are removed, transport and store with nailing flange up.

1.5 PROJECT CONDITIONS

- A. Maintain environmental conditions within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's limits.

1.6 WARRANTY

- A. Warranty: Provide manufacturer's standard warranty against defects in manufacturing.

PART 2 – PRODUCTS

2.1 PANELIZED STONE VENEER

- A. Manufacturer: Versetta Stone as manufactured by Westlake, 2801 Post Oak Blvd # 600, Houston, TX 770567 Web: <http://www.versettastone.com>. Color: Northern Ash
 - 1. Or Architect Approved Equivalent
- B. Description: Glass-fiber-reinforced concrete (GFRC) molded stone-shaped veneer panels that interlock with a tongue and groove system, with embedded nailing strip for attaching to framing and exterior sheathing.
 - 1. Manufactured Size: 8 inches high by 36 inches wide with a thickness ranging from 1 to 2.02 inches off the wall.
 - 2. Fabricated Shapes: Universal corners, flat panel units, trimstone, wainscot cap, pier caps, light boxes, and receptacle boxes.
 - 3. Water Resistant Barrier: Minimum No.15 Grade D felt building paper meeting ASTM D 226 or material meeting the requirements of ICC Acceptance Criteria #38 or ASTM E 2556.
 - 4. Nailing Strip: 26 gage steel with G90 galvanizing and factory-applied black paint.
 - 5. Channels: Manufacturer's standard vinyl starter strip and J channels.
 - 6. Fasteners: Corrosion-resistant galvanized roofing nails or screws with minimum 5/16 inch head diameter and 1/8 inch shank diameter, with length suitable to penetrate framing material minimum 1 inch. Electro- galvanized fasteners are acceptable but may exhibit premature corrosion.
 - 7. Flashing and Lath as Applicable: Non-painted, non-corrosive flashing and 2.5 lb./yard² expanded metal lath.
 - 8. Adhesive: Manufacturer's recommended PL Premium Construction Adhesive.
 - 9. Concealing Material: Colored sanded caulk at nail/ screw heads and as applicable.
- C. Performance Criteria:
 - 1. Physical Properties: ICC-ES AC 90 - Section 3.1.
 - a. Dimensions and Tolerances: Within manufacturer's specifications.
 - b. Flexural Strength: Greater than 700 psi.
 - c. Density: 1218 kg/m³.
 - 2. Weather-Resistive Properties: ICC-ES AC 90 - Section 3.2.
 - a. Moisture Movement, ASTM C 1185: Average linear change in moisture content 0.06 percent
 - b. Water Absorption, ASTM C 1185: Less than 19 percent.
 - c. Moisture Content, ASTM C 1185: Less than 10 percent.
 - d. Water Tightness, ASTM C1185: No water droplets present.
 - e. Heat/Rain Exposure, ASTM C 1185: No damage or structural alternations.
 - f. Bond Strength: Tensile strength greater than 45 lb/inch.
 - 3. Transverse Loads, ICC-ES AC 90 - Section 3.3: Average sustained negative load of 135 psf, average ultimate negative load of 140 psf.
 - 4. Accelerated Weathering, ICC-ES AC 90 - Section 3.7: Complies with Section 5.1 of ASTM C 1186.
 - 5. Surface Burning Characteristics, ICC-ES AC 235 - Section 4.2.3:
 - a. Flame Spread Index = 0.
 - b. Smoke Density Index = 0.

- c. ASTM E 84, Class A.
- 6. Water Drainage Efficiency, ICC-ES AC 235 - Section 4.5: Greater than 90 percent.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory conditions before proceeding.
- B. Verify compliance of existing conditions with manufacturer's requirements including the following:
 - 1. Wood framing studs are spaced 16 inches on center or closer, designed to limit out-of-plane wall deflection to a minimum of L/240.
 - 2. Sheathing is code approved and nailable, minimum 7/16 inch oriented strandboard or 1/2 inch exterior grade plywood.
 - 3. Substrate is plumb within 1/4 inch in 10 lineal feet.
 - 4. Building corners have been sheathed to meet code requirements and mitigate the effects of wall racking.
 - 5. Expansion joints, if any, have been installed.
 - 6. Roofing and interior wallboard have been installed.
 - 7. Height for panelized stone veneer will not exceed 30 feet.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Water Resistive Barrier Application: Cover sheathing with a minimum of one layer of water resistive barrier, following the installation instructions provided by the manufacturer and local building code requirements. Wrap minimum 16 inches past all inside and outside corners. Integrate with flashing, panel channels and trim..
- B. Starter Strip: Install starter strip level at the base starting point line. Fasten every 8 to 10 inches.
- C. J-Channel where specified: Install J channel at windows, doors, material transitions, penetrations and terminations. Fasten every 8 to 10 inches.
- D. Drainage: Provide a means for drainage and ventilation at all horizontal terminations by using starter strip and J-Channel in conjunction with flashing products.
- E. Installation: Comply with manufacturer's installation instructions including the following
 - 1. Each full flat panel or Universal Corner panel requires a minimum of 4 fasteners. A minimum of 2 fasteners per panel shall penetrate framing.
 - 2. Attach products without nail flanges using adhesive. Non-painted, clean metal flashing or expanded metal lath, fastened 16 inches on center into framing is required for an acceptable bonding surface. After bonding surface has been prepared, apply minimum 3/8 inch beads of adhesive, in vertical beads, every 2 to 3 inches. Install partial panel and press into adhesive to assure complete contact. Secure until adhesive has cured.

3. Install trim pieces and sills, as indicated.
4. Install electrical/fixtures. Stones as indicated.
5. Conceal fasteners or unsightly gaps as needed.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
- C. Follow adhesive manufacturers instructions and temperature limitations.

End of section 074200

SECTION 079200
JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Urethane joint sealants.
- B. Related Sections:
 - 1. Section 064020 Interior Architectural Woodwork
 - 2. Section 081110 Hollow Metal Doors and Frames
 - 3. Section 084113 Aluminum Framed Entrances and Storefronts
 - 4. Section 085113 Aluminum Windows

1.3 PRECONSTRUCTION TESTING

- A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Submit not fewer than three pieces of each kind of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
 - 1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
 - 2. Conduct field tests for each application indicated below:
 - a. Each kind of sealant and joint substrate indicated.
 - 3. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 - 4. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- B. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
- D. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- E. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.
- F. Field-Adhesion Test Reports: For each sealant application tested.
- G. Warranties: Sample of special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- C. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

D. Preinstallation Conference: Conduct conference at project site

1.7 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.8 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.
- C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

2.2 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.3 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with

joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

- a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - d. Exterior insulation and finish systems.
 - e. Stone
3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads

of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 2. Inspect tested joints and report on the following:
 - a. Whether sealants filled joint cavities and are free of voids.
 - b. Whether sealant dimensions and configurations comply with specified requirements.
 - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
 3. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
 4. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

- #### A.
- Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- #### A.
- Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut

out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

- A. Joint Sealant Application: Wet locations
 - 1. Joint Locations:
 - a. Interior Casework, Solid Surface and Plumbing Fixtures in wet locations
 - 2. Silicone Joint Sealant: Color to match adjacent surfaces. Single-component, ready-to-use silicone rubber sealant, mildew resistant. ASTM Specification ASTM C 920, Type S, Grade NS, Class 25, Use NT
- B. Joint Sealant Application: Typical Interior Locations
 - 1. Joint Locations:
 - a. Painted vertical and overhead surfaces at perimeter of hollow metal frames, gypsum board plaster, concrete or masonry and general sealant, unless indicated otherwise
 - 2. Acrylic Latex Caulk

END OF SECTION 079200

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SECTION 081113
HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes hollow-metal work.
- B. Related Requirements:
 - 1. Section 087100 "Door Hardware" for door hardware for hollow-metal doors.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, core descriptions, and finishes.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door type.
 - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - 4. Locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition.
 - 6. Details of anchorages, joints, field splices, and connections.
 - 7. Details of accessories.
 - 8. Details of moldings, removable stops, and glazing.
 - 9. Details of conduit and preparations for power, signal, and control systems.

- C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.7 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
 - 1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Ceco Door Products; an Assa Abloy Group company.
 - 2. Curries Company; an Assa Abloy Group company.
 - 3. Republic Doors and Frames.
 - 4. Steelcraft; an Ingersoll-Rand company.
 - 5. Timely Steel Doors
 - 6. Architect Approved Equivalent
- B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 INTERIOR DOORS AND FRAMES

- A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Standard-Duty Doors and Frames: SDI A250.8, Level 1.
 - 1. Physical Performance: Level C according to SDI A250.4.
 - 2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches
 - c. Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.032 inch.
 - d. Edge Construction: Model 1, Full Flush
 - e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.
 - f. Core: Vertical steel stiffener with fiberglass insulation.

3. Frames:
 - a. Materials: Uncoated, cold-rolled steel sheet, minimum thickness of 0.042 inch.
 - b. Construction: Full profile welded.
4. Exposed Finish: Prime

2.3 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

- A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3.
 1. Physical Performance: Level A according to SDI A250.4.
 2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches
 - c. Face: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
 - d. Edge Construction: Model 1, Full Flush
 - e. Core: Vertical steel stiffener with fiberglass insulation.
 3. Frames:
 - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
 - b. Construction: Full profile welded.
 4. Exposed Finish: Prime

2.4 FRAME ANCHORS

- A. Jamb Anchors:
 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
 4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch- diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.5 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- I. Glazing: Comply with requirements in Section 088000 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.6 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Doors:
 - 1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
 - 2. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches
 - 3. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets.
 - 4. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
 - 5. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
- C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 - 3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
 - 4. Jamb Anchors: Provide number and spacing of anchors as follows:

- a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
 - 1) Two anchors per jamb up to 60 inches high.
 - 2) Three anchors per jamb from 60 to 90 inches high.
 - 3) Four anchors per jamb from 90 to 120 inches high.
 - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
 - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - c. Compression Type: Not less than two anchors in each frame.
 - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
- 5. Head Anchors: Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
 - 6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
 - E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
 - 1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 - 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- 2.7 STEEL FINISHES
- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
- 2.8 ACCESSORIES
- A. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
- B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. **All hollow metal frames to be grouted.** Install door silencers in frames before grouting.
 - b. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - c. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - d. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 - 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
 - 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 - 5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
 - 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 - 7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
 - 8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

- b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - 1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
 - c. At Bottom of Door: 3/4 inch plus or minus 1/32 inch.
 - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.
- D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
 - 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

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SECTION 08 36 13
SECTIONAL DOORS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Insulated sectional doors, electrically operated.
- B. Operating hardware and supports.
- C. Electrical controls.

1.2 RELATED REQUIREMENTS

- A. Section 13 34 00 – PRE-ENGINEERED POST FRAME BUILDING SYSTEMS

1.3 REFERENCE STANDARDS

- A. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- B. ASTM E 283 — Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen, 2004 (Reapproved 2012)
- C. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2004 (Reapproved 2021).
- D. ASTM C1048 — Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass, 2018.
- E. DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors; Door & Access Systems Manufacturers' Association, International; 2018.
- F. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.4 SUBMITTALS

- A. Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- B. Manufacturer's Certificate: Certify product meets or exceeds specified requirements.
- C. Manufacturer's Installation Instructions: Include any special procedures required by project conditions.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Conform to applicable code for motor and motor control requirements.
- C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified.

1.6 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for warranty requirements.
- B. Correct defective Work within a five-year period after Date of Substantial Completion.
- C. Warranty: Include coverage for electric motor and transmission.
- D. Provide five-year manufacturer warranty for electric operating equipment.

PART 2 - PRODUCTS

2.1 INSULATED SECTIONAL DOOR

A. INSULATED SECTIONAL DOOR

- 1. Basis of Design: Overhead Door Thermacore Wind Load; Series 525
 - 1. Or architect approved equivalent
- B. Exposure B Wind Speed 120 Mph / 220 Mph
- C. Impact Resistant
- D. Door Assembly: Metal/foam/metal sandwich panel construction, with PVC thermal break and ship-lap design. Top three panels to have glass along right side as shown in drawings, utilizing 1/4 inch (6 mm) Polycarbonate (Lexan) glazing.
- E. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A 653/A 653M, with G60/Z180 coating, plain surface.
- F. Panel Thickness: 2 inches (51 mm). Exterior Surface: Ribbed, textured.
- G. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized. End Stiles: 16 gauge.
- H. Springs: 50,000 cycle
- I. Shaft type: solid
- J. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
- K. Air Infiltration: 0.07 cfm at 15 mph
- L. Panel Thickness: 2 inches (51 mm). Exterior Surface: Flush, Textured.

- M. Thermal Values: R-value of 16.22;
- N. Finish and Color: Two coat baked-on polyester: Interior color, white.
- O. Exterior color, to be determined by architect from manufacturer's full range of standard colors to meet the Design/Performance requirements specified.
- P. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
- Q. Weather Stripping:
- R. EPDM bulb-type strip at bottom section. Flexible Jamb seals.
- S. Flexible Header seal.
- T. Track: Provide high headroom track as recommended by manufacturer to suit loading required and clearances available. Verify mechanical system locations when recommending.
- U. Size: 3 inch with double end styles. Type: Lift and then follow roof slope.
- V. Electric Motor Operation: Provide UL listed wall mounted electric operator, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices. The motor will be rated at 120V, single phase.
- W. Entrapment Protection: Required for momentary contact, includes radio control operation. Photoelectric sensors monitored to meet UL 325/2010.
- X. Operator Controls: Push-button operated control stations with open, close, and stop buttons. Surface mounting.
- Y. Interior location. Special Operation: Radio control operation.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
- B. Verify that electric power is available and of the correct characteristics.

3.2 PREPARATION

- A. Prepare opening to permit correct installation of door unit to perimeter air and vapor barrier seal.

3.3 INSTALLATION

- A. Install door unit assembly in accordance with manufacturer's instructions.
- B. Anchor assembly to wall construction and building framing without distortion or stress.
- C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- D. Fit and align door assembly including hardware.
- E. Coordinate installation of electrical service. Complete power and control wiring from

disconnect to unit components.

F. Install perimeter trim.

3.4 TOLERANCES

A. Maximum Variation from Plumb: 1/16 inch.

B. Maximum Variation from Level: 1/16 inch.

C. Longitudinal or Diagonal Warp: Plus, or minus 1/8 inch from 10 ft straight edge.

D. Maintain dimensional tolerances and alignment with adjacent work.

3.5 ADJUSTING

A. Adjust door assembly for smooth operation and full contact with weather stripping.

B. Have manufacturer's field representative present to confirm proper operation and identify adjustments to door assembly for specified operation.

3.6 CLEANING

A. Clean doors and frames and glazing.

B. Remove temporary labels and visible markings.

3.7 PROTECTION

A. Protect installed products from damage during subsequent construction.

B. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

END OF SECTION

SECTION 084113
ALUMINUM-FRAMED STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Storefront window framing
 - 2. Casement windows as part of the storefront system

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
 - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
 - 2. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
 - a. Joinery, including concealed welds.
 - b. Anchorage.
 - c. Expansion provisions.
 - d. Glazing.
 - e. Flashing and drainage.
 - 3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For aluminum-framed entrances and storefronts.
- B. Quality-Control Program: Developed specifically for Project, including fabrication and installation, according to recommendations in ASTM C 1401. Include periodic quality-control reports.

- C. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For aluminum-framed entrances and storefronts to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
 - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

1.8 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Water penetration through fixed glazing and framing areas.
 - e. Failure of operating components.
 - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 - 2. Failure also includes the following:

- a. Thermal stresses transferring to building structure.
- b. Glass breakage.
- c. Noise or vibration created by wind and thermal and structural movements.
- d. Loosening or weakening of fasteners, attachments, and other components.
- e. Failure of operating units.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- B. Basis-of-Design Product: Manko 2600xpt.
 1. YKK YES 600
 2. Architect Approved Equivalent
- C. Source Limitations: Obtain all components of aluminum-framed entrance, windows and storefront system, including framing and accessories, from single manufacturer.

2.3 FRAMING

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 1. Construction: Thermally broken
 2. Mullions to be 2" in width and 6" Depth
 3. Glazing System: Retained mechanically with gaskets on four sides
 4. Glazing Plane: Center
 5. Finish: Color anodic finish, Dark Bronze
 6. Fabrication Method: Field-fabricated stick system.
- B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Materials:
 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - a. Sheet and Plate: ASTM B 209 (ASTM B 209M).
 - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
 - c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
 - d. Structural Profiles: ASTM B 308/B 308M.

2.4 GLAZING

- A. Glazing: Comply with Section 088000 "Glazing."
- B. Structural Glazing Sealants: ASTM C 1184, chemically curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in storefront system indicated.
 1. Color: Black

- C. Weatherseal Sealants: ASTM C 920 for Type S; Grade NS; Class 25; Uses NT, G, A, and O; chemically curing silicone formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and structural-sealant-glazed storefront manufacturers for this use.

- 1. Color: Match structural sealant.

2.5 WINDOW

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- B. Basis-of-Design Product: Manko 5032xpt.
 - 1. Architect Approved Equivalent
- C. Style: Casement style opening, size as shown on drawings.
- D. Source Limitations: Obtain all components of aluminum-framed entrance, windows and storefront system, including framing and accessories, from single manufacturer.

2.6 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch (25.4 mm) that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
 - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- C. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials
- D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.7 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.

5. Provisions for field replacement of glazing from interior.
6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.

2.8 ALUMINUM FINISHES

- A. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.

1. Color: Dark Bronze

2.9 SOURCE QUALITY CONTROL

- A. Structural Sealant: Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
6. Seal perimeter and other joints watertight unless otherwise indicated.

- B. Metal Protection:

1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

- C. Set continuous sill members and flashing in full sealant bed as specified in Section 079200 "Joint Sealants" to produce weathertight installation.

- D. Install components plumb and true in alignment with established lines and grades.
- E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.
- F. Install glazing as specified in Section 088000 "Glazing."

3.3 ERECTION TOLERANCES

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
 - 1. Plumb: 1/8 inch in 10 feet (3.2 mm in 3 m); 1/4 inch in 40 feet (6.35 mm in 12.2 m).
 - 2. Level: 1/8 inch in 20 feet (3.2 mm in 6 m); 1/4 inch in 40 feet (6.35 mm in 12.2 m).
 - 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch (12.7 mm) wide, limit offset from true alignment to 1/16 inch (1.6 mm).
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch (12.7 to 25.4 mm) wide, limit offset from true alignment to 1/8 inch (3.2 mm).
 - c. Where surfaces are separated by reveal or protruding element of 1 inch (25.4 mm) wide or more, limit offset from true alignment to 1/4 inch (6 mm).
 - 4. Location: Limit variation from plane to 1/8 inch in 12 feet (3.2 mm in 3.6 m); 1/2 inch (12.7 mm) over total length.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Aluminum-framed entrances and storefronts will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 084113

SECTION 087100
DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
 - 3. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 08 Section "Hollow Metal Doors and Frames".
 - 2. Division 08 Section "Flush Wood Doors".
 - 3. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series.
 - 2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
 - 3. ANSI/UL 294 - Access Control System Units.
 - 4. UL 305 - Panic Hardware.
 - 5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.4 CLOSEOUT SUBMITTALS

- A. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.
- B. Project Record Documents: Provide record documentation of as-built door hardware sets in digital format (.pdf, .docx, .xlsx, .csv) and as required in Division 01, Project Record Documents.

1.5 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).
- C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- F. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.
- G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- I. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.7 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.8 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
1. Structural failures including excessive deflection, cracking, or breakage.
 2. Faulty operation of the hardware.
 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 4. Electrical component defects and failures within the systems operation.

- C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Hardware shall not have any visible manufacturer names on exposed materials, except cylinders, when the door is in a closed position.

2.2 BUTT HINGES

- A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for all out-swinging lockable doors.
5. Manufacturers:
 - a. Hager Companies (HA) - BB Series, 5-knuckle.
 - b. McKinney (MK) - TA/T4A Series, 5-knuckle.
 - c. dormakaba BEST (ST) - F/FBB Series, 5-knuckle.

2.3 CONTINUOUS HINGES

- A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge, with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width

of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Where specified, provide modular continuous geared hinges that ship in two or three pieces and form a single continuous hinge upon installation.
2. Manufacturers:
 - a. Hager Companies (HA).
 - b. Pemko (PE).
 - c. dormakaba BEST (ST).

2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

1. Manufacturers:
 - a. ASSA ABLOY ACCENTRA (AC).
 - b. No Substitution.

- B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Match Facility Standard.

- C. Keying System: Each type of lock and cylinders to be factory keyed.

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key cylinders to match Owner's existing system.

- D. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).

- E. Construction Keying: Provide construction master keyed cylinders.

- F. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.5 KEY CONTROL

- A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
 - 1. Manufacturers:
 - a. Lund Equipment (LU).
 - b. MMF Industries (MM).
 - c. Telkee (TK).

2.6 CYLINDRICAL LOCKS AND LATCHING DEVICES

- A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers shall meet all functions and features as specified herein.
 - 1. Manufacturers:
 - a. ASSA ABLOY ACCENTRA (AC) - 5400LN Series.
 - b. ASSA ABLOY ACCENTRA (AC) - NexTouch "Cylindrical series and Exit device trims"
 - c. No Substitution.

2.7 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 - 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 - 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
 - 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 - 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 - 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
 - 4. Dustproof Strikes: BHMA A156.16.

2.8 ELECTRIC STRIKES

- A. Standard Electric Strikes: Electric strikes conforming to ANSI/BHMA A156.31, Grade 1, for use on non-rated or fire rated openings. Strikes shall be of stainless steel construction tested to a minimum of 1500 pounds of static strength and 70 foot-pounds of dynamic strength with a minimum endurance of 1 million operating cycles. Provide strikes with 12 or 24 VDC capability, fail-secure unless otherwise specified. Where specified provide latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike.

1. Manufacturers:

- a. HES (HS) - 1500/1600 Series.

- B. Provide electric strikes with in-line power controller and surge suppressor by the same manufacturer as the strike with the combined products having a five year warranty.

2.9 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. Exit devices shall have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein.

1. Manufacturers:

- a. Sargent Manufacturing (SA) - 80 Series.
- b. Von Duprin (VD) - 35A/98 XP Series.

2.10 SURFACE DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
 4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
1. Large body cast iron surface mounted door closers shall have a 30-year warranty.
 2. Manufacturers:
 - a. LCN Closers (LC) - 4040XP Series.
 - b. Sargent Manufacturing (SA) - 281 Series.

2.11 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, .050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Ives (IV).
 - b. Rockwood (RO).

2.12 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 - 1. Manufacturers:
 - a. Ives (IV).
 - b. Rockwood (RO).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
 - 1. Manufacturers:
 - a. Norton Rixson (RF).
 - b. Sargent Manufacturing (SA).

2.13 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 - 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 - 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 - 1. Pemko (PE).
 - 2. Reese Enterprises, Inc. (RE).

3. Zero (ZE).

2.14 ELECTRONIC ACCESSORIES

- A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
 1. Manufacturers:
 - a. Securitron (SU) - DPS Series.
- B. Switching Power Supplies: Provide the least number of power supplies at the appropriate amperage level sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
 1. Manufacturers:
 - a. Life Safety Power (LP).
 - b. Securitron (SU) - AQD Series.

2.15 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.16 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
- E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
 - 1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 - 1. Quantities listed are for each pair of doors, or for each single door.
 - 2. The supplier is responsible for handing and sizing all products.
 - 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
 - 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

- B. Manufacturer's Abbreviations:

- 1. MK - McKinney
- 2. PE - Pemko
- 3. SA - SARGENT
- 4. AC - ASSA ABLOY ACCENTRA
- 5. HS - HES
- 6. RF - Rixson
- 7. RO - Rockwood
- 8. OT - Other
- 9. SU - Securitron

Hardware Sets**Set: 1**

Doors: 06

3 Hinge, Full Mortise, Hvy Wt	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Privacy	AU 5402LN	626	AC
1 Surface Closer	281 UO	EN	SA
1 Wall Stop	403	US26D	RO
3 Silencer	608-RKW		RO

Notes: Latchbolt retracted by knob/lever from either side unless outside is locked by inside thumbturn. Turning inside knob/lever or closing door unlocks outside knob/lever. To unlock from outside, insert emergency thumbturn (furnished) in access hole and rotate. Inside lever is always free for immediate egress. ADA Thumbturn.

Set: 2

Doors: 04

3 Hinge, Full Mortise, Hvy Wt	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom or Closet Lock	AU 5405LN	626	AC
1 Surface Closer	281 P10	EN	SA
1 Wall Stop	403	US26D	RO
3 Silencer	608-RKW		RO
1 Sweep	3452CNB TKSP8		PE

Notes: Latchbolt retracted by lever from inside. Outside lever is always rigid, unlocked by key.

Set: 3

Doors: 01, 02,

1 Continuous Hinge	CFM83HD1-M		PE
1 Rim Exit Device, Storeroom	12 LC 8804 ETL	US32D	SA
1 Surface Closer	281 P10	EN	SA
1 Cylinder	MATCH OWNERS EXISTING ACCENTRA KEY SYSTEM	626	AC
1 Surf Overhead Stop	9-X36	630	RF
1 Kick Plate	K1050 10" X 1" LDW CSK BEV	US32D	RO
1 Gasketing	2891APK TKSP8		PE
1 Sweep	3452CNB TKSP8		PE
1 Threshold	253x3AFG		PE
1 Latch Protector	320CL	US32D	RO

Notes: Latchbolt retracted by panic bar from inside. Outside lever is always rigid, unlocked by key.

JOHNSON COUNTY EMA STORAGE

Set: 4

Doors: 05, 07, 03, 018

1	Continuous Hinge	CFM83HD1-M		PE
1	Rim Exit Device, NexTouch Trim	12 LC 8804 "NexTouch Trim"	US32D	SA
1	NextTouch Exit Trim	AU NTT623 NR 2153	626	AC
1	Surface Closer	281 P10	EN	SA
1	Cylinder	MATCH OWNERS EXISTING ACCENTRA KEY SYSTEM	626	AC
1	Surf Overhead Stop	9-X36	630	RF
1	Kick Plate	K1050 10" X 1" LDW CSK BEV	US32D	RO
1	Gasketing	2891APK TKSP8		PE
1	Sweep	3452CNB TKSP8		PE
1	Threshold	253x3AFG		PE
1	Latch Protector	320CL	US32D	RO

Notes: Free egress at all times, enter by push button on Accentra NexTouch exit device trim, key override.

Set: 5

Doors: 16

8	Hinge, Full Mortise, Hvy Wt	T4A3786 4-1/2" x 4-1/2" 180 degree opening	US26D	MK
1	Storeroom or Closet Lock	AU 5405LN	626	AC
1	Manual Flush Bolt w/ ext kit	AL8208-180AS/MD	EN	SA
2	Wall Stop	403	US26D	RO
8	Silencer	608-RKW		RO

Notes: Active leaf latch bolt retracted by knob/lever from either side unless outside is locked. Inside lever is always free for immediate egress. Inactive leaf, remains fixed unless manual flush bolt is released. Doors to swing open 180 degrees.

END OF SECTION 087100

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SECTION 088000
GLAZING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Glass and glazing for the following products and applications:
 - a. Steel doors specified in Section 081110 - HOLLOW METAL DOORS AND FRAMES.
 - b. Wood doors specified in Section 081416 - FLUSH WOOD DOORS.
 - c. Interior and Exterior Aluminum Framed Storefronts and Doors in Section 084113 – ALUMINUM FRAMED ENTRANCES AND STOREFRONTS

1.2 DEFINITIONS

- A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
- D. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads, and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required.
 - 1. Solar Optical Properties: NFRC 300.

1.4 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.

- B. Structural Calculations: For glass and glazing indicated to comply with performance requirements and design loads, include structural analysis data signed and sealed by the qualified professional engineer licensed in the jurisdiction where Project is located responsible for their preparation.
- C. Samples: For each product in the form of 12-inch- square samples for glass.
- D. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- E. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
- F. Qualification Data: For installers and professional engineer.
- G. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.
 - 1. Include preconstruction field test reports.
- H. Product Test Reports: For each of the following types of glazing products:
 - 1. Coated float glass.
 - 2. Glazing sealants.
 - 3. Glazing gaskets.
- I. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance.
- B. Source Limitations for Glass: Obtain the following through one source from a single manufacturer for each glass type: clear float glass, laminated glass and insulating glass.
- C. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source from a single manufacturer for each product and installation method indicated.
- D. Elastomeric Glazing Sealant Product Testing: Obtain sealant test results for product test reports in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.
 - 1. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
 - 2. Test elastomeric glazing sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
- E. Safety Glazing Products: Comply with testing requirements in 16 CFR 120.
 - 1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of the Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.
 - 2. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2 articles for glazing lites more than 9 sq. ft. in exposed surface area of one side, provide glazing products that comply with Category II materials, for lites 9 sq.

ft. or less in exposed surface area of one side, provide glazing products that comply with Category I or II materials, except for hazardous locations where Category II materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.

- F. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- G. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. GANA Publications: GANA Laminated Division's "Laminated Glass Design Guide" and GANA's "Glazing Manual."
 - 2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR- A7, "Sloped Glazing Guidelines."
 - 3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Sloped Glazing Guidelines."
 - 4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."
- H. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other data by a qualified professional engineer.
- I. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the 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 glass and glazing that are similar to those indicated for this Project in material, design, and extent.
- J. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing project loads, and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
 - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - a. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
 - 1) Load Duration: 60 seconds or less.
 - b. Maximum Lateral Deflection: For the following types of glass supported on all 4 edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 1 inch, whichever is less.
 - 1) For monolithic glass lites heat-treated to resist wind loads.
 - 2) For laminated glass lites.
- K. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, construction activities or other causes.
- B. For insulating-glass units that will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written recommendations for venting and sealing to avoid hermetic seal ruptures.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 deg F.

1.8 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form, made out to the Owner and signed by coated-glass manufacturer agreeing to replace coated- glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
 - 1. Warranty Period: Ten years from date of Substantial Completion.
- B. Manufacturer's Special Warranty on Laminated Glass: Manufacturer's standard form, made out to the Owner and signed by laminated-glass manufacturer agreeing to replace laminated- glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
 - 1. Warranty Period: Five years from date of Substantial Completion.
- C. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS

- A. Laminated Glass Units - **(LGU - 1) : Exterior Windows and doors**
 - 1. Double pane with glass-to-elastomer edge seal, double sealed.
 - 2. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3.
 - 3. Each lite 1/4 inch minimum thick, unless otherwise indicated.
 - 4. Outer pane of clear low-E coated glass.
 - a. Tint: Vitro Midnight Gray Float Glass
 - 5. Inner pane of clear float glass,tempered.
 - a. Laminated-3mm Clear - 030PVB - 3mm Clear
 - 6. Purge interpane space of air and provide minimum 90% Argon fill.
 - 7. Total unit thickness of 1 inch minimum.
 - 8. Edge Seal Construction: Stainless steel (not aluminum), bent and soldered corners. Color shall match framing color.
- B. Laminated Glass Units - **(LGU - 2) : Fixed portion of Window Type B**
 - 1. Double pane with glass-to-elastomer edge seal, double sealed.
 - 2. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3.
 - 3. Each lite 1/4 inch minimum thick, unless otherwise indicated.
 - 4. Outer pane of clear low-E coated glass.

- b. Tint: Vitro Midnight Gray Float Glass
 - 5. Inner pane of clear float glass,tempered.
 - b. Laminated-3mm Clear - 030PVB - 3mm Clear, with spandrel film on interior
 - 6. Purge interpane space of air and provide minimum 90% Argon fill.
 - 7. Total unit thickness of 1 inch minimum.
 - 8. Edge Seal Construction: Stainless steel (not aluminum), bent and soldered corners. Color shall match framing color.
- C. Tempered Float Glass (**TG-01**): ASTM C 1048; Type I (transparent flat glass); Quality-Q3; Kind FT; 1/4 inch thick unless indicated otherwise.
- 1. Interior Tempered Glass: All interior glazing not part of a fire-rated assembly shall be tempered.
 - 2. Provide safety glazing label

2.2 GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
- 1. Compatibility: Verify glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - 3. Colors of Exposed Glazing Sealants: As selected by Design Professional from manufacturer's full range of colors.
 - 4. Adhesives and sealants that are used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Structural Glazing Adhesives: 100 g/L.
 - b. Architectural Sealants: 250 g/L.
- B. Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.

2.3 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

2.4 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with outdoor and indoor faces.
- C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Minimum required face or edge clearances.
 - 3. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches as follows:
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each glazing unit is installed.
- F. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

3.5 GASKET GLAZING (DRY)

- C. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- D. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- E. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- F. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight

seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

- G. Install gaskets so they protrude past face of glazing stops.

3.6 CLEANING AND PROTECTION

- A. Protect interior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

END OF SECTION 088000

SECTION 09 21 10
GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Interior gypsum wallboard.
 - 2. Insulation in gypsum wallboard assemblies.
 - 3. Non-load-bearing steel framing.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: Full-size Sample in 12-inch-long length for each trim accessory indicated.

1.4 STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
 - 2. Protective Coating: manufacturer's standard corrosion-resistant zinc coating,

unless otherwise indicated.

B. Acceptable manufacturers:

1. Gold Bond
2. United States Gypsum
3. Deitrich
4. Domtar
5. Georgia-Pacific
6. Architect approved equivalent.

2.2 STEEL FRAMING

A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: 20 gage.
2. The minimum metal thickness and section properties requirements of ASTM C645 are waived provided steel of 40 ksi minimum yield strength is used, the metal is continuously dimpled, the effective thickness is at least twice the base metal thickness and maximum stud heights are determined by testing in accordance with ASTM E72 using assemblies specified by ASTM C754.
3. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 40 percent.

B. Slip-Type Head Joints: Provide one of the following:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner
and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch-deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Steel Network Inc. (The); VertiClip Series.
 - 2) Superior Metal Trim; Superior Flex Track System (SFT).

C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 18 gage.

D. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

2.3 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers

offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. USG Corporation.
- b. G-P Gypsum.
- c. National Gypsum Company.
- d. Lafarge North America Inc.

B. Gypsum Board, Typical

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.
3. Locations: All locations, unless otherwise specified herein.

C. Ceiling Type: Manufactured to have more sag resistance than regular-type gypsum board.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.
3. Locations: All gypsum ceilings and horizontal surfaces.

D. Mat Faced Gypsum Board type: ASTM C 1658, and ASTM C 1177/C 1177M, C 1396 (Moisture Control) and C 630.

1. Type X
2. Thickness: 5/8 inch.
3. Long Edges: Tapered.
4. Locations:
 - a. Toilet rooms up 4'-0" AFF (above finished floor) non-plumbing walls, full height all plumbing walls, up to 4'-0 AFF within 4'-0" at any drinking fountain, full height in Mechanical rooms.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. Expansion (control) joint.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.
2. Glass-Mat Gypsum Board: 10-by-10 glass mesh.
3. Tile Backing Panels: As recommended by panel manufacturer.

C. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.

3. Sealant Primers for Porous Substrates: 775 g/L.
- D. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
 4. Finish Coat: For third coat, use setting-type, sandable topping compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.
- E. Joint Compound for Tile Backing Panels:
 1. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- E. Acoustical Sealant: To be applied at the top and bottom of the wall on both sides. Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 1. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 2. Acoustical Sealant for Exposed and Concealed Joints:
 - a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
 - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.
 3. Acoustical Sealant for Concealed Joints:
 - a. Ohio Sealants, Inc.; Pro-Series SC-170 Rubber Base Sound Sealant.
 - b. Pecora Corp.; BA-98.
 - c. Tremco, Inc.; Tremco Acoustical Sealant.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754. Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.3 INSTALLING FRAMED ASSEMBLIES

- A. Where studs are installed directly against masonry or concrete walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- B. Install studs so flanges within framing system point in same direction.
- C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structure or structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on doorframes; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb, unless otherwise indicated.
 - 1) Typical Doors: back to back 20 gage studs at doorways
 - b. Install cripple studs at head adjacent to each jamb stud.
 - c. Provide 3/4" channel with web horizontal at third points or partition height as continuous reinforcing. Weld, wire tie screw to each stud. Provide additional reinforcing at points adjacent to each side of door openings extending from jamb stud for 32" minimum.
 - d. At all openings provide additional 3/4" horizontal channels 6" to 12" above and below openings extending 32" minimum beyond opening each side.
 - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 - 4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

D. Direct Furring: Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

3.4 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Hold all panels off the floor 1/4" for application of sealant.

C. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

D. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

F. Form control and expansion joints with space between edges of adjoining gypsum panels.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.5 APPLYING INTERIOR GYPSUM BOARD

A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels to minimize end joints.
3. Apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

B. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance- rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. Fastening Methods: Fasten base layers and face layers separately to supports with

screws.

- C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.6 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners, unless otherwise indicated.
 - 2. LC-Bead: Use at exposed panel edges.
- D. Aluminum Trim: Install in locations indicated on Drawings.

3.7 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below. Continue fire rated finish to above the ceiling to the structure above on both sides of the partition for rating continuation.
 - 1. Finish Level 1: Ceiling plenum areas and concealed areas not exposed to view.
 - 2. Finish Level 2: Panels that are substrate for tile.
 - 3. Finish Level 4: Panel surfaces that will be exposed to view (typical panels).

3.8 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, or exhibit mold growth. Repair of damaged panels in place is not acceptable.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 21 10

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SECTION 09 65 13 –
RESILIENT BASE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Resilient base.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

PART 2 - PRODUCTS

2.1 VINYL BASE

- A. Product Standard: ASTM F 1861, Type TV (vinyl, thermoplastic).
 - 1. Group: I (solid, homogeneous).
 - 2. Style and Location: As indicated on Drawings.
- B. Minimum Thickness: 1/8"
- C. Height: 4"
- D. Lengths: Coils in manufacturer's standard length.
- E. Colors and Patterns: As indicated on Drawings.

2.2 INSTALLATION MATERIALS

- A. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.

3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.

3.3 RESILIENT ACCESSORY INSTALLATION

- A. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- B. Comply with manufacturer's written instructions for installing resilient accessories.
- C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 099113
EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Steel.
- B. Related Requirements:
 - 1. Section 081113 "Hollow Metal Doors and Frames"
 - 2. Section 099123 "Interior Painting"

1.3 DEFINITIONS

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials[, from the same product run,] that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following]:

1. Behr Process Corporation.
2. Benjamin Moore & Co.
3. Diamond Vogel Paints.
4. Sherwin-Williams Company.

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

- C. Colors: As indicated on drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 - 4. Paint entire exposed surface of window frames and sashes.
 - 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 1. Paint the following work where exposed to view:
 - a. Equipment, including panelboards
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
 1. Water-Based Light Industrial Coating System:

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- a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
- b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
- c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

END OF SECTION 099113

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SECTION 099123
INTERIOR PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Field painting of exposed interior items and surfaces.
 - 2. Surface preparation for painting.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 08 11 10 - HOLLOW METAL DOORS AND FRAMES for factory priming steel doors and frames.
 - 2. Section 09 21 10 - GYPSUM BOARD ASSEMBLIES for surface preparation of gypsum board.

1.2 DEFINITIONS AND EXTENT

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 - 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
 - 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
 - 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.
- B. This Section includes surface preparation and field painting of exposed interior items and surfaces.
 - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- C. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
 - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
- D. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
 - 1. Prefinished items include the following factory-finished components:
 - a. Architectural woodwork.
 - b. Acoustical wall panels.
 - c. Kitchen appliances.
 - d. Elevator entrance doors and frames.
 - e. Elevator equipment.
 - f. Finished mechanical and electrical equipment.
 - g. Light fixtures.
 - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Foundation spaces.

- b. Furred areas.
- c. Ceiling plenums.
- d. Utility tunnels.
- e. Pipe spaces.
- f. Duct shafts.
- g. Elevator shafts.
- 3. Finished metal surfaces include the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper and copper alloys.
 - e. Bronze and brass.
 - f. Nickel silver.
- 4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
- 5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.3 SUBMITTALS

- A. Product Data: For each paint system indicated. Include block fillers and primers.
 - 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- B. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
 - 1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 - 2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.
 - 3. Submit two eight inch by 12 inch Samples for each type of finish coating for Design Professional's review of color and texture only.
- C. Qualification Data: For Applicator.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Mockups: Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.
 - 1. The Design Professional will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.
 - a. Wall Surfaces: Provide samples on at least 100 sq. ft.
 - b. Small Areas and Items: The Design Professional will designate items or areas

required.

2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.
 - a. After finishes are accepted, the Design Professional will use the room or surface to evaluate coating systems of a similar nature.
3. Final approval of colors will be from benchmark samples.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 1. Product name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.
 4. Contents by volume, for pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.6 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and conditioned within temperature and humidity limits specified by manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work are listed in the Finish Schedule at the end of this Section.
- B. Final Coating Basis of Design: As indicated on the Finish Legend and as approved by the Design Professional.

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types

specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.
 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 1. Notify Design Professional about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 1. Provide barrier coats over incompatible primers or remove and re-prime.
 2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, and rinse. Allow to dry. Vacuum before painting.
 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and

sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

- a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - c. If transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where concrete, masonry, plaster, or other wet wall construction occurs on back side.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
 - a. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 3. Provide finish coats that are compatible with primers used.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 9. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
 5. Dry-Erase Finish: Schedule application of dry-erase paints to allow for application and off-gasing while building is unoccupied.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- F. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- G. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
1. Provide satin finish for final coats.
- H. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

- A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
1. The Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
 2. Testing agency will perform appropriate tests for the following characteristics as required by the Design Professional.
 3. The Design Professional may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying

paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Design Professional.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 PAINT SCHEDULE

- A. Schedule: Provide products and number of coats specified. Use of manufacturer's proprietary product names to designate colors, materials, generic class, standard of quality and performance criteria and is not intended to imply that products named are required to be used to the exclusion of equivalent performing products of other manufacturers.

- B. Interior Paint Schedule for Standard Performance Coatings:

- 1. Steel Substrates:

- 1. Water-Based Light Industrial Coating System MPI INT 5.1B:
 - a. Prime Coat: Primer, rust-inhibitive, water based MPI #107.
 - 1) Sherwin Williams; Pro-Cryl Universal Primer.
 - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, interior, water based, semi-gloss (MPI Gloss Level 5), MPI #153.
 - 1) Sherwin Williams; DTM Semi-Gloss.

- 2. Gypsum Board Substrates:

- 1. Institutional Low-Odor/VOC Latex System MPI INT 9.2M (Typical Walls):
 - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
 - 1) Sherwin Williams; ProMar 200 Zero VOC Interior Latex Primer.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC, gloss as indicated in Schedule.
 - 1) Sherwin Williams; ProMar 200 HP Zero VOC Interior Acrylic.
- 2. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Epoxy):
 - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
 - 1) Sherwin Williams; ProMar 200 Zero VOC Interior Latex Primer.
 - b. Intermediate Coat: Interior Epoxy-Modified Latex, matching topcoat.
 - c. Interior Epoxy-Modified Latex (Semi-Gloss): MPI #115 (Gloss Level 5).
 - 1) Sherwin Williams; Pro Industrial Zero VOC Waterborne Catalyzed Epoxy

END OF SECTION 099123

SECTION 10 14 15
INTERIOR UNFRAMED SIGNS

PART 1- GENERAL

1.1 SUMMARY

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section. B. Section Includes:

1. Unframed signs, tactile lettering and raster Braille on PET acrylic face, for interior applications.

1.2 QUALITY ASSURANCE

A. Single Source Responsibility: For each separate type of sign required, obtain signs from one source from a single manufacturer.

B. Design Criteria: The schedule indicates size, dimensional requirements. The graphics layout of signs are based on the specific type and model indicated

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.

B. Product Data: Include Manufacturer's construction details relative to materials, dimensions of individual components, profiles, and finishes for each type of sign required.

C. Color Chart: Manufacturer's standard chart.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver components correctly packed to prevent damage.

B. Store in secure areas, out of weather and protected from work of other trades.

C. Handle IAW Manufacturer's instructions.

1.5 WARRANTY

A. Provide Manufacturer's standard one year limited warranty covering manufacturing defects.

Manufacturer's Warranty: Submit manufacturer's standard warranty document executed by authorized company official.

1. Warranty Period: one (1) year from product ship date.

PART 2 -PRODUCTS

2.1 SIGNAGE SYSTEMS

A. Acceptable Manufacturers:

1. Latitude Signage + Design, 1219 Zimmerman Dr S, Grinnell, IA ;
(641) 236-6616 telephone;
2. Substitutions: Submit in accordance with Section 01600.

- B. Acceptable Product: InTac™ ADA-Ready™ Sign System with requirements indicated for materials, thickness, finish colors, designs, shapes, sizes and details..

2.2 ROOM SIGNS

- A. Sign Face: Subsurface Painted acrylic, .125 inch thick, matte first surface.
- B. Applied Lettering and/or Numerals: LPP Series Individual, Acrylic, Dimensional Characters. Individual cut acrylic letters (1/32" thick) with matte finish.
- C. Grade 2 Braille: Clear raster balls
- D. Fastener: VHB Tape - .030 inch thick double-face tape.
- E. Manufacturer's standard Intac™ Tactile Plaque construction. To meet requirements indicated for materials, thickness, finish colors designs, shapes, sizes and details of construction. Installed dimensional tolerances to be plus/minus 1/16 inch.
- F. Surface Graphics: Sign graphics to be applied to sign face by Manufacturer's standard processes including Rowmark pressure sensitive adhesive. Face of sign graphics to be raised 1/32 inch min. from plaque first surface. Precisely formed, uniformly opaque graphics to comply with relevant ADA regulations and the requirements indicated for size, style, spacing, content, position and colors.
- G. Braille Tags: Clear raster balls to be drilled and tapped using Latitude Signage standard Intac procedure and Intac Braille guide.
- H. Colors: As selected from the Manufacturer's standards.
- I. Surface Texture: matte
- J. Installation Method - System VT, vinyl tape.

PART 3 -EXECUTION

3.01 INSTALLATION

- A. General: Locate letters and graphic elements where indicated, using installation methods per the manufacturer's instructions.
- B. Cleaning and Protection: Upon completion of the installation clean letter surfaces per manufacturer's instructions. Protect units from damage until acceptance by the Owner.

3.1 SIGN SCHEDULE

- A. Schedule:

See drawings. Signs to be provided for Restroom, Workspace, and Mechanical Room.

END OF SECTION

SECTION 102800
TOILET ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Coordinate with Owner for accessories provided by Owner.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 092110 - GYPSUM BOARD ASSEMBLIES for blocking and strapping

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Features that will be included for Project.
 - 5. Manufacturer's warranty.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated on Drawings.
 - 2. Identify products using designations indicated on Drawings.
- C. Maintenance Data: For toilet accessories to include in maintenance manuals.

1.3 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same articles in Part 2, provide products of same manufacturer unless otherwise approved by Architect.

1.4 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. American Specialties, Inc.
 - 2. Bobrick Washroom Equipment, Inc.
 - 3. Bradley Corporation.
- B. Basis of Design: Bobrick Washroom Equipment, Inc.

2.2 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.0312-inch minimum nominal thickness, unless otherwise indicated.
- B. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.0359-inch (0.9-mm) minimum nominal thickness.
- C. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- D. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper- and-theft resistant where exposed, and of galvanized steel where concealed.

2.3 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Grab Bars:
 - 1. Grab bars shall be constructed of Type 304 stainless steel with peened non-slip gripping surface and satin finish flange. Wall thickness shall be 18 gage and outside diameter 1-1/2". Stainless steel flanges shall be 11 gage 3" diameter with four stainless steel vandal-proof set screws. Provide in wall backing.
 - 2. Acceptable series and models:
 - a. Bobrick - B-6806 x length required
 - b. ASI - 3800 x length required
 - c. Bradley – 812 Series x length required
- C. Mirror:
 - 1. 18" W x 36" H. One-piece type 304 stainless steel angle frame, with 1/4" tempered select float glass.
 - 2. Basis of Design – Bobrick B-2908 1836 18" x 36"
- D. Toilet Paper Dispenser:
 - 1. Basis of Design - Bradley 5263-00 Commercial Toilet Paper Dispenser, Surface-Mounted, Aluminum

- E. Automatic Surface Mounted Paper Towel Dispenser:
 - 1. Stainless Steel Cabinet and Frame
 - 2. Basis of Design: American Specialties Inc. Model 8523A
- F. Automatic Hand Dryer
 - 1. World Dryer, HEPA-filtered VERDEdri, Q-973A2

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to method in ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10 28 00

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SECTION 104400
FIRE-PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Portable fire extinguishers.

1.2 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each item.
 - 1. Fire Extinguishers: Include rating and classification.
- B. Maintenance Data: For fire extinguishers, fire-protection cabinets and stairway evacuation chairs to include in maintenance manuals.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain fire extinguishers through one source from a single manufacturer.
- B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1.4 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

PART 2 - PRODUCTS

2.1 PORTABLE FIRE EXTINGUISHERS

- A. General: Provide fire extinguishers of type, size, and capacity for each fire-protection cabinet indicated.
 - 1. 1 – 5 lb dry chemical fire extinguisher Amerex MP5.

2.2 FIRE EXTINGUISHER BRACKET

- A. Accessories:
 - 1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to wall, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging. Contractor shall be responsible for fire extinguisher tagging by a certified service technician located within 75 miles of the project.
 - 1. Remove and replace damaged, defective, or undercharged units.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare location of fire extinguisher mounting, approved by architect and authorities having jurisdiction.

3.3 INSTALLATION

- A. General: Install fire-protection specialties in locations and at mounting heights indicated on the Drawings and acceptable to authorities having jurisdiction.
- B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection specialties are installed, unless otherwise indicated in manufacturer's written installation instructions

END OF SECTION 10 44 00

SECTION 10 71 13
EXTERIOR SUN SHADES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Manufactured architectural aluminum exterior sun shades; perforated sheet metal panel with tapered nose piece, mechanically attached to exterior wall system.

1.02 RELATED REQUIREMENTS

- A. Section 133400 Pre Engineered Post Frame Building System – For coordination of exterior mounting surface to receive sun shades, and in wall blocking.

1.03 REFERENCE STANDARDS

- A. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- B. ASTM B 221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.04 SUBMITTALS

- A. Product Data: Sun shade manufacturer's data sheets on each product to be used, including:
 - 1. Finish manufacturer's data sheet showing physical and performance characteristics.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation instructions and recommendations.
 - 4. Specimen warranty for finish, as specified herein.
 - 5. Maintenance instructions.
- B. Shop Drawings: Show layout and elevations, profiles, styles, part numbers, dimensions and thickness of materials, finishes, connections, details and location of joints, method of anchorage, type of anchors and backing supports.
 - 1. Differentiate between shop fabrication and field installation.
 - 2. Indicate substrates and adjacent work specified in related sections with which the exterior sun shades must be coordinated.
- C. Samples: Submit samples of each component, and fasteners to be utilized in sun shade assembly with appropriate finish.
- D. Warranty: Provide written warranty that sun shade products will be free of defective materials or workmanship for a period of one year from date of installation.
- E. Certifications: Manufacturer's certification that sun shade meets design criteria, Drawings and specification requirements.

1.05 QUALITY ASSURANCE

- A. Field Measurements: Verify actual dimensions by field measurement before fabrication; show recorded measurements on shop drawings.
- B. Exterior sunshade Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with continuous experience of over 5 years.
- C. Installer Qualifications: Experienced in performing work of the type specified in this section.
 - 1. With minimum 3 years of documented experience in installation of exterior sun shades

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EMA STORAGE

- system similar to the work of this section.
- 2. Approved by sun shade manufacturer.
- D. For quality and delivery control, sunshades must be purchased from a single source. Sub contracting of shade assembly is not acceptable.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.
 - 1. Protect finishes by applying heavy duty removable plastic film during production.
 - 2. Package for protection against transportation damage.
 - 3. Provide markings to identify components consistently with drawings.
 - 4. Exercise care in unloading, storing and installing panels to prevent bending, warping, twisting and surface damage.
- B. Store products protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1.07 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

PART 2 - PRODUCTS

2.01 FLAT SUN SHADE

- A. Location: This flat sun shade is to be used over the storefront system as shown on the drawings.
- B. Manufacturer: Basis of Design – SuperShade by Mapes Canopies, Lincoln, Nebraska, Phone: 1-888-273-1132
 - i. Substitutions: As approved by Architect.
- C. Materials
 - i. Decking shall consist of louvered blades (.110" extruded aluminum).
 - ii. Intermediate framing members shall be extruded aluminum, alloy 6063-T6, in profile and thickness shown in current Mapes brochures.
 - iii. Hanger rods and attachment hardware shall be a standard finish.
 - iv. Fascia shall be standard extruded 12" C-Channel style.
- D. Finish: Finish to be manufactures 2 – Coat Kynar, Dark Bronze

2.02 ANGLED SUN SHADE

- A. Location: This angled sun shade is to be used over the overhead doors and person doors as shown on the drawings.
- B. Manufacturer: Basis of Design – Bahama Style Awning by American Products Incorporated (API) , 13909 Lynmar Blvd., Tampa, FL 33626 Phone: 813-925-0144
 - i. Substitutions: As approved by Architect.
- C. Materials
 - i. Louvered blades (2" x .055" extruded aluminum).
 - ii. Continuous connection to structure along top.

- iii. Intermediate square arm tube supports at 4'-0" maximum.
 - iv. Sun shade to be one piece or bolted together to form one canopy at each location. Multiple sun shades are not acceptable.
- D. Finish: Finish to be manufactures 2 – Coat Kynar, Dark Bronze.

2.03 FABRICATION

- A. Provide fixed sun shades and accessories of design, material, sizes, depth, arrangement, and thickness as indicated on Drawings and as required for optimal performance with respect to strength; durability; and uniform appearance.
- B. Outriggers are welded in factory to mounting plate. Aluminum angle is mechanically fastened to outrigger to receive in-fill panel. Components are packaged and shipped for field assembly.
- C. Corners: Miter sunshade units at corners as indicated on shop drawings.
- D. Fabrication tolerances: Maximum allowable tolerances.
 - 1. Bow: + - 1/4 inch.
 - 2. Dimensional width or length: + - 1/8 inch.
 - 3. Squareness: + - 1/8 inch.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrate conditions in areas to receive the work. Verify dimensions, tolerances, and interface with adjacent work. Do not proceed until any unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Prior to fabrication, field verify required dimensions.
- B. Coordinate sun shade installation with exterior wall system, window framing system, and storefront wall system to ensure proper structural support is provided, attachment of sun shades is compatible with substrate, and weathertightness of exterior envelop is maintained.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's written instructions and recommendations for installation of the work.
- B. Verify dimensions of supporting structure at the site by accurate field measurements so that the work will be accurately designed, fabricated and fitted to the structure.
- C. Anchor Sunshade to building substructure as indicated on drawings, shop drawings and as specified.
- D. Separate dissimilar metals; use gasket fasteners, isolation shims, or isolation tape where needed to eliminate possibility of electrolytic action between metals.
- E. Do not erect warped, bowed, deformed or otherwise damaged or defaced members. Remove and replace any members damaged in the erection process as directed.
- F. Set units level, plumb and true to line, with uniform joints.
- G. Outrigger installation:
 - 1. Verify centerline dimensions.
 - 2. Install the two outer most outriggers plumb and level to the substrate.

3. Then, shoot a line from outrigger to outrigger to find the depth dimension of the outer line.
 4. Proceed with the installation by attaching the middle outrigger, shimming as required.
 5. Shims: Non-ferrous, as recommended by manufacturer. Verify centerline dimensions after shims are installed.
- H. Fascia installation: Attach extruded aluminum fascia to outriggers with stainless steel sheet metal screws recommended by manufacturer.
- I. In-fill panel installation: Set In-fill panel on mounting angle on side of outrigger, and securely fasten to angle with stainless steel sheet metal screws recommended by manufacturer.
- J. Erection Tolerances:
1. Variation from level: +/- 1/8 inch maximum in 20 ft.- 0 inch runs, non-cumulative.
 2. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.
 3. Do not field cut or trim units. Cut and trim component parts during erection only with the approval of the manufacturer or fabricator, and in accordance with his recommendations. Restore finish completely. Remove and replace members where cutting and trimming has impaired the strength or appearance of the assembly as directed.

3.04 CLEANING

- A. Remove site cuttings from finish surfaces.
- B. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.
- C. Clean aluminum surfaces in accordance with recommendations found in AAMA 609 and 610. Do not use aggressive alkaline, TSP, acid cleaners, or abrasive cleaners on aluminum surfaces.
- D. Clean stainless steel surfaces with non-abrasive detergents, soap, ammonia and warm water; rinse with clean water.

END OF SECTION

SECTION 13 34 00

PRE-ENGINEERED POST FRAME BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Metal roof panels.
 - 2. Metal wall panels.
 - 3. Metal soffit panels.
 - 4. Thermal insulation.
 - 5. Accessories.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of metal building system component.
- B. Shop Drawings: Indicate components by others. Include full building plan, elevations, sections, details and attachments to other work.
- C. Samples: For units with factory-applied finishes.

1.4 INFORMATIONAL SUBMITTALS

- A. Letter of Design Certification: Signed and sealed by manufacturer include the following:
 - 1. Name and location of Project.
 - 2. Order number.
 - 3. Name of manufacturer.
 - 4. Name of Contractor.
 - 5. Building dimensions including width, length, height, and roof slope.
 - 6. Governing building code and year of edition.
 - 7. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
 - 8. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
 - 9. Building-Use Category: Indicate category of building use and its effect on load importance factors.
- B. Material test reports.
- C. Source quality-control reports.
- D. Field quality-control reports.
- E. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.6 WARRANTY

- A. Special Warranty on Metal Panel Finishes: Manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Finish Warranty Period: 20 years from date of Substantial Completion.
- B. Special Weathertightness Warranty for Metal Roof Panels: Manufacturer agrees to repair or replace metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Greiner Buildings
 - 2. Lester Buildings
 - 3. Morton Buildings
 - 4. FBi Buildings
 - 5. Wick Buildings
 - 6. Architect Approved Equal

2.2 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Building systems to withstand the effects of gravity loads and the following loads and stresses:
 - 1. Design Loads: As indicated on Drawings.
 - 2. Deflection and Drift Limits: As indicated on Drawings.
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Structural Performance for Metal Roof and Wall Panels: Provide metal panel systems capable of withstanding the effects of the following loads:
 - 1. Wind Loads: As indicated on Drawings.
- D. Air Infiltration for Metal Roof Panels: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E1680 or ASTM E283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 1.57 lbf/sq. ft. (75 Pa).

- E. Air Infiltration for Metal Wall Panels: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 1.57 lbf/sq. ft. (75 Pa).
- F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E1646 or ASTM E331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 2.86 lbf/sq. ft. (137 Pa).
- G. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 2.86 lbf/sq. ft. (137 Pa).
- H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
 - 1. Uplift Rating: UL 90
- I. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
 - 1. Fire/Windstorm Classification: Class 1A-90
 - 2. Hail Resistance: SH.

2.3 STRUCTURAL FRAMING

- A. See structural drawings and specifications for requirements.

2.4 METAL ROOF PANELS

- A. Exposed Fastener, Tapered-Rib, Metal Roof Panels : Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.
 - 1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.024-inch (0.61-mm) nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
 - a. Exterior Finish: Three-coat fluoropolymer
 - b. Color: As selected by Architect from manufacturer's full range
 - 2. Major-Rib Spacing: 12 inches (305 mm).
 - 3. Panel Coverage: 36 inches (914 mm)
 - 4. Panel Height: 1.25 inches (32 mm)

2.5 METAL WALL PANELS

- A. Exposed-Fastener, Tapered-Rib, Metal Wall Panels. Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping

side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.024-inch (0.61-mm) nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
 - a. Exterior Finish: Three-coat fluoropolymer.
 - b. Color: As selected by Architect from manufacturer's full range
2. Major-Rib Spacing: 12 inches (305 mm)
3. Panel Coverage: 36 inches (914 mm)
4. Panel Height: 1.25 inches (32 mm)

2.6 METAL SOFFIT PANELS

- A. General: Provide factory-formed metal soffit panels designed to be installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners in side laps. Include accessories required for weathertight installation.
- B. Metal Soffit Panels: 12" vented soffit, .019 aluminum 12".
 1. Finish: Match finish and color of metal roof panels.
 2. Basis of Design: Norandex AST12FV
 - a. Or architect approved equivalent

2.7 THERMAL INSULATION

- A. Building Wrap
 1. See section 072500 Weather Barriers
- B. Building Wall Insulation:
 1. Building wall insulation to be installed in stud exterior wall.
 - a. Formaldehyde free poly incapsulated, fiberglass batt insulation, R-21.
 - 1) Basis of design: Johns Manville ComfortTherm, 5 ½" thick
 - 2) Architect approved equivalent
 2. Building wall insulation to be installed in cavity between exterior columns.
 - a. Faced mineral wool, R-25, with ECOSE. Rolls 8' wide to minimize joints.
 - 1) Basis of design: Silvercote Pole Barn Faced Insulation 8" thick
 - 2) Architect approved equivalent
- C. Roof Insulation:
 1. Roof insulation to be blow-in installed in attic space. Install to achieve an R-49.
 - a. Formaldehyde free fiberglass
 - 1) Basis of design: Johns Manville Climate Pro B-7700
 - 2) Architect approved equivalent
- D. Vapor Barrier
 1. Vapor Barrier in ceiling, installed on bottom of trusses, above interior liner panel.
 - a. StegoHome® Wrap 10-Mil Vapor Retarder
 - 1) Architect approved equivalent
 - b. StegoHome® Tape for all seams and terminations.
 - 1) Architect approved equivalent

2.8 INTERIOR LINER PANELS

- A. A through-fastened sidewall panel with 1 1/4 inch (32mm) ribs at 12 inches (305mm) on center. The area between the ribs is reinforced to minimize oil-canning. All interior walls and ceiling.
 - 1. Gauge: 28 (Std.)
 - 2. Dimensions: 36 inches (915mm) wide by 1 1/4 inch (32mm) high
 - 3. Finish: As specified in Article 2.8 PANEL FINISHES

2.9 ACCESSORIES

- A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.
 - 1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
- C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
- D. Flashing and Trim: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness, prepainted with coil coating; finished to match adjacent metal panels.
- E. Gutters: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness, prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."
 - 1. Gutter Supports: Fabricated from same material and finish as gutters.
 - 2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.
- F. Downspouts: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness, prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.
 - 1. Mounting Straps: Fabricated from same material and finish as gutters.

2.10 FABRICATION

- A. General: Design components and field connections required for erection to permit easy assembly.
- B. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.
 - 1. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of metal panel.

PART 3 - EXECUTION

3.1 ERECTION OF STRUCTURAL FRAMING

- A. Erect building system according to manufacturer's written instructions and drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.
- C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.

3.2 METAL PANEL INSTALLATION, GENERAL

- A. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.
 - a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.
 - 2. Install metal panels perpendicular to structural supports unless otherwise indicated.
 - 3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
 - 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 5. Locate metal panel splices over structural supports with end laps in alignment.
 - 6. Lap metal flashing over metal panels to allow moisture to run over and off the material.
- B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.
 - 1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
- C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.
- D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types recommended by metal panel manufacturer.
 - 1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.

3.3 METAL ROOF PANEL INSTALLATION

- A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.
 - 1. Install ridge and hip caps as metal roof panel work proceeds.
 - 2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.
- B. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.
 - 1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
 - 2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
 - 3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
 - 4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.
- C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 METAL WALL PANEL INSTALLATION

- A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
 - 2. Shim or otherwise plumb substrates receiving metal wall panels.
 - 3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
 - 4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
 - 5. Rigidly fasten base end of metal wall panels and allow eave end free movement for thermal expansion and contraction. Pre-drill panels.
 - 6. Flash and seal metal wall panels with weather closures at eaves and rakes, and at perimeter of all openings. Fasten with self-tapping screws.
 - 7. Install screw fasteners in predrilled holes.
 - 8. Install flashing and trim as metal wall panel work proceeds.
 - 9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated on Drawings; if not indicated, as necessary for waterproofing.
 - 10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
 - 11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.
- B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

3.5 METAL SOFFIT PANEL INSTALLATION

- A. Provide metal soffit panels the full width of soffits. Install panels perpendicular to support framing.

- B. Flash and seal metal soffit panels with weather closures where panels meet walls and at perimeter of all openings.

3.6 DOOR AND FRAME INSTALLATION

- A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.
- B. Personnel Doors and Frames: Install doors and frames according to NAAMM-HMMA 840.
- C. Door Hardware:
 - 1. Install surface-mounted items after finishes have been completed at heights indicated in Section 087000 "Door Hardware".
 - 2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 - 3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
 - 4. Set thresholds for exterior doors in full bed of sealant complying with requirements for concealed mastics specified in Section 079200 "Joint Sealants."

3.7 WINDOW INSTALLATION

- A. General: Install windows plumb, rigid, properly aligned, without warp or rack of frames or sash, and securely fasten in place according to manufacturer's written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each window frame with elastomeric sealant used for metal wall panels.
 - 1. Separate dissimilar materials from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in AAMA/WDMA/CSA 101/I.S.2/A440.
- B. Set sill members in bed of sealant or with gaskets, for weathertight construction.
- C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- D. Mount screens directly to frames with tapped screw clips.

3.8 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 - 2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 - 3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set

units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- C. Gutters: Join sections with lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.
1. Tie downspouts to underground drainage system indicated.
- E. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.
- F. Roof Vent: Continuous or Sectional-Ridge Type: Factory-engineered and -fabricated, continuous unit; Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness, prepainted with coil coating; finished to match metal roof panels. Fabricated in minimum 10-foot- (3-m-) long sections. Provide throat size and total length indicated, complete with side baffles, ventilator assembly, end caps, splice plates, and reinforcing diaphragms.
1. Bird Screening: Galvanized steel, 1/2-inch- (13-mm-) square mesh, 0.041-inch (1.04-mm) wire; or aluminum, 1/2-inch- (13-mm-) square mesh, 0.063-inch (1.6-mm) wire.

3.9 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform field quality control special inspections and to submit reports.
- B. Product will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 133419

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**SITE AND INFRASTRUCTURE SUBGROUP: DIVISIONS 30-39
SPECIFICATIONS & SPECIAL PROVISIONS**

**JOHNSON COUNTY EMA SITE PLAN PROJECT
CITY OF TIFFIN, IOWA**

1. Work is to be completed in accordance SUDAS 2025 Specifications. Any deviation from those specifications is outlined in these special provisions.
2. This project is a sales tax exempt project. Johnson County Auditor will issue certificates to the awarded bidder and subcontractors as needed.
3. Construction staking shall be provided and paid for by the Owner. MMS Consultants shall provide construction staking on the project. Contractor shall provide minimum 48 hour notice for staking needs. Staking shall be provided on a ONE TIME ONLY basis. Contractor shall be responsible for areas requiring restaking at MMS standard hourly rates.
4. Johnson County Auditor shall obtain and pay for NPDES General Permit #2 and prepare the project's SWPPP before the start of the project. The Contractor shall be responsible for all required weekly and event inspections and maintaining and updating the SWPPP for the duration of the project. The SWPPP Management bid item shall also include the following: installation and maintenance of a rock construction entrance, furnishing and maintaining a portable restroom facility for workers on site and installing a concrete washout area. Also included is removal and disposal of these items at the completion of construction.
5. Contractor shall be responsible for maintaining postal service along project as outlined in SUDAS Section 1070, 2.14. Contractor shall reinstall any mailboxes removed during construction in accordance with Postal Service requirements.
6. Class 13 Excavation item shall include removal of granular surfacing and base material. All excavated material shall become property of the Contractor and shall be removed from the site by the Contractor. Class 13 Excavation shall be paid at plan quantity unless there are changes to the excavation scope of work.
7. Backfilling of Curbs bid item shall include all work to bring the area behind the curb to the grades shown on the plans and ready for a minimum of 4" of imported topsoil. Clean dirt from Class 10 excavation may be used for fill as required for this work.
8. Subgrade preparation item shall include the work to prepare the pavement subgrade and includes compaction of the subgrade to 95% Standard Proctor Density. Street subgrades shall pass proofroll test with loaded dump truck prior to placement of subbase rock. If areas of subgrade do not pass proofroll test, coreout and backfill with additional depth of modified subbase may be authorized by the Engineer and paid for with the Core Out bid item. The Core Out item shall include removal of unsuitable subgrade soils and replacement with modified subbase.
9. Import sufficient topsoil from offsite to provide a minimum of 4" of topsoil in all areas to receive permanent seeding. Place topsoil and prepare for seeding in accordance with SUDAS Section 9010, 3.04. Seedbed shall be free of rock and other debris for sodding.

10. Removal of storm sewer and removal of water mains shall include backfilling the pipe trench with suitable native material and trench compaction testing in areas where new pipe is not being installed in the same trench.
11. For PCC construction, the contractor shall provide maturity testing for determining time for opening of pavement to traffic. Maturity testing shall be utilized on PCC paving, PCC curb and gutter and PCC driveway construction. Contractor shall submit mix design for each type of construction (if different mixes are used for different types of construction) a minimum of 5 working days before the anticipated start of work. Concrete mix shall be C-3 unless otherwise noted within the specifications.
12. Contractor shall give affected residents a minimum of 24 hours' notice prior to any water shutoff. Notice shall be in the form of a door hanger placed on the door of the affected resident. The City of Tiffin will assist with closing valves and isolating the area as required. No water shutoffs shall be scheduled on Fridays.
13. The bid item "Connect to Existing Water Main" shall include the following work: excavating to locate existing main, furnishing and installing reducers as required, furnishing and installing bends as required, cutting and removing existing main as required, furnishing and installing sleeve, capping existing main and abandoning existing main in place.
14. Water mains shall have Class P-1 bedding. Backfill shall be as outlined on the plans, generally outlined as Class A crushed stone trench backfill below paving and suitable native material compacted in lifts to 95% Standard Proctor density for areas outside of paving.
15. Bid item for trenched water main shall include, but is not limited to, trench excavation; dewatering; furnishing and installing pipe; furnishing, placing, and compacting bedding and backfill material; tracer system; testing; disinfection. Item shall also include all fittings, thrust blocks, pipeline accessories, gaskets, and appurtenances required to complete water main installation according to plan.
16. No additional payment shall be made for water main fittings unless the scope of project changes to include additional fittings not shown on the plans.
17. Refer to Iowa DOT Standard Road Plans SW-102, SW-103 and SW-104. RCP storm sewers shall have Class R-1 bedding. Dual Wall HDPE storm sewers shall have Class F-3 bedding. PVC sanitary sewers shall have Class F-2 bedding. Water mains shall have Class P-1 bedding. Backfill shall be as outlined on the plans.
18. Storm sewers are labeled on the plans as RCP but shall be either RCP or Dual Wall HDPE pipe. The contractor shall have the option to install either type of piping for all storm sewers on the project, with bedding and backfill as specified for each type of pipe. RCP storm sewers shall have bell and spigot joints wrapped in engineering fabric. Dual wall HDPE storm sewers shall have soil tight joints.
19. The bid item "Removal of Pavement" shall include all sawcuts as required as well as removal of asphalt and concrete pavement. There are some areas that include asphalt overlay on underlying concrete pavement. Bid item shall include removal of both asphalt overlay and underlying

concrete paving. Removal of granular shoulder or surfacing shall be included in Class 13 Excavation.

20. For bid items for water services, the bid items shall include the following work: 1) excavation as required to locate existing service line, 2) furnishing and installing all piping, including bends and fittings as required, 3) connections to existing services within 12" of the new curb stop or as shown on the plans, 4) backfill of service lines (services between the main and the curb stop shall be backfilled with Class A crushed stone while services between the curb stop and house shall be backfilled with suitable native material, compacted in lifts as specified), 5) connections to new and existing mains (corporation stop/saddle connections) and removal of existing curb stops and service line piping as required. The contractor shall have the option to install water services using trenchless methods to avoid granular trench backfill of services under the street or disturbance of yard areas.
21. For bid items for sanitary sewer services, the bid items shall include the following work: 1) excavation as required to locate existing service line, 2) furnishing and installing all piping, including bends and fittings as required, 3) installation of double cleanout at or near the ROW line or as shown, 4) connections to existing services within 12" of the new cleanout or as shown on the plans, 5) backfill of service lines (services between the main and the cleanout shall be backfilled with Class A crushed stone while services between the cleanout and house shall be backfilled with suitable native material, compacted in lifts as specified), 6) connections to new and existing mains (wye/saddle connections) and removal of existing service line piping as required.
22. Existing signs which are in conflict with the work shall be removed and stored by the Contractor and then reinstalled in the same location (or as required by the MUTCD) after completion of the work. For Stop signs, the Contractor shall provide temporary signs as needed to maintain Stop signs at all locations as required during work. All reinstalled signs shall have new perforated square steel tube posts with receiver anchor. New posts shall be furnished and installed by the Contractor for each sign to be reinstalled. Existing signs shall be utilized. Any signs which need to be replaced will be furnished by the Owner.
23. The bid item "Mulching for Erosion Control" shall include hydraulic mulch applied to disturbed areas. This item may also be used to protect areas from erosion during construction as directed by the Engineer.

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SECTION 32 35 00
SITE SCREENING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pre-Formed Panels: For screening or buffering trash enclosures, utility areas, privacy areas, mechanical units, etc.
 - 1. Powder coated metal.
- B. Aluminum Support Framing: For direct attachment of screen support columns to/into concrete pads, piers, or footings provided by others.
- C. Operable gates for access through screens.
- D. Not Included in This Specification:
 - 1. Touch-up painting required for scratches and screw heads.
 - 2. Field painting of prime painted screens

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM B 221 - Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire Profiles, and Tubes.
- B. The Aluminum Association, Inc. (AA):
 - 1. AA ADM-1516166 - Aluminum Design Manual
- C. American Society of Civil Engineers (ASCE):
 - 1. ASCE 7-18 - Minimum Design Loads for Buildings and Other Structures.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data:
 - 1. Manufacturer's data sheets on each product to be used.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Typical installation methods.
 - 5. Sufficient data and detail to indicate compliance with these specifications.
- C. Verification Samples: Two representative units of each panel type.
 - 1. Color Selection: Submit paint chart with full range of colors available for Architect's selection. Custom color samples available upon purchase
- D. Shop Drawings: Indicate layout heights, component connection details, and details of interface with adjacent construction.
- E. Certification: Manufacturer's Certificate of Compliance certifying that panels supplied meet or exceed requirements specified.
- F. Closeout Submittals: Warranty documents, issued and executed by manufacturer, countersigned by Contractor.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum one years documented experience.
- B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
- C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.
- B. Storage and Handling: Protect materials and finishes during handling and installation to prevent damage.
- C. Protect from damage due to weather, excessive temperature, and construction operations.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
- B. Field Measurements: Take measurements of supporting paving, footings, or piers. Indicate measurements on shop drawings fully documenting any field condition that may interfere with the screen system installation.

1.7 COORDINATION

- A. Installer for work under this Section shall be responsible for coordination of panel and framing sizes and required options with the Contractor's requirements.
 - 1. Request information on sizes and options required from the Contractor.
- B. Submit shop drawings to the Contractor and obtain written approval of shop drawing from the Contractor prior to fabrication.
- C. Confirm size, type, and location of supporting construction as adequate to resist column supports.

1.8 WARRANTY

- A. If any part of the screen system fails because of a manufacturing defect within 1 to 5 years from the date of substantial completion, the manufacturer will furnish the required replacement parts without charge. Any local transportation, related service labor, or diagnostic call charges are not included.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: CityScapes International Inc., which is located at: 4200 Lyman Ct., Hilliard, OH 43026; Toll Free: 877-SCREENS; Phone: 614-850-2549; Email: contact@cityscapesinc.com; Web: <https://cityscapesinc.com/>
 - 1. Basis of Design: Covrit Gates and Screening System by CityScapes International Inc.
 - 2. Architect Approved Equivalent

2.2 PERFORMANCE AND DESIGN REQUIREMENTS

- A. Regulatory Requirements: Comply with requirements of building authorities having jurisdiction in Project location.

- B. Design Criteria: Manufacturer is responsible for the structural design of all materials, assembly, and attachments to resist snow, wind, suction and uplift loading at any point without damage or permanent set.
 - 1. Framing: Designed in accordance with the Aluminum Design Manual to resist the following loading:
 - a. ASCE 7-18 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers.

2.3 MATERIALS

- A. Operable Access Gates: Minimum Panel thickness: 0.050"
 - 1. ToughGate: Powder coated extruded Aluminum shapes.
- B. Framing: Aluminum Plate, Shapes and Bar: ASTM B221, alloy 6005-T5, 6061-T5 or 6063-T5.
- C. Threaded Fasteners: Screws, bolts, nut and washers to be Stainless Steel.
 - 1. Post Backer assembly fasteners shall be #10-16 stainless steel Self-Drilling screws.
 - 2. Provide lock washer or other locking device at all bolted connections.

2.4 FABRICATION

- A. Factory-Formed Panel Systems: Continuous interlocking panel connections and indicated or necessary components.
 - 1. Form components true to shape, accurate in size, square and free from distortion or defects. Cut panels to precise lengths indicated on approved shop drawings.
- B. Fabricate products to the following configurations:
 - 1. ToughGate Gate Style: Slatwall Vertical 6 inch (152 mm).
 - 2. Size: See drawings
 - 3. Trim and Closures: Fabricated and finished with Manufacturer's standard coating system, unless shown otherwise on drawings.
- C. Framing: Fabricate and assemble components in largest practical sizes, for delivery to the site.
 - 1. Construct corner assemblies to required shape with joints tightly fitted.
 - 2. Supply components required for anchorage of framing. Fabricate anchors and related components of material and finish as required, or as specifically noted.
- D. Gate Hardware: Provide manufacturer's adjustable standard of size required to fit support pipe provided.
 - 1. Hinge Type: Cradle, Hold Open Pipe Hinge
 - 2. Latch: Modern lockable latch.

2.5 FINISHES

- A. Aluminum Framing: Mill finish.
- B. Panel Coating: Manufacturer's standard powder coating system, factory applied.
 - 1. Color: Selected from full range of manufacturer's standard colors.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Installer's Examination: Examine conditions under which construction activities of this section are to be performed.
 - 1. Submit written notification to Architect and Screen manufacturer if such conditions are unacceptable.
 - 2. Beginning erection constitutes installer's acceptance of conditions.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.

- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install units in accordance with the manufacturer's instructions and approved shop drawings. Keep perimeter lines straight, plumb, and level. Provide brackets, anchors, and accessories necessary for complete installation.
- B. Fasten structural supports to/into paving, footings, or piers at spacing as indicated on approved shop drawings.
- C. Metal Separation: Where aluminum materials would contact dissimilar materials, insert rubber grommets at attachment points, thus eliminating where dissimilar metals would otherwise be in contact.
- D. Do not cut or abrade finishes which cannot be restored. Return items with such finishes to shop for required alterations.

3.4 ERECTION TOLERANCES

- A. Maximum misalignment from true position: 1/4 inch (6 mm).

3.5 CLEANING AND PROTECTION

- A. Remove all protective masking from material immediately after installation.
- B. Protection:
 - 1. Ensure that finishes and structure of installed systems are not damaged by subsequent construction activities.
 - 2. If minor damage to finishes occurs, repair damage in accordance with manufacturer's recommendations; provide replacement components if repaired finishes are unacceptable to Architect.
- C. Prior to Substantial Completion: Remove dust or other foreign matter from component surfaces; clean finishes in accordance with manufacturer's instructions.
 - 1. Clean units in accordance with the manufacturer's instructions.

END OF SECTION 32 35 00