IDEA PUBLIC SCHOOLS

IDEA CENTRAL TEXAS
BUILDING ENVELOPE

IDEA CARVER – SAN ANTOINO, TEXAS
IDEA MONTOPOLIS – AUSTIN, TEXAS

Project No. – 40-CBE-0524

ARCHITECTS - PLANNERS
GMS Architects

Set No.

REQUEST FOR COMPETITIVE SEALED PROPOSALS

IDEA CENTRAL TEXAS BUILDING ENVELOPE

IDEA Public Schools invites qualified firms to submit Competitive Sealed Proposals for construction services for the new IDEA CENTRAL TEXAS BUILDING ENVELOPE at IDEA Carver and IDEA Montopolis.

The IDEA Carver is located at 217 Robinson Pl, San Antonio, TX 78202. IDEA Montopolis is located at 1701 Vargas Rd, Austin, TX. 78741

At IDEA Carver, the project consists of modified bitumen roofing and roof drain repairs, cement board siding repairs, window leak and flashing repairs, and exterior sealant replacement. Electrical, gas and mechanical connections for roof repairs are included.

At IDEA Montopolis, the project consists of roof drain repairs and exterior siding replacement.

Competitive Sealed Proposals will be received by ***Thursday, April 25, 2024, at 3:00PM*** local time. Proposals will be received electronically. Refer to the Invitation for Proposals for bid details.

IDEA Public Schools will receive and evaluate. Proposals received after the date and time for receipt of Proposals may not receive consideration and may be returned unopened. Proposals will be publicly opened and read aloud immediately after the submission deadline via video conference. IDEA Public Schools reserves the right to reject any and/or all Proposals, to waive technicalities, to re-advertise or to proceed in the best interest of the school.

Plans and Specifications will be available beginning **April 8, 2024,** from Gomez Mendez Saenz, Inc., 1150 Paredes Line Road, Brownsville, Texas 78521 956-546-0110 which will be issued in electronic file format. All prospective proposers must obtain the Electronic File information from Gomez Mendez Saenz, Inc. to be placed on the official bidders list. No hard copies will be distributed.

Gomez Mendez Saenz, Inc. is the Architect of Record. You can contact Roan Gomez by email at rgg@gmsarchitects.com with questions about plans.

A Pre-Proposal Conference will be held for the project on Friday, April 19, 2024, at 8:30am at the IDEA Carver Campus and at 2:00pm at IDEA Montopolis. All General Contractors are encouraged to attend.

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DOCUMENT 001000

REQUEST FOR COMPETITIVE SEALED PROPOSALS

IDEA Public Schools Board, in accordance of Texas Education Code Chapter 44, Subchapter B and Chapter 2269 of the Texas Government Code, has delegated to its Construction Committee of the Board the authority of the selection of procurement method, determining the evaluation/ranking criteria, ranking of respondents, selection of the respondent that will provide best value to the the District. The Board desires to delegate to the CEO/Superintendent (or her designee) the authority to negotiate a contract with the selected respondent. The Chief Executive Officer has elected to utilize the Competitive Sealed Proposal procurement process. Furthermore, The Board has delegated the authority to open proposals to the Owner's independent Project Manager or the Architect/Engineer of Record. Competitive Sealed Proposals will be received from qualified General Contractor Proposers for the entire scope of Work described below in accordance with Proposal Documents, and Addenda as may be issued, by IDEA Public Schools, until the date and time fixed for the Proposal Opening, as identified below:

OWNER:	IDEA Public Schools – 2115 W Pike Blvd. Weslaco Tx 78596.
ARCHITECT:	Gomez Mendez Saenz, Inc. – 1150 Paredes Line Rd., Brownsville, Texas 78521 Representative: Roan G. Gomez, AIA, (956) 546-0110 rgg@gmsarchitects.com
PROJECT & LOCATION:	**IDEA Central Texas Building Envelope** The IDEA Carver is located at 217 Robinson Pl, San Antonio, TX 78202. The Project consists of re-roofing, roof penetration repairs, exterior siding repairs, roof drain repairs, wall leak repairs, and exterior sealant replacement. IDEA Montopolis is located at 1701 Vargas Rd, Austin, TX. 78741. The Project consists of exterior siding repairs and roof drain repairs, window sealant and trim replacement.
PLANS AVAILABLE:	April 8, 2024, from GMS ARCHITECTS (Electronicaly Only). For Electronic Document request email to: susana@gmsarchitects.com.
PRE-PROPOSAL CONFERENCE:	Friday, April 19, 2024 at 8:30am at the IDEA Carver Campus. Friday, April 19, 2024 at 2:00am at the IDEA Montopolis Campus. Representatives of the Architect and Owner will be present at this meeting. All Proposers are encouraged to attend. Any questions concerning the Project shall be forwarded to the Architect by email at rgg@gmsarchitects.com.
PROPOSAL DATE AND TIME:	**Thursday, April 25, 2024 at 3:00 p.m.** Proposals received after the time indicated will not be accepted and will be returned unopened. Bid submissions that are accepted will be read aloud immediately after the bid opening date and time.
PROPOSAL LOCATION:	Proposals will be accepted via email to Sylvia Pena, IDEA Public Schools, Director of Facilities and Construction; sylvia.pena@ideapublicschools.org and Roan G. Gomez, AIA, Architect of Record; rgg@gmsarchitects.com. Accepted bids will be read aloud on a video conference call at the link below: **Join the meeting now** Meeting ID: 236 297 720 076 Passcode: PjwQeC

END OF DOCUMENT

DOCUMENT 002000

INSTRUCTIONS TO PROPOSERS

The IDEA Public Schools Board, in accordance of Texas Education Code Chapter 44, Subchapter B and Chapter 2269 of the Texas Government Code, has delegated to its Construction Committee of the Board, the authority of the selection of procurement method, determining the evaluation/ranking criteria, to rank respondents, and to select the respondent that will provide best value to the District. The Board desires to delegate to the CEO/Superintendent (or her designee) the authority to negotiate a contract with the selected respondent. The Board has also authorized its Project Manager or Architect to open bid submissions to be publicly read aloud at the time of opening. The following Instructions to Bidders outlines the decisions by the Chief Executive Officer.

.AVAILABILITY OF PROPOSAL DOCUMENTS

A. Proposal Documents will be available on the date and time indicated in Document 001000 - Request for Competitive Sealed Proposals.

B. The Proposal Documents, made available by the Owner and Architect, are for the exclusive purpose of obtaining proposals for the Work indicated; availability does not confer a license or grant for any other use. The Proposal Documents remain the property of the Owner and must be returned if not used for construction purposes.

C. Complete sets of the Proposal Documents shall be used for the preparation of proposals; partial sets will not be issued. Neither the Owner nor the Architect assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Proposal Documents.

D. Successful Proposers may retain their Proposal Documents for construction use.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

Project Description: The Project consists of security fencing, gates and operators at perimeter of each campus. Electrical, Data and Communication for gates, operators and networking are included.

Project Location: Idea Central Texas Building Envelope is located IDEA Carver in San Antonio and IDEA Montopolis in Austin. The IDEA Carver is located at 217 Robinson Pl, San Antonio, TX 78202. IDEA Montopolis is located at 1701 Vargas Rd, Austin, TX. 78741

Owner: IDEA Public Schools, 2115 W. Pike, Weslaco, Texas 78596.

Architect: The Contract Documents were prepared for this Project by Gomez Mendez Saenz, Inc. (GMS Architects),1150 Paredes Line Rd., Brownsville, Texas 78521 and their consultants identified on the Project Directory page of this Project Manual.

1.3 EXAMINATION OF PROPOSAL DOCUMENTS, SITE AND LOCAL CONDITIONS

A. Proposers shall carefully examine the Proposal Documents and shall visit the site to examine the existing conditions under which the Work is to be performed. Extra payments will not be authorized for Work that could have been foreseen by careful examination of the Site.

B. Proposers shall carefully examine the Proposal Documents to verify that they agree with the Table of Contents in the Project Manual, the Index of Sheets on the Drawings, and the Cover Page of Addenda. Proposers shall be responsible for obtaining any pages or sheets that may have been inadvertently left out during the printing process.

1.4 BIDDERS ACCESS TO PREMISES

A. A site tour will be conducted immediately after the Pre-Proposal Conference for the purpose of acquainting bidders with the Project.

1.5 INTERPRETATION OF PROPOSAL DOCUMENTS

A. Proposers shall promptly notify the Architect of any ambiguity, inconsistency or error that they may discover upon examination of the Proposal Documents or of the site and local conditions.

B. Proposers requiring clarification or interpretation of the Proposal Documents shall submit written questions 48 hours before the specified time of bid.

C. Replies will be issued to Proposers in the form of an Addendum, which will be available for purchase and on file at each location where the Proposal Documents are on file for examination.

1.6 SUBSTITUTION OF PRODUCTS, MATERIALS AND EQUIPMENT

A. The products, materials and equipment described, indicated and specified in the Proposal Documents establish a standard of required function, dimension, appearance, and quality and have been selected as the basis of design because of their particular suitability and/or record of satisfactory performance. It is not the intent to preclude the use of other products, materials and equipment provided that it is determined to be equivalent or better by the Architect and Owner.

B. Due to limited time available during bidding period, request for substitutions will not be evaluated by Architect until after “Notice to Proceed”. For period of fifteen (15) consecutive calendar days after “Notice to Proceed”, substitutions will be considered by Architect. Requests for substitution after that time will be considered or rejected at the discretion of the Architect. Refer to Section 012510 - Substitution Procedures for additional information. For gymnasium equipment and lockers – products by manufactures that meet the design standards will be accepted.

1.7 PROPOSER’S REPRESENTATIONS

A. By submitting a Proposal, the Proposer agrees with the following provisions: failure to do so constitutes basis for disqualification from being awarded the contract for the Work:

1. The Proposal Documents have been examined and the Proposal is being submitted in accordance with the indicated requirements.
2. The site has been examined and the Proposer is familiar with the conditions under which the Work is to be performed and observations at the site have been correlated with the Proposal Documents.
3. Work will begin immediately upon receipt of an executed contract and a notice to proceed.
4. The Proposer will participate and cooperate with the Architect.
5. The Proposer agrees to complete the Work within the time limits indicated (confirmation required on bid form).
6. **A competent, full-time superintendent will be assigned for the duration of the Work, including completion of outstanding work required for issuance of the certificate of substantial completion.**
7. If awarded the contract for the Work, the Proposer shall furnish a performance bond and a payment bond as required.
8. If awarded the contract for the Work, the Proposer shall obtain and carry for the duration of the Work the insurance coverage required.
9. The Proposer has included only products, materials and equipment as specified by the Proposal Documents.

1.8 CERTIFICATION OF CRIMINAL HISTORY BACKGROUND CHECKS FOR CONTRACTORS

A. The new law is found in Texas Education Code § 22.0834, which can be accessed through

www. tlo2. tlc. state. tx. us/ statutes/ statutes. html . This new law was created through the enactment of Senate Bill 9 ("SB 9") by the 80th Legislature. Senate Bill 9 can be accessed through the Texas Legislative website at www. capitol. state. tx. us and typing SB 9 into the search engine. Information regarding the fingerprinting obligations required by Senate Bill 9 can also be found on the Department of Public Safety ("DPS") website at www. txdps. state. tx. us. Much of the information can also be found in the DPS publication, *Senate Bill 9 Background Check for Education: A Reference Guide*.

B. The contractor shall be responsible for complying with all provisions of the law. Refer to additional information provided in specification section 004150. The contractor shall include an executed "Contractor Criminal Background Certification" in the Competitive Sealed Proposal.

1.9 FELONY CONVICTION NOTIFICATION

A. Section 44.034 of the Texas Education Code requires a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony. Subsection (b) states, "… a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for the services performed before the termination of the contract." Subsection (c) states, "… this section does not apply to a publicly held corporation."

B. Proposer shall execute the form contained in Document 004200 - Felony Conviction Notification Form, and include in the Competitive Sealed Proposal.

1.10 PROPOSAL EVALUATION WAIVER

A. By submitting a Proposal, each Proposer, and by extension each subcontractor, supplier and vendor, agrees to waive any claim it has, or may have, against the Owner and its respective employees, the Architect and its respective employees, the Architect's Consultants and its respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any Proposal; waiver of any requirements under the Proposal Documents, acceptance or rejections of any Proposal; and award of the contract.

B. Proposer shall execute the form contained in Document 004300 - Proposal Evaluation Waiver Form, and include in the Competitive Sealed Proposal.

1.11 NON-DISCRIMINATORY EMPLOYMENT

A. All Proposers, if awarded the contract for the Work, and subcontractors, suppliers and vendors shall agree to refrain from discrimination in terms and conditions of employment on the basis of race, color, religion, sex, or national origin, and agrees to take affirmative action as required by Federal Statutes and Rules and Regulations issued in order to maintain and insure non-discriminatory employment practices.

B. Proposer shall execute the form contained in Document 004400 - Affidavit of Non-Discriminatory Employment Form, and include in the Competitive Sealed Proposal.

1.12 PARTICIPATION OF UNDER-UTILIZED BUSINESSES

A. As a policy, IDEA Public Schools promotes the inclusion of under-utilized businesses as part of the construction team to provide opportunities for less-advantaged enterprises where possible and appropriate. Proposers are encouraged to submit proposed M/WBE subcontractors who will be actively engaged in the project. In addition, if the firm has a formal program involving mentoring of under-utilized subcontractors and suppliers to provide management and technical assistance, information related to the mentoring program should be provided. If the Proposer is not engaged in a formal mentoring program, then letters from under-utilized firms describing the mentoring efforts provided are encouraged and will be accepted.

1.13 SUBMISSION PROCEDURES FOR PROPOSALS

A. A Proposal will be considered invalid if it has not been received, regardless of how sent, at the designated location prior to the designated time fixed for the Proposal Opening, or prior to any extension issued by Addenda. Proposals received in this manner will be returned to the Proposer unopened.

B. If a Proposal Form is sent by U.S. Mail, it must be sent as Registered Mail. Proposals received by facsimile machine will be rejected.

C. Proposals shall be made on unaltered forms furnished within the Proposal Documents. All blank spaces shall be properly filled in by typewriter or manually in black or blue ink. The signer of the Proposal must initial any alteration or erasure to information entered in the blank spaces. Oral, telephonic or personal proposals will not be considered.

D. The various documents that will be submitted as the Competitive Sealed Proposal electronically at a maximum file size of 20MB. Proposal Forms submitted in paper copy shall be placed in an opaque envelope with the following information on the outside front and sealed:

(Name of General Contractor Proposer)
IDEA Public Schools – IDEA Central Texas Building Envelope
2115 W. Pike Blvd.
Weslaco, Texas 78596
Attention: Sylvia Pena, IDEA Public Schools

E. Proposers are requested to submit the following electronic files to Roan Gomez, AIA at rgg@gmsarchitects.com and Sylvia Pena at sylvia.pena@ideapublicschools.org .

- **One (1) PDF file containing the completed Bid Proposal Form along with the Bid Bond. Label the file: "Bid Proposal – Bid Bond – Name of Contractor".**

- **One (1) PDF file containing the proposer's complete submission to be evaluated and ranked. Refer to Section F below for forms required.**

F. The Competitive Sealed Proposal shall contain the following fully executed documents:

1. Proposal:

   a. Document 004100 - Proposal Form, signed in longhand below the typed name of the person authorized to bind the Proposer to a contract. Where the Proposer is a corporation, the Proposal must be signed with the legal name of the corporation followed by the name of the State of Incorporation and the legal signature of a person authorized to bind the corporation to a contract.
   b. Document 004200 - Felony Conviction Notification Form
   c. Document 004300 - Proposal Evaluation Waiver Form
   d. Document 004400 - Affidavit of Non-Discriminatory Employment Form
   e. Document 004500 – Conflict of Interest Questionnaire

f. Document 006100 - Bid Bond
g. Information required in Section 1.15 below.
h. Proposed subcontractor list (within 24 hours after bid time and date).
i. AIA 305 Qualifications Statement

G. The Owner reserves the right to reject any Proposal if the evidence submitted by, or investigations of, such Proposer fails to satisfy the Owner that such Proposer is properly qualified to carry out the obligations of the contract and to complete the Work therein.

H. Failure to submit a Proposal in the form requested, or the inclusion of stipulations, conditions, qualifications, limitations, or provisions distorting the intent of the Proposal Documents, will render the Proposal irregular and subject to rejection.

I. A Proposal may be withdrawn only upon written request by the Proposer provided it is received by the Owner at the place fixed for the Proposal Opening at least 48 hours prior to the time fixed for the Proposal Opening. The withdrawal of a Proposal does not prejudice the right of the Proposer to submit a new Proposal at the time and place fixed for the Proposal Opening. Proposals may not be withdrawn for a period of five (5) calendar days after the time fixed for the Proposal Opening.

J. Proposals shall be valid for sixty (60) calendar days from the date and time of opening. By signing this proposal, the Proposer certifies and represents to the Owner that the Proposer has not offered, conferred, or agreed to confer any pecuniary benefit or other thing of value for the receipt of special treatment, advantage, information, recipient's decision, opinion, recommendation, vote or any other exercise of discretion concerning this proposal. The Proposer further certifies that the Proposer is not prohibited from doing business with any Federal or State Department or Agency and that to the best of their knowledge no company employee, either full or part time, owner, official, stockholder, subcontractor, or member of their immediate family, are related to a member of the Board of Trustees in violation of the Nepotism Prohibition of the State of Texas Government Code (Chapter 573 Gov. Code). Venue for any litigation arising from this contract shall lie in the County where the project is located.

K. The drawings and specifications set forth for this proposal are not intended to be restrictive. The intent of this proposal is to obtain the best construction project at the most economical price available. The specifications are established to ensure that the Owner remains within the bounds of the rules and regulations that govern its operation and to protect the taxpayer's investment in this entity.

1.14 BID BOND

A. A Proposal will only be considered if accompanied by an executed Bid Bond per Document 006100, in the amount of not less than 5 percent of the greatest amount proposed (considering alternates, if any).

B. Proposer shall execute the Bid Bond form referenced in Document 006100 - Bond Forms and include in the Competitive Sealed Proposal.

C. The Bid Bond shall ensure the execution of the contract and the furnishing of an acceptable performance bond and payment bond by the Successful Proposer within five (5) calendar days after Notification of Award. The Proposal of the Successful Proposer may not be withdrawn within 5 calendar days after the time fixed for the Proposal Opening without the written consent of the Owner.

D. Should the successful Proposer refuse to enter into such contract or fail to furnish the required bonds, the amount of the Bid Bond shall be forfeited to the Owner as liquidated damages, not as a penalty.

E. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

F. The Owner reserves the right to retain the Bid Bond of Proposers to which an award is being considered until either the contract has been executed and bonds have been furnished, or the specified time has elapsed so that Proposals may be withdrawn, or all Proposals have been rejected.

1.15 DETERMINATION OF SUCCESSFUL PROPOSER

A. SUBCONTRACTOR INFORMATION

B. Upon request from the Owner, within five (5) calendar days the Successful Proposer shall furnish a statement of costs for each major portion of the Work included in the Proposal. Each section of the specifications shall be considered a major portion of the Work and shall be shown as a separate cost item.

1.16 AWARD OF CONTRACT

A. After the time fixed for the Proposal Opening, at the discretion of the Owner, the Proposer determined to be the Successful Proposer will be promptly notified that the Owner intends to enter into a contract for the Work.

B. If any of the following occurs related to the Successful Proposer, the Owner has the right to award the contract for the Work to another Proposer, or Proposer's, or may call for the submission of new Proposals:

1. The Proposer withdraws the Proposer's Proposal within five (5) calendar days after the time fixed for the Proposal Opening.
2. The Proposer fails or refuses to execute the contract, or other required forms within 5 calendar days after they have been presented for execution.
3. The Proposer fails or refuses to furnish a properly executed performance bond, a properly executed payment bond, and a certificate of insurance within five (5) calendar days of the request.

1.17 NOTICE TO PROCEED

A. The Successful Proposer / General Contractor shall not commence the Work under this contract until the contract has been duly executed by both parties, and a written Notice to Proceed has been issued by the Owner.

B. <u>FUNDING/NOTICE TO PROCEED TO COMMENCE WORK</u>

1. Notice regarding construction project financing: This project is a "public project" for purposes of Tx. Bus. Comm. Code chapter 56. Unlike a traditional school district where a bond election must be held and approved before major construction projects are undertaken charter schools such as IDEA are authorized to use interim financing, traditional bank financing and to issue tax exempt bonds that do not require an election. IDEA typically uses a combination of the above, and proceeds with construction using an available line of credit before issuing bonds to finance the completed project. Responding bidders and the selected contractor acknowledge the financing plan of the Owner and agree that they will comply with IDEA's notice to proceed and commence construction when and as directed, in order to meet IDEA's construction timelines. The following information is provided to the selected contractor and shall be provided by each contractor in writing to each subcontractor in accordance with Bus. Comm. Code 56.054(e):

Owner/Obligor: IDEA Public Schools, 2115 W. Pike, Weslaco, Texas 78596
Surety: [INSERT NAME ADDRESS OF SURETY ON PAYMENT BOND]
Statement: IDEA is the primary obligor and provides the following statement: "funds are available and have been authorized for the full contract amount for the construction of the improvements"

1.18 WORK UNDER OTHER CONTRACTS

A. Simultaneous Separate Contracts: Owner will award separate contracts for performance of certain construction operations at Project site. Those operations may be conducted simultaneously with work under this Contract. The separate contracts **excluded** from this contract will include the following:

B. contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.19 WORK SCHEDULE AND COMPLETION TIME

A. A Notice to Proceed (NTP) will be issued on or about **May 17, 2024,** for the full building permit.

B. The project shall have Substantial Completion shall not be later than **September 14, 2024.** Final completion shall be 60 days after Substantial Completion.

C. Contractor Work schedule shall include the weather days listed in Section 15 of the Supplementary General Conditions

1.20 WORK RESTRICTIONS

A. Reference section 011400 for work restrictions.

1.21 PERFORMANCE BOND AND PAYMENT BOND AND RETAINAGE AMOUNT

A. Each Proposer shall include in the Proposal the cost for a performance bond and a payment bond, each in the amount of 100 percent of greatest amount proposed (considering alternates, if any). The retainage amount will be 5% of the Contract amount.

B. These bonds shall cover the faithful performance of the contract and payment of all obligations arising thereunder in such form as the Owner may prescribe. The bonding companies must be acceptable to the Owner.

END OF DOCUMENT

DOCUMENT 004100

PROPOSAL FORM

Name of Proposer: _____

Date of Proposal: _____

To: IDEA Public Schools (Owner)
2115 W. Pike Blvd. Weslaco, TX 78596

We, the undersigned, propose to enter into a Contract with the Owner, to furnish labor, material, tools, transportation, insurance, permits, and all incidentals necessary for the completion of the **IDEA CENTRAL TEXAS BUILDING ENVELOPE** in accordance with the drawings and specifications **Dated 4/2/2024**, prepared by GMS Architects, Brownsville, Texas.

We have carefully reviewed and understand the "Instructions to Proposers", the drawings, the specifications, and have acquainted ourselves with the existing and anticipated conditions that might affect the Work.

We understand that if we are the Successful Proposer a Contract will be prepared, and we will furnish satisfactory payment and performance bonds each in the full amount of the Contract covering all parts of the Work.

The Proposal includes the following: Provide all items, articles, materials, operations of methods listed, mentioned or scheduled on the drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for the **IDEA CENTRAL TEXAS BUILDING ENVELOPE - #40-CBE-0524** for the Owner.

Proposers shall include in the BASE PROPOSAL, the work described in attached Proposal Documents.

BASE PROPOSAL:

_____ Dollars ($_____).

ALLOWANCES:
The Undersigned acknowledges by initials _____ that the Allowances listed below and in Specification Section 012100 - Allowances are included in the Base Proposal amount. Reference Specification Section 012100 - Allowances for a complete description of each Allowance.

ALLOWANCE NO. 1: OWNER'S CONTINGENCY ALLOWANCE: Include the amount of $100,000 for use according to the Owner's instructions.

UNIT PRICES:
The Undersigned acknowledges by initials _____ that the Unit Prices listed below and in Specification Section 012200 - Unit Prices are included in the Base Proposal amount. Reference Specification Section 012200 - Unit Prices for a complete description of each Unit Price.

The Undersigned further agrees that in case of authorized variations of quantities from those shown or specified, the following Unit Prices will be used in adjusting the Contract Sum.

ALTERNATES:
Proposers shall include in the PROPOSAL, the work described in attached Proposal Documents. Reference Specification Section 012300 - Alternates for a complete description of each Alternate.

DECLARATION
The Undersigned hereby declares that he has visited the site and has carefully examined the Drawings, Specifications, Contract Documents, and Proposal Documents related to the work covered by this Proposal.

DELAY COST
The Undersigned understands that delay costs will be incurred as defined in other portions of the Proposal Documents, will be included in the Contract, and the General Contractor will be bound thereto.

EXECUTION OF CONTRACT
Upon receipt of notice of acceptance of the Proposal, the Undersigned will immediately execute the formal Contract.

RECEIPT OF ADDENDA
I hereby acknowledge receipt of the following Addenda:

Addendum No. _____ dated _____ Addendum No. _____ dated _____

Addendum No. _____ dated _____ Addendum No. _____ dated _____

☐ **We have reviewed the A101 and A201 and the supplementals to the A101 and A201 and take no exceptions.**

☐ **We have reviewed the proposed schedule completion duration and we acknowledge that Substantial Completion of the Work can be completed within the duration specified.**

Witness: _____ Proposer: _____

By: _____

Address: _____

City: _____

Zip Code: _____

Telephone: _____

(SEAL - If bid is by a corporation)

END OF PROPOSAL FORM

Instructions to Contractors Regarding Criminal History Background Searches Under Senate Bill 9

Senate Bill 9 directs contractors (i.e., Company) to obtain state and national criminal history background searches on their employees who will have direct contact with students, and to receive those results through the DPS criminal history clearinghouse (Fingerprint-based Applicant Clearinghouse of Texas – FACT). In order for contractors to receive the information through FACT, they must first establish an account with the DPS for FACT clearinghouse access. The Company owner must sign a user agreement with the DPS. To obtain the user agreement and more information, Company must contact:

Access and Dissemination Bureau
Texas Department of Public Safety
Crime Records Service
P. O. Box 149322
Austin, Texas 78714-9322

Email: FACT@txdps. State. tx. us
Phone: (512) 424-2365

For fastest service, please email or call. State in the message that Company is a school contractor and needs to have an account established for DPS FACT clearinghouse access. Please include:

Company Name
Company Address
Company Phone
Name of Company point of contact
Phone of Company point of contact
Company email to be used for notification of FACT records and messages

The information in the DPS FACT Clearinghouse is confidential, and access must be restricted to the least number of persons needed to review the records. The account must include at least one designated supervisor to make necessary changes and to monitor the site's security and the access to the criminal history data retrieved. Additional users must be limited to those who need to request, retrieve, or evaluate data regarding the individual applicants.

PLEASE NOTE: After the Company signs the DPS User Agreement for FACT, DPS will provide the Company with a revised ***FAST Fingerprint Pass*** that Company will have to provide to its employees and applicants. Company's employees and applicants will use that ***FAST Fingerprint Pass*** when scheduling their FAST fingerprinting.

Contractor Criminal Background Certification

Introduction: Texas Education Code Chapter 22 requires service contractors to obtain criminal history record information regarding covered employees and to certify that fact to the Owner. Covered employees with disqualifying convictions are prohibited from serving at a School.

Definitions:

Covered employees: All employees of a contractor who have or will have continuing duties related to the service to be performed at the school and have or will have direct contact with students. The Owner will be the final arbiter of what constitutes direct contact with students.

Disqualifying conviction: One of the following offenses, if at the time of the offense, the victim was under 18 or enrolled in a public school: (a) a felony offense under Title 5, Texas Penal Code; (b) an offense for which a defendant is required to register as a sex offender under Chapter 62, Texas Code of Criminal Procedure; or (c) an equivalent offense under federal law or the laws of another state; or (d) the conviction of a felony or misdemeanor that would disqualify a person from obtaining certification as an educator under Texas Education Code 21.060.

Note: For covered persons hired on or after January 1, 2008, fingerprinting and photographing of the covered person is required. A covered person is considered to have been employed by a service contractor as of the date the covered person first provided services for compensation.

On behalf of _____ ("Contractor"), I certify that [check one]:
[ ] None of Contractor's employees are *covered employees*, as defined above.
Or
[ ] Some or all of Contractor's employees are *covered employees.* If this box is selected, I further certify that:

(1) Contractor has obtained all required criminal history record information, through the Texas Department of Public Safety, regarding its covered employees. None of the covered employees has a disqualifying conviction. Contractor has taken reasonable steps to ensure that its employees who are not covered employees do not have continuing duties related to the contract services or direct contact with students.
(2) If Contractor receives information that a covered employee has a disqualifying conviction, Contractor will immediately remove the covered employee from contract duties and notify the Owner in writing within three (3) business days.
(3) Upon request, Contractor will make available for the Owner's inspection the criminal history record information of any covered employee. If the Owner objects to the assignment of a covered employee on the basis of the covered employee's criminal history record information, Contractor agrees to discontinue using that covered employee to provide services at the District.

Noncompliance by Contractor with this certification may be grounds for contract termination.

Company Name:_____/Submitter's Name/Title:_____

Email Address: (PLEASE TYPE EMAIL ADDRESS)_____

Submitter's Signature:_____Telephone No._____/ 800 # (if available)_____

Fax No._____ Date:_____

Address:_____City, State and Zip Code:_____

This form is required to be completed and signed however, only the successful Proposers will be required to comply with requirement set forth in Act of May 28, 2007, 80th Leg., R.S., S.B. 9, § 30. All related costs including background checks/fingerprinting shall be at the contractor's expense. Revised February 1, 2011***This sheet must be completed, signed, and returned with Prime Contractor's submittal***

Subcontractor Form

Undersigned shall employ, subject to the Owner's approval, the following subcontractor for the Request for Proposal. **One (1) form must be provided for each and every subcontractor employed.** The prime Proposer shall bear the sole responsibility for the successful completion of work performed by the below listed third party service provider(s).

Service provided by Subcontractor:	
Name of Subcontractor:	
Address:	
City/State/Zip:	
Telephone:	
Fax Number:	
E-Mail Address:	
Point of Contact:	
Business Days/Hours:	
No. Years in Business Under This Name:	
No. Years at Location Listed:	
No. Personnel Employed:	

Subcontractor Name:_____/Submitter's Name/Title:_____

Address:_____City, State and Zip Code:_____

Email Address: _____

Submitter's Signature:_____Telephone No._____

Fax No._____800 # (if available)_____

Date:_____

Note: Due to provisions made to Contracted Services Criminal History by HB 2730, effective September 1, 2009, all subcontractors must certify to the Owner, that the subcontractor complied and adheres to the Criminal History check requirements.

All subcontractors identified above, must complete the "Subcontractor Criminal Background Certification" form.

This sheet must be completed, signed, and returned with Prime Contractor's submittal

Revised February 1, 2011

Subcontractor Criminal Background Certification

Introduction: Texas Education Code Chapter 22 requires service subcontractors to obtain criminal history record information regarding covered employees and to certify that fact to the Owner. Covered employees with disqualifying convictions are prohibited from serving at a school district.

Definitions:

Covered employees: All employees of a subcontractor who have or will have continuing duties related to the service to be performed at the school and have or will have direct contact with students. The Owner will be the final arbiter of what constitutes direct contact with students.

Disqualifying conviction: One of the following offenses, if at the time of the offense, the victim was under 18 or enrolled in a public school: (a) a felony offense under Title 5, Texas Penal Code; (b) an offense for which a defendant is required to register as a sex offender under Chapter 62, Texas Code of Criminal Procedure; (c) an equivalent offense under federal law or the laws of another state; or (d) the conviction of a felony or misdemeanor that would disqualify a person from obtaining certification as an educator under Texas Education Code 21.060. This same standard applies to employees of subcontractors.
Note: For covered persons hired on or after January 1, 2008, fingerprinting and photographing of the covered person is required. A covered person is considered to have been employed by a service contractor as of the date the covered person first provided services for compensation

On behalf of _____ ("Subcontractor"), I certify that [check one]:

[ ] None of subcontractor's employees are *covered employees*, as defined above.
Or
[ ] Some or all of subcontractor's employees are *covered employees.* If this box is selected, I further certify that:

(1) Subcontractor has obtained all required criminal history record information, through the Texas Department of Public Safety, regarding its covered employees. None of the covered employees has a disqualifying conviction. Subcontractor has taken reasonable steps to ensure that its employees who are not covered employees do not have continuing duties related to the contract services or direct contact with students.
(2) If Subcontractor receives information that a covered employee has a disqualifying conviction, subcontractor will immediately remove the covered employee from contract duties and notify the Owner in writing within three (3) business days.
(3) Upon request, Subcontractor will make available for the Owner's inspection the criminal history record information of any covered employee. If the Owner objects to the assignment of a covered employee on the basis of the covered employee's criminal history record information, Subcontractor agrees to discontinue using that covered employee to provide services at the District.

Noncompliance by Subcontractor with this certification may be grounds for contract termination.

Subcontractor Name:_____/Submitter's Name/Title:_____

Email Address: (PLEASE TYPE EMAIL ADDRESS)_____

Submitter's Signature:_____Telephone No._____/ 800 # (if available)

Fax No._____ Date:_____

Address:_____ City, State and Zip Code:

This form is required to be completed and signed however, only the successful Proposers will be required to comply with requirement set forth in Act of May 28, 2007, 80th Leg., R.S., S.B. 9, § 30. All related costs including background checks/fingerprinting shall be at the sub- contractor's expense. Revised February 1, 2011***This sheet must be completed, signed, and returned with Prime Contractor's submittal***

DOCUMENT 004200

FELONY CONVICTION NOTIFICATION FORM

FELONY CONVICTION NOTIFICATION

STATEMENT OF AFFIRMATION

The undersigned affirms that he/she is duly authorized to provide this information by the person(s) or business entity making the proposal, and the information provided below concerning felony convictions has been personally and thoroughly reviewed, and verified, and is, therefore, current, true and accurate to the best of his/her knowledge.

Firm's
Name:_____Address_____

“a. ___ My firm is a publicly held corporation, therefore, this reporting requirement is not applicable."

"b. ___ My firm is not owned nor operated by anyone who has been convicted of a felony."

“c. ___ My firm is owned or operated by the following individual(s) who has/have been convicted of a felony:"

Name of Felon(s)

_____

Details of Conviction(s)_____

_____

PLEASE CHECK a, b, or c ABOVE AND SIGN BELOW

Offeror's
Name_____

Position/Title_____

Offeror's
Signature_____Date_____

Subscribed and sworn to me on this _____day of _____, 20___.

_____
Notary Public

_____
My Commission expires

END OF DOCUMENT

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DOCUMENT 004300

PROPOSAL EVALUATION WAIVER FORM

PROPOSAL EVALUATION WAIVER

By submitting a Proposal, the Proposer indicated below agrees to waive any claim it has or may have against the Owner, Architect, Engineers, Consultants and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any proposal. The Proposer further agrees the Owner reserves the right to waive any requirements under the proposal documents or the Contract Documents, with regards to acceptance or rejection of any proposals, and recommendation or award of the contract.

STATEMENT OF AFFIRMATION

"The undersigned affirms that he/she is duly authorized to execute this waiver by the person(s) or business entity making the proposal.

Firm's Name_____Address_____

Proposer's
Name _____Date_____

Proposer's
Signature _____

Position/Title_____

Subscribed and sworn to me on this _____day of _____, 20___.

_____
Notary Public

_____
My Commission expires

END OF DOCUMENT

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DOCUMENT 004400

AFFIDAVIT OF NON-DISCRIMINATORY EMPLOYMENT FORM

AFFIDAVIT OF NON-DISCRIMINATORY EMPLOYMENT

The undersigned Contractor or Subcontractor agrees to refrain from discrimination in terms and conditions of employment to the basis of race, color, religion, sex, or national origin, and agrees to take affirmative action as required by Federal Statutes and rules and Regulations issued pursuant thereto in order to maintain and insure non-discriminatory employment practices.

_____

Name of Contractor or Subcontractor

Subscribed and sworn to me on this _____day of _____, 20___.

_____

Notary Public

_____

My Commission expires

END OF DOCUMENT

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CONFLICT OF INTEREST FORM

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____
Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

_____ _____
Signature of vendor doing business with the governmental entity Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

DOCUMENT 005200

AGREEMENT FORM

A. The "Standard Form of Agreement between Owner and Contractor where the basis of payment is a STIPULATED SUM", AIA Document A101, 2017 Edition, will be the form used as a Contract for this Project.

B. A copy of the Supplementary Conditions Document is included in this Project Manual, following this section.

END OF DOCUMENT

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DOCUMENT 006100

BOND FORMS

A. The Proposal and Payment Bond forms required for this Contract, published by the American Institute of Architects, are as follows: https://www.aiacontracts.org/

1. A310 – Bid Bond (2010 Edition) or equivalent acceptable to Owner.
2. A312 – Payment Bond (2010 Edition) or equivalent acceptable to Owner.

END OF DOCUMENT

Bond No.:_____

TEXAS STATUTORY PERFORMANCE BOND

(Penalty of this bond must be 100% of contract amount)

KNOW ALL MEN BY THESE PRESENTS, that: _____

(hereinafter called the Principal), as principal, and_____,

a corporation organized and existing under the laws of the State of _____ authorized and admitted to do business in the State of Texas and licensed by the State of Texas to execute bonds as Surety (hereinafter called the Surety), as Surety, are held and firmly bound unto

_____

_____

(hereinafter called the Obligee) in the amount of _____

_____ Dollars ($_____)
for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, find by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day

of _____, 20___ , for

IDEA PUBLIC SCHOOLS HARLINGEN PHASE II
HARLINGEN, TEXAS

which contract is hereby referred to and made a part hereof as fully and the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications and contract documents, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 22.53 of the Texas Government Code and all liabilities on this bond shall be determined in accordance with the provisions of said Chapter to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this Instrument this

_____day of_____, 20___, for

_____(Seal)
Principal

_____

_____
Surety Address

By: _____

_____(Seal)
Surety

_____
Surety Telephone Number

By: _____
Attorney-in-Fact

END OF DOCUMENT

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DOCUMENT 007000

GENERAL CONDITIONS

A. The General Conditions of this Contract is the American Institute of Architects Document A201, "General Conditions of the Contract for Construction", 2017 Edition, hereinafter referred to as the "General Conditions".

B. A copy of the Supplementary Conditions Document is included in this Project Manual, following this section, and shall apply to each and every Section of the Work as though written in full therein.

END OF DOCUMENT

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DOCUMENT 008200

WAGES

GENERAL REQUIREMENTS

Salaries or wages of all labor, including services of superintendent, assistant superintendent, field engineers, job supervisors, clerks, security personnel, truck drivers, mechanics, laborers, and all others necessary for the proper conduct of the Work and for the time employed on the Work, shall not be less than the usual wage scale paid such workers in the vicinity of the Project for the type of Work set forth under this Agreement.

END OF DOCUMENT

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DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK:

1.1 Location: The project sites for Central Texas Building Envelope are located at IDEA Carver in San Antonio and IDEA Montopolis in Austin. The IDEA Carver is located at 217 Robinson Pl, San Antonio, TX 78202. IDEA Montopolis is located at 1701 Vargas Rd, Austin, TX. 78741

1.2 Approval of Working Surfaces: Any contractor performing work over the work of other contractors shall notify the Architect of any unsatisfactory condition. Beginning of work by any contractor shall constitute the acceptance of the previous work.

1.3 Checking Dimensions at Site: Before ordering any materials or doing any work, verify all measurements of the building and be responsible for the correctness of them. No extras will be allowed for variations from drawings in existing conditions or for work performed under this contract. Any discrepancies found shall be submitted to the Architect for instruction before proceeding. The Section shall be enforced diligently.

1.4 Cutting & Patching: No excessive cutting will be permitted, nor shall any structural members be cut without the approval of the Architect. Each contractor shall leave all chases and openings straight, true and of the proper size in his work as may be necessary for the proper installation of his and/or other contractor's work. After such work has been installed, he shall carefully fit around, close up, repair, patch and point up same as directed, to the entire satisfaction of the Architect.

1.5 Cooperation: The General Contractor, all other contractors and all sub-contractors shall coordinate their work with all adjacent work and shall cooperate with all other trades so as to facilitate the general progress of the work. Each trade shall afford all other trades every reasonable opportunity for installation of their work and storage of their materials.

1.6 Project Logbook: The project superintendent shall maintain a daily project logbook, indicating which subcontractors were on the job, time of arrival, and the number of workers. Statements as to the daily progress shall be logged. This logbook shall be made available to the Architect and shall be kept at the job site office.

1.7 Inspection and Tests: Architect and his representative shall at all times have access to the work whether it is in preparation or progress. Provide proper and safe facilities for such access and inspection. Make all inspections and tests in connection with this entire contract as required by the Architect. All material testing shall be paid for by the Testing Allowance and be done by an independent testing laboratory meeting the approval of the architect.

1.8 Security: Provide security fencing in all work areas. See Temporary Facilities.

1.9 Mockup Panel: Provide a mock-up for evaluation of product and application workmanship.

1. Install in area and of size designated by Architect.
    a. Construct mockup to illustrate backup wall, exterior sheathing, air barrier, cavity wall, connectors, weep holes, cavity vents, and through wall flashing.

b. Construct mockup panel 72 inches by 72 inches to illustrate coursing, anchorage, mortar joints and color, window opening and flashing system.

2. Do not proceed with work until finish color, texture, pattern, joint sizes, and installation workmanship are approved by Architect.
3. Correct mock-up area as required to produce acceptable work.

2. ALLOWANCES:
See Paragraph 4.8 of the General Conditions.

2.1 Testing Allowance: A recognized, independent material testing laboratory will be selected and paid for directly by the Owner.

2.2 Betterment Allowance: Include the sum set forth below as a Betterment Allowance which will, if needed, be expended on Betterment to the Project, as directed in writing by approved change orders.

Betterment Allowance: $100,000.00

SECTION 0110 - BID SCHEDULE
1. BID SCHEDULE: All proposals and alternate bid items shall be subject to the General and Special Conditions and all other related sections of the specifications and requirements of the drawings. The Owner shall have the right to accept or reject any or all alternates.

1.1 BASE BID: The Contractor shall state on the General Contract Bid Proposal under the Base Bid, the amount for all work, complete in all respects in accordance with plans and specifications, to construct Idea Central Texas Building Envelope project. The scope of work is defined in the plans and specifications.

1.2 ALTERNATES: The Contractor shall state on this Bid Form, under each Alternate the amount to add to this bid to perform all work, complete in all respects, in accordance with the plans and specifications to construct work required by the Alternates. N/A

SECTION 0120 - AS BUILT DRAWINGS:
As the work proceeds, keep careful records of piping, electrical circuits, duct work and other concealed work whose installed location varies from that shown on plans. Refer to Section 01705 Project Closeout for additional requirements.

SECTION 0130 - REPORTS:
The Contractor will provide a written report to the Architect after each inspection conducted by the City Inspectors concerning their findings.

SECTION 0140 - QUANTITIES & WARRANTIES:
All guarantees and warranties expressed or implied shall be provided to the Architect in written form prior to final payment.

SECTION 0150 - PICTURES:
In addition to the required monthly progress photos, the Contractor will provide the following:

1. Aerial job photos.
2. Sequence photographs showing the flashing in place prior to application of roof. This is MANDATORY. Close-ups of all flashing are required.

The Contractor is required to submit progress photos with each month's application for payment.

SECTION 0160 - CERTIFICATION OF CONSTRUCTION:
The building contractor or construction manager shall certify in writing that the facility has been constructed in accordance with the construction documents and its specifications.

SECTION 0170 - CERTIFICATION OF NON-USE OF ASBESTOS PRODUCTS
The General Contractor shall provide the Architect with written certification letters from all sub-contractors and suppliers that no asbestos products shall be use on this project.

SECTION 0180 - SCOPE AND SEQUENCE OF CONSTRUCTION
1.1 General:
No time extensions shall be considered.

The successful bidder shall under no circumstances leave this project unsecured or unprotected at any time during construction. The General Contractor is to refer to Section 01505 Temporary Facilities for all requirements required by this project.

The General Contractor provides all necessary precautions and safeguards during construction for protection of any visitor who might visit the project site. The General Contractor shall provide in a neat format project monthly reports with photos showing the progress of construction for their review.

SECTION 011400

WORK RESTRICTIONS

PART 1 - GENERAL

1.1 USE OF PREMISES

Use of Site: Limit use of premises to work in areas indicated.

1. Owner Occupancy: The site is occupied. The Contractor will have the full use of the site at all times.
2. Contractor Parking and Work area: On site. No parking is allowed on existing parking lots within an existing campus.
3. Access to the Site: Access to the site shall be as determined by the Contractor.
4. Security: Contractor shall assume full responsibility for the protection and security of immediate construction site. Owner will not provide any additional security for the Contractor areas.
5. Work Hours: The project subject to the work hours permitted by The City of Mission. The Owner will not compensate the Contractor for Time, Contract Amount, or Penalties associated with not abiding by work hours.

1.2 WORKER CONDUCT AND APPEARANCE - WORK RULES

B. General: The conduct and appearance of each worker at the jobsite is of paramount importance. The Owner reserves the right to require any worker to be reassigned to work outside the Owner's property.

1. Privacy: Conduct all work of the Contract with the maximum effort to maintain the privacy of the Owner’s operations, staff and students. Do not permit workers to peer into other areas of the building visible from the work area. Invasion of privacy is a major infraction of the work rules. For work on existing sites in operation, provide a visual screen barrier on the temporary construction fence along all perimeters that are exposed to sidewalks or direct visibility from the school.
2. Conduct and Demeanor: All construction workers shall treat all other construction workers, Owner's staff, students, and the public professionally with respect and courtesy.
3. Physical Appearance: Require each worker to dress appropriately in a clean, neat, and professional manner.
4. Radios and Television: The use of entertainment devices including personal devices with headphones or earphones is strictly prohibited at all times. Control the volume of communication radios and loudspeakers to avoid creating a nuisance.
5. Smoking: Smoking is strictly prohibited inside any building, inside the work area, and anywhere on the Owner’s property, except in designated smoking permitted areas.
6. Language: The use of foul language is strictly prohibited.
7. Loud Conduct: Screaming, yelling, and unnecessary loud conduct is strictly prohibited.
8. Physical Actions: Running, horseplay, fighting, and other unprofessional conduct is strictly prohibited. Fighting is a major infraction of the work rules.
9. Stealing: Stealing of any material, objects, furnishings, equipment, fixtures, supplies, clothing, or other items is prohibited and a major infraction.
10. Sexual Harassment: All forms of physical and verbal sexual harassment including, without limitation: touching; whistling; sexually explicit stories, jokes, drawings, photos, and representations; exhibitionism; and all other sexually oriented offensive behavior is strictly prohibited.
11. Roaming: Construction personnel shall not be allowed to roam, or wander about, the existing facilities.
12. Eating: Construction personnel shall not use the existing Dining Area for breakfast, lunch, or dinner.
13. Parking: Construction personnel shall only park in designated areas reserved for construction parking.

14. Penalties: First infraction of the work rules shall result in a verbal warning from the Owner. Second infractions shall result in being requested to leave the Owner's property. Owner's decision in such matters shall be final with no exceptions.

C. Warnings and Dismissal: For minor infraction of the rules, the Owner may issue a warning. Only one warning will be allowed per worker, and a second infraction shall result in immediate dismissal of the worker from the Owner's property. For major infractions such as invasion of privacy, the worker shall be dismissed immediately without warning and possibly subject to criminal prosecution.

D. Notification of Workers: Clearly notify and educate each worker about these Work Rules and the requirements for worker conduct and appearance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 012100

ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
2. Where material allowance is indicated as a unit cost, this is to establish the quality of material, and Contractor shall be responsible for ascertaining the total quantity required, including waste, necessary to complete the installation.

B. Where material allowance is indicated as a unit cost, this is to establish the quality of material, and Contractor shall be responsible for ascertaining the total quantity required, including waste, necessary to complete the installation.

1.2 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.3 NET ALLOWANCES

A. Unless noted otherwise, listed allowances shall be Net Allowances. This means that the General Contractor mark-ups for overhead, profit, and indirect time related to Allowance expenditures shall be included in the Base Proposal, and outside of the Net Allowance amounts.

B. Contractor shall only be entitled to expend Allowance funds with written authorization from the Owner and Architect.

C. At Project closeout, unused Allowance amounts will be credited to Owner by Change Order.

1.4 ADJUSTMENTS OF COSTS

A. Should net cost be different than specified amount of allowance, contract sum will be adjusted accordingly by Change Order.

1. Amount of Change Order will recognize changes in handling costs at site, labor, installation costs, overhead, profit, and other expenses caused by selection under allowance.
2. For products specified under unit cost allowance, unit cost shall apply to quantity listed in Schedule of Values.

3. For products specified under unit allowance, unit cost allowance shall apply to quantities actually used with nominal amount for waste, as determined by receipts, invoices or by field measurement.

B. Submit claims for anticipated additional costs at site, or other expenses caused by selection under allowance, prior to execution of work.

C. Submit documentation for actual additional costs at site, or other expenses caused by selection under allowance within 60 days after completion of execution of Work.

D. Failure to submit claims within designated time will constitute waiver of claims for additional costs.

E. At contract closeout, reflect approved changes in contract amounts in final statement of accounting.

1.5 OWNER'S CONTINGENCY

A. Following shall apply to Owner's Contingency Allowance:

1. Contractor shall include profit and overhead in the contingency allowance. This means that the General Contractor mark-ups for overhead, profit, and indirect time related to Owner's Contingency expenditures shall be included in the Base Proposal, and outside of the Net Owner's Contingency amounts.
2. Contractor shall proceed with accomplishing work only after receiving properly executed contingency authorization executed by the Owner.
3. Any unexpended portion of the Owner's Contingency shall be returned to the Owner.
4. At completion of project, Architect will reconcile work accomplished through properly executed contingency allowance authorizations and provide for refund of unused portion of contingency to the Owner through properly executed change order.

1.6 SUBMITTALS

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

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Arrange for and process shop drawings, product data, and samples.

D. Provide warranties for products and maintenance installations.

1.7 UNUSED MATERIALS

A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

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

3.2 SCHEDULE OF ALLOWANCES

A. ALLOWANCE NO.1: **OWNER'S CONTINGENCY ALLOWANCE**: Include the amount of **$100,000.00** for use according to the Owner's instructions.

END OF SECTION

SECTION 012200

UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for unit prices.

1.2 DEFINITIONS

A. Unit Price: Amount proposed by Contractor as a price per unit of measurement for materials, equipment, or services added to or deducted from Contract Sum by Change Order if estimated quantities of Work required by Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Unit Price Schedule: A schedule of unit prices is included at end of this Section. Specification Sections referenced in Schedule contain requirements for materials described under each unit price.

C. Quote cost of each Unit Price on the Proposal Form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 UNIT PRICE SCHEDULE

N/A

END OF SECTION

SECTION 012300

ALTERNATES

PART 1 - GENERAL

1.1 DEFINITIONS

A. Alternate: An amount proposed by bidders for certain work that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.2 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates. Execute accepted alternates under the same conditions as other work of the Contract.

C. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate. Acceptance of Alternates will be exercised at option of Owner in any order or combination.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. N/A

END OF SECTION

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SECTION 012510

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDE

A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of Contract.

1.2 DEFINITIONS

A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by Contractor after award of Contract are considered requests for "substitutions". Following are not considered substitutions:

1. Revisions to Contract Documents requested by Owner or Architect.
2. Specified options of products and construction methods included in Contract Documents.
3. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

C. 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.

D. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3 SUBMITTALS

A. Submit three copies of each request for product substitution complete with properly executed form and all supporting data.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Due to limited time available during bidding period, request for substitutions will not be evaluated by Architect until after “Notice of Award”. For period of fifteen (15) consecutive calendar days after “Notice of Award”, substitutions will be considered by Architect. Requests for substitution after that time will be considered or rejected at the discretion of the Architect.

B. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents, and are not subject to requirements specified in this Section.

C. Bids shall be based upon providing specified materials, products, Acceptable Manufacturers, organizations, and applications; identified in these Specifications or indicated on Drawings.

D. Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples for construction activities not complying with Contract Documents does not constitute acceptable or valid request for substitution, nor does it constitute approval.

E. Contractor's substitution request will be received and considered by Architect when one or more of following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.
2. Proposed changes are in keeping with general intent of Contract Documents.
3. Request is timely, fully documented and properly submitted.
4. Specified product or method of construction cannot be provided within Contract Time. Request will not be considered if product or method cannot be provided as result of failure to pursue Work promptly or coordinate activities properly.
5. Specified product or method of construction cannot receive necessary approval by governing authority, and requested substitution can be approved.
6. Substantial advantage is offered Owner, in terms of cost, time, energy conservation or other considerations, after deducting additional responsibilities Owner must assume. Additional responsibilities for Owner may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
7. Specified product or method of construction cannot be provided in manner that is compatible with other materials, and where Contractor certifies that substitution will overcome incompatibility.
8. Specified product or method of construction cannot be coordinated with other materials, and where Contractor certifies that proposed substitution can be coordinated.
9. Specified product or method of construction cannot provide warranty required by Contract Documents and where Contractor certifies that proposed substitution provide required warranty.

F. Burden of proof of equality rests with Contractor.

G. Submit separate request for each Product Substitution, on Architect's standard form "Substitution Request Form 012510", copy at end of this section, supported with complete data, technical literature, drawings and samples as appropriate, including:

1. Comparison of qualities of proposed substitution with that specified. (Submit data for both products)
2. Changes required in other elements of work because of substitution.
3. Effect on construction schedule.
4. Cost data comparing proposed substitution with Product specified.
5. Required license fees or royalties.
6. Availability of maintenance service, and source of replacement materials.
7. List of appropriate installations.

H. By making request for substitution, Contractor:

1. Represents and warrants that Contractor has personally investigated proposed substitution product and determined that it is equal to or superior in all respects to that specified;
2. Represents and warrants that Contractor will provide same warranties or bonds for substitution That Contractor would for that specified.
3. Certifies that cost data presented is complete and includes all related costs under this Contract except for Architect's redesign cost, and waives all claims for additional costs related to substitution which may subsequently become apparent; and
4. Will coordinate installation of accepted substitute, making such other changes as may be required to make Work complete in all respects.

I. Architect will review requests for substitutions with reasonable promptness, and notify Contractor, in writing, of decision to accept or reject requested substitution.

J. Owner and Architect reserve right to accept or reject proposed substitutions. Each request shall state amount of savings to Owner, if substitution is accepted. Acceptance of proposed substitution does not constitute approval or inclusion in Architect's and Consultant's Documents. Pay applications certification, change orders, and certificate of substantial completion will contain such qualification.

K. Cost of testing required for analysis of proposed substitution shall be paid for by Contractor at testing agency selected and approved by Architect.

L. Should substitution be accepted, Contractor shall be responsible to make necessary adjustments in Work which may be affected as result of substitution at no additional cost.

M. Contractor warrants that substituted material or system will perform same as original specified material or system would have performed. Should accepted substitution fail to perform as required, Contractor shall replace substitute material or system with that specified and bear costs incurred thereby.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SUBSTITUTION REQUEST FORM 012510

To Architect: _____

Project Name: _____

SPECIFIED ITEM:

_____ _____ _____ _____
Section Page Paragraph Description

The undersigned General Contractor requests consideration of the following:

PROPOSED SUBSTITUTION: _____

1. Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified, both on the proposed substitution and the original specified product.

2. Attached data also includes description of changes to Contract Documents which proposed substitution will require for its proper installation.

The undersigned General Contractor states that the following paragraphs, unless modified on attachments, are correct.

1. The proposed substitution does not affect dimensions shown on Drawings.

2. The undersigned General Contractor will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.

3. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.

4. Maintenance and service parts will be locally available for the proposed substitution.

The General Contractor further states that the function, appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item. The General Contractor further warrants that specification Section 012510, Article 2.1 Paragraph G intent has been met.

5. Cost Reduction to the Owner: $

ACCEPTANCES:

1. General Contractor Acceptance: Representing:

_____ Date: _____ _____

2. Owner Acceptance: Representing:

_____ Date: _____ _____

3. Architect Acceptance: Representing:

_____ Date: _____ _____

_____ Accepted as Noted

_____ Not Accepted

_____ Received too late

_____ Resubmit with complete information

SECTION 012600

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Refer to Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after Contract award.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's standard form "Architect's Supplemental Instructions".

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect or Owner will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in the Supplementary Conditions and after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change including the information requested in the Supplemental Conditions, which includes:

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect using Contractor's Standard Form.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time. The Contractor shall make all efforts to resequence work as necessary to reduce the number of reduce an increase in Contract Time.
5. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
3. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on Architects standard form “Change Order”.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on Architects standard form “Construction Change Directive”. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 012900

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with Continuation Sheets.
b. Submittals Schedule.

2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

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

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

a. Related Specification Section or Division.
b. Description of the Work.
c. Name of subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers) that affect value.
g. Dollar value. Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

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

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

1. If the Agreement does not state payment dates, establish dates at preconstruction conference.

C. Payment Application Forms: Use the AIA Document G702 form (amended to add the Owner’s Independent Project Manager signature block) and AIA Document G703 Continuation Sheets as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal: Submit signed and notarized electronic copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

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

F. Waivers of Mechanic's Lien: With each Application for Payment, the Contractor shall submit waivers of mechanic's lien. If requested by the Owner, also submit waiver from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
   1. With each Application for Payment, submit Conditional Lien Release waivers for the work performed and invoiced, before deduction for retainage and, if requested by the Owner, copies of such Conditional Lien Release waivers from all Subcontractors and Suppliers.
   2. With each Application for Payment, submit Unconditional Lien Release waivers for the work performed and paid for based on the prior Application for Payment. If requested by the Owner, provide copies of Unconditional Lien Release waivers from all Subcontractors and Suppliers.
   3. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

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

   1. List of subcontractors.
   2. Schedule of Values.
   3. Contractor's Construction Schedule (preliminary if not final).
   4. Products and Materials List.
   5. Schedule of unit prices.
   6. Submittals Schedule (preliminary if not final).
   7. List of Contractor's staff assignments.
   8. List of Contractor's principal consultants.
   9. Copies of building permits.
   10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
   11. Initial progress report.
   12. Report of pre-construction conference.
   13. Aerial (drone) photographs.

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

   1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
   2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

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

   1. Evidence of completion of Project closeout requirements.
   2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
   3. Updated final statement, accounting for final changes to the Contract Sum.
   4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims" from the Subcontractors and the General Contractor and/or statutory form or release.
   5. AIA Document G706A, "Contractor's Affidavit of Release of Liens" from the Subcontractors and the General Contractor and/or statutory form or release.
   6. AIA Document G707, "Consent of Surety to Final Payment".
   7. Evidence that claims have been settled.
   8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

Project _____

Job No. _____

On receipt by the signer of this document of a check from _____ *(maker of check)* in the sum of $ _____ payable to _____ *(payee or payees of check)* and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the property of _____ *(owner)* located at _____ *(location)* to the following extent: _____ *(job description).*

This release covers a progress payment for all labor, services, equipment, or materials furnished to the property or to _____ *(person with whom signer contracted)* as indicated in the attached statement(s) or progress payment request(s), except for unpaid retention, pending modifications and changes, or other items furnished.

Before any recipient of this document relies on this document, the recipient should verify evidence of payment to the signer.

The signer warrants that the signer has already paid or will use the funds received from this progress payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project in regard to the attached statement(s) or progress payment request(s).

Date: _____

Company Name: _____

By: _____

Signature: _____

Title: _____

SUBSCRIBED AND SWORN TO BEFORE ME this the _____ day of _____, 20_____.

NOTARY PUBLIC, in and for the
State of Texas

My Commission Expires: _____

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NOTICE:

This document waives rights unconditionally and states that you have been paid for giving up those rights. It is prohibited for a person to require you to sign this document if you have not been paid the payment amount set forth below. If you have not been paid, use a conditional release form.

UNCONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

Project _____

Job No. _____

The signer of this document has been paid and has received a progress payment in the sum of $_____ for all labor, services, equipment, or materials furnished to the property or to _____ *(person with whom signer contracted)* on the property of _____ *(owner)* located at _____ *(location)* to the following extent: _____ *(job description).*

The signer therefore waives and releases any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the above referenced project to the following extent: _____. This release covers a progress payment for all labor, services, equipment, or materials furnished to the property or to _____ *(person with whom signer contracted)* as indicated in the attached statement(s) or progress payment request(s), except for unpaid retention, pending modifications and changes, or other items furnished.

The signer warrants that the signer has already paid or will use the funds received from this progress payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project in regard to the attached statement(s) or progress payment request(s).

Date: _____ _____

Company Name:_____

By: _____

Signature: _____

Title: _____

SUBSCRIBED AND SWORN TO BEFORE ME this the _____day of _____, 20_____.

NOTARY PUBLIC, in and for the
State of Texas

My Commission Expires: _____

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SECTION 013100

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project.

1.2 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Electronic project management software.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.3 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Indicate relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.

1.4 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 3 days of the meeting.

B. Pre-Construction Conference: The Architect will schedule a pre-construction conference before starting construction, at a time and location convenient to Owner, Contractor and Architect, but no later than 15 days after date of “Notice to Proceed”.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants, Contractor and its superintendent and, if requested, major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Permit Status
   b. Tentative construction schedule.
   c. Phasing.
   d. Critical work sequencing.
   e. Designation of responsible personnel.
   f. Procedures for processing field decisions and Change Orders.
   g. Procedures for processing Applications for Payment.
   h. Distribution of the Contract Documents.
   i. Submittal procedures.
   j. Status of utility provider site services
   k. Preparation of Project Record Documents.
   l. Use of electronic project management software.
   m. Use of the premises.
   n. Responsibility for temporary facilities and controls.
   o. Parking availability.
   p. Equipment deliveries and priorities.
   q. First aid.
   r. Security.
   s. Progress cleaning.
   t. Working hours.

C. Pre-Installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

   a. Contract Documents.
   b. Options.
   c. Related Change Orders.
   d. Purchases.

e. Deliveries.
f. Submittals.
g. Review of mock-ups.
h. Possible conflicts.
i. Compatibility problems.
j. Time schedules.
k. Weather limitations.
l. Manufacturer's written recommendations.
m. Warranty requirements.
n. Compatibility of materials.
o. Acceptability of substrates.
p. Temporary facilities and controls.
q. Space and access limitations.
r. Regulations of authorities having jurisdiction.
s. Testing and inspecting requirements.
t. Required performance results.
u. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements.
4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at regular intervals. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: Representatives of Owner, Architect, and Contractor shall be represented at these meetings. The Contractor may be required to invite the subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities upon request. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
3. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
4. Review present and future needs of each entity present, including the following:
   a. Permit status
   b. RFI Status
   c. Status of submittals.
   d. Documentation of information for payment requests.
   e. Status of Change Proposals
   f. Status of Change Orders.
   g. Quality and work standards.
   h. Schedule Status Review
   i. Open Issues Review
   j. Interface requirements.
   k. Sequence of operations.
   l. Utilities Service provider deliver status
   m. Deliveries.
   n. Off-site fabrication.
   o. Access.
   p. Site utilization.
   q. Temporary facilities and controls.

r. Work hours.
s. Hazards and risks.
t. Progress cleaning.

5. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
6. Schedule Updating: Revise Contractor's Construction Interim Planning Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

E. Coordination Meetings: Conduct Project coordination meetings on an as-needed basis. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.

1. Attendees: Each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work
2. Agenda: Review items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

1.5 ELECTRONIC PROJECT MANAGEMENT SOFTWARE

A. General: So as to expedite electronic review process, process all documents through a web-based software service. Sending documents via email, FTP or paper will not be accepted.

1. Basis of Design (Product Standard):

a. Newforma, Inc.; Newforma Project Cloud, web-based software.

1) Website: www.NewformaProjectCloud.com
2) E-mail: projectcloud@newforma.com
3) Phone: (800) 303-4650

B. Performance Requirements:

1. Project License:

a. Cloud based (no hardware required).
b. Unlimited user accounts.
c. Functionality to support subcontractors, contractors, architects and consultants.
d. Provide access to data for all project team members at no cost to the individual users.

2. Training and Support:

a. Dedicated project training.
b. Phone support.

3. Archive:

a. Export all data to an offline archive at the completion of the project.
b. Provide archive to architect, contractor and owner.
c. Archive shall include all attachments, meta data, review comments and time stamp history.

4. Submittals and RFIs:

    a. Customizable logs and reporting accessible by all users.
    b. Logs shall automatically update as submittals and RFIs are processed.
    c. Automated routing of submittals and RFIs to design team based on trade.
    d. Automated email notifications when submittal or RFI has been assigned or returned to a user.
    e. Automated weekly email to design team users of overdue items.
    f. Automatic sequential numbering per spec section for submittals.
    g. Two sets of due dates - one overall due date and a consultant due date.
    h. Built-in web-based markup tools to support a concurrent review of submittal and RFI.

5. Submittal Register:

    a. Software vendor shall take specifications and build the required list of submittals and import into the software.

6. Drawing Management:

    a. Provide current set of drawings and specifications through a centralized index.
    b. Automated association of PDFs to the centralized index.
    c. Manage drawing revisions with customizable review states.
    d. Drawings shall be accessible offline via mobile devices.

7. File Sharing:

    a. Integrated file sharing tool (FTP) to transfer any miscellaneous files such as BIM and CAD files.
    b. Access permissions (view/edit) at a folder level.

8. Punch List and other Field Task Management:

    a. Unlimited customizable field task types including punch list.
    b. Locate and assign tasks from a mobile device.
    c. No additional fees to individual users to access mobile apps.
    d. Data shall be accessible offline on mobile devices.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013120

PROJECT COMMUNICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative procedures for preparation and submission of project communications documents.

1.2 DEFINITIONS

A. Project communications documents shall be defined as the following:

1. Letters.
2. Memoranda.
3. Fax Communications.
4. E-Mail Communications / Internet Communications / Electronic Project Management Software Communications.
5. RFI (Request for Information - Contractor).
6. RFI-A (Request for Information - Architect).

1.3 FORMAT

A. Letters, Memoranda, and Fax Communications: Submit in formats acceptable to the Architect.

B. E-Mail Communications / Internet Communications / Electronic Project Management Software Communications: Submit in forms and formats acceptable to and as accepted by the Architect.

C. RFI (Request for Information - Contractor): Submit on forms furnished by the Architect, or on other forms as accepted by the Architect.

D. RFI-A (Request for Information - Architect), will be submitted by Architect to Contractor on Architect's standard form.

PART 2 - PRODUCTS

A. Electronic Project Management Software: As required by Division 01 Section "Project Management and Coordination".

PART 3 - EXECUTION

3.1 PROJECT COMMUNICATIONS DOCUMENTS

A. Letters, Memoranda, and Fax communications documents shall be submitted in a timely manner so as to facilitate project delivery and coordination. Routing of communications shall be as established in the Contract, the Contract Documents and the Preconstruction Conference. Communications documents shall be transmitted or forwarded in a manner consistent with the schedule and progress of the work.

B. E–Mail Communications, Internet Communications, and Electronic Project Management Software programs must be compatible with the Architect's and Owner's computer systems and equipment. The responsibility for all costs for management of these systems, including, but not limited to, licensing, on site training or other training necessary for the proper operation of such systems, shall be by the Contractor. The Contractor shall keep written records and hard file copies of all electronic communications. Failure of the Contractor to keep such records shall waive the Contractor's right to rely on such communications and such communications shall be deemed to have not taken place.

1. Electronic File of Project Communication Documents: Provide Architect with an independent electronic archive of project communication documents using electronic project management software as defined in Division 01 Section "Project Management and Coordination".

C. RFI (Request for Information - Contractor) shall be defined and limited to a request from the Contractor seeking interpretation or clarification of the requirements of the Contract Documents. Such requests shall comply with the following requirements:

1. RFI requests shall be submitted in a timely manner, well in advance of related work, and allow sufficient time for the resolution of issues relating to the request for interpretation or clarification. Contractor shall schedule the submission of RFI's so as to moderate and manage the flow of RFI requests. RFI's shall be submitted in a manner consistent with the schedule and progress of the work, and shall not be submitted in a sporadic and/or excessive manner.
2. RFI requests shall be numbered in a sequential manner and contain a detailed description of the areas of work requiring interpretation or clarification. Include drawing and specification references, sketches, technical data, brochures, or other supporting data as deemed necessary by the Architect, for the Architect to provide the interpretations and clarifications requested. The Contractor shall include a "Proposed Solution" to the issue requiring interpretation or clarification.
3. RFI's submitted to the Contractor by Sub-Contractors, vendors, suppliers, or other parties to the work shall be reviewed by the Contractor prior to submission to the Architect. If the Architect deems that such RFI requests have not been adequately reviewed by the Contractor, such requests will be returned to the Contractor for further action. Sub-Contractor's RFI shall contain a "Proposed Solution".
4. RFI requests shall not contain submittals, substitutions requests, routine communications, correspondence, memos, claims, or any information required by other areas of the Contract Documents. RFI requests containing such information will be returned to the Contractor without action by the Architect.
5. RFI requests are limited to a request for interpretation or clarification of the requirements of the Contract Documents. Interpretations provided by the Architect shall not change the requirements of the Contract or the Contract Documents. If the Contractor determines that the Architect's response to an RFI gives cause for a change in the Contract or the Contract Documents, the Contractor shall promptly, within 5 working days, give written notice to the Architect of request for adjustments. Requests for adjustments to the Contract shall be submitted in a manner consistent with the terms and conditions of the Contract Documents.
6. If the Architect, after review, determines that any RFI has been submitted in an incomplete manner, is unnecessary, or does not otherwise comply with the requirements of this Section, the RFI will be returned without action to the Contractor. The Contractor shall delete the original submittal date from the RFI log and enter a new submittal date at the time of re-submittal.

D. RFI-A (Request for Information - Architect) shall be defined as a request by the Architect for information relating to the obligations of the Contractor under the Contract.

1. After receipt of an RFI-A the Contractor shall provide a written response to the Architect within 5 working days. Responses shall be thorough, complete and shall contain all information requested by the Architect.

2. An RFI-A shall be limited to a request by the Architect for information related to the project. The RFI-A shall not be construed as authorizing or directing a change in the Contract or the Contract Documents.

END OF SECTION

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SECTION 013200

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities that must start and finish on the planned early start and finish times.
2. Predecessor activity is an activity that must be completed before a given activity can be started.

B. Major Area: A story of construction, a separate building, or a similar significant construction element.

C. Milestone: A key or critical point in time for reference or measurement.

1.3 SUBMITTALS

A. Submittals Schedule: Submit one electronic copy. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Preliminary Construction Schedule: Submit one electronic copy.

C. Contractor's Construction Schedule: Submit one electronic copy indicating Activity: ID, description, duration, successors, predecessors, total float, and critical path. The schedule will show the Work broken down into areas agreeable to the Owner. The schedule shall also include Owner supplied (only) and Owner supplied and installed for items integrated in the site or building.

D. Daily Construction Reports: Submit electronic copies at weekly intervals.

E. Material Location Reports: Submit electronic copies at monthly intervals.

F. Field Condition Reports: Submit electronic copies at time of discovery of differing conditions.

G. Special Reports: Submit electronic copies at time of unusual event.

1.4 COORDINATION

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

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. A list of all Project Submittals are to be input into the Project Management software system by the Contractor within 30 days of Notice to Proceed Preparation. Submit a schedule of submittals, with the ability to sort in order of any date field, as well as specification section. When assigning schedule dates include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with Contractor's Construction Schedule.
2. Initial Submittal: Submit concurrently with preliminary construction schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Update Submittal: Submit concurrently with the update submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling".

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

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

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than 7 days for startup and testing.

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

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Owner-Furnished Products: Include a separate activity for each product.
2. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Uninterruptible services.
c. Seasonal variations.
d. Environmental control.

3. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

a. Accepted Major Submittals.
b. Deliveries of Major Components.
c. Dry-in by area.
d. Fabrication of Major Components.
e. Installation.
f. Permanent power.
g. Startup and placement into final use and operation.

4. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

a. Structural Framing Completion.
b. Permanent space enclosure (Dry-in).
c. Completion of mechanical installation; conditioned space for finishes
d. Completion of electrical installation; permanent power
e. Substantial Completion.

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

F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

G. Computer Software: Prepare schedules using Suretrak or approved equivalent.

2.3 PRELIMINARY CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within 14 days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.5 REPORTS

A. Daily Construction Reports: Daily reports shall be bundled weekly into Adobe PDF format and sent electronically to the Owner and Architect. Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. Approximate count of personnel at Project site.
3. High and low temperatures and general weather conditions.
4. Accidents.
5. Meetings and significant decisions.
6. Progress of work.
7. Unusual events (refer to special reports).
8. Stoppages, delays, shortages, and losses.
9. Meter readings and similar recordings.
10. Emergency procedures.
11. Orders and requests of authorities having jurisdiction.
12. Construction Change Directives received.
13. Major services connected and disconnected.
14. Deliveries of Major Components.
15. Major equipment or system tests and startups.
16. Partial Completions and occupancies.
17. Substantial Completions authorized.

2.6 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

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SECTION 013233

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Photography.
   2. Views and Techniques
   3. Images
   4. Media

1.2 PHOTOGRAPHY

A. Take construction record photographs periodically during course of Work that are acceptable to the Owner.

B. Furnish construction photographs taken on commencement of Work and at monthly intervals.

C. Submit digital media monthly with each pay application.

D. Photos may be incorporated into monthly construction report which should include schedule, progress of work, etc.

E. Do not display photographs in publications, contests or other public or private forum without written consent of Owner and Architect.

1.3 QUALITY ASSURANCE

A. Qualifications - Photographer: The Contractor shall utilize qualified personnel to take high quality digital photos. If photos are deemed unacceptable, the Owner may require the Contractor to hire an independent professional photographer.

1.4 INFORMATIONAL SUBMITTALS

A. Submit information on who will be securing digital and aerial photographs within 10 days of the Notice to Proceed.

PART 2 - PRODUCTS

2.1 DIGITAL MEDIA

A. Digital/media images will become property of Owner and provided via electronic transfer.

B. Catalog and index digital images in chronological sequence. Provide typed table of contents. Place negatives in archive negative sheets and compiled in three-ring commercial quality binder.

PART 3 - EXECUTION

3.1 VIEWS REQUIRED

A. Consult with Architect for instructions concerning views required at each specified visit to site.

B. Photograph from locations to adequately illustrate condition of construction and state of progress.

C. Minimum views and quantities required:
   1. At each specified time, take photographs from 12 different views that are consistent from month to month.
   2. Views shall be from consistent vantage points where practical.
   3. Aerial photographs from 2 different views.

D. Architect will have right to request fewer photographs be taken at certain intervals so that more photographs may be taken at other times, providing that total number of photographs remains unchanged.

3.2 DELIVERY OF DIGITAL IMAGES

A. Deliver digital images prints with each monthly pay application.

END OF SECTION

SECTION 013300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, Certifications, and other miscellaneous submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

C. Field samples: Full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.

D. Mock-ups: Full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

1.3 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals. Contractor must agree in writing to Architect's Download Agreement before obtaining CAD Drawings.

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

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. 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.
3. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
4. Utilize electronic project management software program to process submittals when feasible with the type and extent of submittals. Refer to Division 01 Section "Project Management and Coordination" for description of electronic project management software.

C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow 21 days for initial review of each submittal.
3. If intermediate submittal is necessary, process it in same manner as initial submittal.

4. Allow 15 days for processing each resubmittal.
5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

E. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Unique identifier, including revision number.
    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Other necessary identification.

F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

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

1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

3. Transmittal Form: Provide Contractor's standard form with locations on form for the following information:

    a. Project name.
    b. Date.
    c. Destination (To:).
    d. Source (From:).
    e. Names of subcontractor, manufacturer, and supplier.
    f. Category and type of submittal.
    g. Submittal purpose and description.
    h. Submittal and transmittal distribution record.
    i. Remarks.
    j. Signature of transmitter.

I. 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.

J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. When submittals cannot be digitally submitted, submit minimum of one reproducible and two prints of Shop Drawings until final acceptance. Submit one additional print of Structural, Mechanical and Electrical items. Reproducible and one print will be returned to the General Contractor after Architect's review.

C. When submittals cannot be digitally submitted, submit minimum of four copies of Product Data until final acceptance. Submit one additional copy of Structural, Mechanical and Electrical items. Three copies of the Product Data will be returned to the General Contractor after Architect's review.

D. Submit minimum of duplicates of Samples. Additional samples may be required for specific items for coordination of finishes.

E. Submit additional copies of Samples and Product Data as necessary for distribution to subcontractors. Contractor shall obtain and distribute required prints of Shop Drawings made from reviewed and stamped reproducible. Number of copies of Product Data, Samples and Shop Drawings to be submitted shall be established in the pre-construction conference.

F. Contractor shall review and stamp with his approval submittals. Submittals which do not bear Contractor's approval stamp shall be returned without review. Stamp shall include statement, "This submittal has been reviewed for compliance with requirements of the work and of the Contract Documents".

G. 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 printed 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. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Standard color charts.
e. Manufacturer's catalog cuts.
f. Wiring diagrams showing factory-installed wiring.
g. Printed performance curves.
h. Operational range diagrams.
i. Mill reports.
j. Standard product operating and maintenance manuals.
k. Compliance with recognized trade association standards.
l. Compliance with recognized testing agency standards.
m. Application of testing agency labels and seals.
n. Notation of coordination requirements.
o. Certification that products are appropriate for installation indicated.

H. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:

a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.
d. Roughing-in and setting diagrams.
e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
f. Shopwork manufacturing instructions.
g. Templates and patterns.
h. Schedules.
i. Design calculations.
j. Compliance with specified standards.
k. Notation of coordination requirements.
l. Notation of dimensions established by field measurement.

2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.

I. Coordination Drawings: Comply with requirements in Division 01 Section "Project Management and Coordination".

J. Samples: Prepare physical units of materials or products, including the following:

1. 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.
2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected.
3. Samples include, but are not limited to, the following:

a. Partial sections of manufactured or fabricated components.
b. Small cuts or containers of materials.
c. Complete units of repetitively used materials.
d. Swatches showing color, texture, and pattern; color range sets.
e. Components used for independent testing and inspection.

4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:

    a. Generic description of Sample.
    b. Product name or name of manufacturer.
    c. Sample source.

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

    a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three sets of paired units that show approximate limits of the variations.
    b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

6. Number of Samples for Initial Selection: Submit three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return two submittals with options selected.
7. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

K. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 DELEGATED DESIGN SUBMITTALS

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file and one paper copy of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

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

2.3 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies when digital uploads are not possible: Submit one copy of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Division 01 Section "Quality Control".

B. Contractor's Construction Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation".

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

D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

J. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

K. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

L. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

M. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

N. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 01 Section “Closeout Procedures".

P. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

Q. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

R. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

T. Industry Standards: Where other Sections of the Specifications require that a product, material, or installation complies with specified industry standard, submit copies of standards at same time as submittal of other specified submittals.

1. Submit copies of reference standards specified such as ASTM, UL, FM, ANSI, ETC., for each material or installation of material specified.

2. Submit copies of trade association standards specified such as NRCA, BIA, AWI, SMACNA, ETC., for each material, process fabrication, or installation specified.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

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

B. Except for submittals for the record, for information and similar purposes, where action and return on submittals is required or requested, the Architect will review each submittal, mark to indicate the action taken, and return.

C. Compliance with specified characteristics is the Contractor's responsibility, and not considered part of the Architect's review and indication of action taken.

D. Action Stamp: The Architect will stamp each submittal with a uniform, action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:

1. Final-But-Restricted Release: When submittals are marked "Accepted as Noted," the Work covered by the submittal may proceed provided it complies with both the Architect's notations and corrections on the submittal and requirements of the Contract Documents. Final acceptance will depend on that compliance.
2. Returned for Resubmittal: When submittal is marked "Not Accepted" or "Revise Resubmit," do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the Architect's notations. Resubmit without delay. Repeat if necessary to obtain a different action mark.

    a. Do not permit submittals marked "Not Accepted or Revise Resubmit" to be used at the Project site, or elsewhere where construction is in progress.

3. Other Action: Where a submittal is primarily for information or record purposes, or for special processing or other Contractor activity, the submittal will be returned, marked "Not Reviewed" or "Not Reviewed; submittal not required by Contract Documents".

E. Architect's acceptance of Shop Drawings, Samples or Product Data which deviates from the Contract Documents does not authorize changes to the Contract Sum. Submit in writing at the time of submission any changes to the Contract Sum affected by such Shop Drawings, Samples or Product Data, otherwise, claim for extras will not be considered.

F. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

G. Electronic File of Submittal Documents: Provide Architect with an independent electronic archive of project submittal documents using electronic project management software as defined in Division 01 Section "Project Management and Coordination".

END OF SECTION

SECTION 014000

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Mockups establish the standard by which the Work will be judged.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL (Nationally Recognized Testing Laboratories), an NVLAP (National Voluntary Laboratory Accreditation Program), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction and with the qualification requirements of individual specification section governing their work.

1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may be the Project superintendent or be an individual with no other Project responsibilities, as accepted by the Architect.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."

3. Owner-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by the Commissioning Authority when Commissioning is included in the Project.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results, including Owner acceptance of nonconforming work. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.5 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

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

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Statement whether conditions, products, and installation exceed manufacturer’s statements.
8. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

   a. Provide test specimens representative of proposed products and construction.
   b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
   c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
   d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
   e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
   f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mock-ups: Prior to fabrication and installation, build mock-up for each form of construction and finish required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mock-up to comply with the following requirements, using materials indicated for the completed Work:

1. Build mock-up in the location and of the size indicated or, if not indicated, as directed by Architect. Contractor shall provide structural support framework.

   a. Show typical components, attachments to building structure, and requirements of installation.

2. Clean exposed faces of mock-up.
3. Notify Architect seven days in advance of the dates and times when mock-up will be installed.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Protect accepted mock-up from the elements with weather-resistant membrane.
6. Obtain Architect's acceptance of mock-ups before starting fabrication.
7. Maintain mock-ups during construction in an undisturbed condition as a standard for review of the completed Work.
8. Acceptance of mock-ups does not constitute acceptance of deviations from the Contract Documents contained in mock-ups unless such deviations are specifically noted by Contractor, submitted to Architect in writing, and accepted by Architect in writing.
9. Demolish and remove mock-ups when directed by Architect unless accepted to become part of the completed Work.

1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
4. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
5. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

a. Prepare in tabular form and include the following:

1) Specification Section number and title.
2) Entity responsible for performing tests and inspections.
3) Description of test and inspection.
4) Identification of applicable standards.
5) Identification of test and inspection methods.
6) Number of tests and inspections required.
7) Time schedule or time span for tests and inspections.
8) Requirements for obtaining samples.
9) Unique characteristics of each quality-control service.

1.8 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner may engage a qualified to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
5. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 014100

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: General regulatory requirements.

1.2 REFERENCES

A. ASTM International
   1. ASTM E 119: Test Methods for Fire Tests of Building Construction and Materials

B. Underwriters Laboratories Inc.
   1. UL 263: Fire Tests of Building Construction and Materials.

1.3 GENERAL REQUIREMENTS

A. General: Additional information with legal implications regarding applicable governing laws and jurisdictions can be found in Conditions of Contract.

B. Codes:
   1. Where references are made on Drawings or Specifications to codes, they shall be considered an integral part of the Contract Documents as minimum standards. Nothing contained in Contract Documents shall be so construed as to be in conflict with law, bylaw or regulation of municipal, State, Federal or other authorities having jurisdiction.
   2. Perform Work in compliance with Codes on Construction Drawings.
      a. NFPA 70 National Electrical Code, edition required by authorities having jurisdiction.
      b. National, state and local barrier free codes, laws and ordinances.
      c. ANSI/ASME A17.1 - Elevator Code, edition required by authorities having jurisdiction.
      d. NFPA applicable NFPA Standards.

C. Contractor shall, without additional expense to Owner, obtain necessary licenses and permits, and be responsible for complying with Federal, state, county, and municipal laws, codes, and regulations applicable to performance of Work, including, but not limited to, laws or regulations requiring use of licensed contractors to perform parts of Work.

D. Environmental Requirements: Contractor shall comply with applicable local, state, and federal air and water quality standards with pollution control laws; and with such rules, regulations and directives as may be lawfully issued for the protection of the environment in the areas surrounding the confines of this contract.
   1. Obtain certificates of registration, issued by The Texas Water Commission, for work involving the installation removal, or repair of underground storage tank systems, including piping.

E. Occupancy Permit: The General Contractor shall be responsible for securing a Certificate of Occupancy permit at completion of project and shall deliver such permit to Owner. Final Payment shall be retained until permit has been received by Owner.

1.4 FIRE-RESISTANCE REQUIREMENTS

A. Fire Resistance Ratings and Fire Tests: Fire-resistance ratings of building elements, components, and assemblies shall be determined only in accordance with the test procedures set forth in ASTM E 119 or UL 263, or by alternative methods approved by applicable authorities having jurisdiction.
   1. Fire-resistance ratings shall be determined or listed based on fire tests performed by one of the following testing agencies, or other agencies acceptable to governing authorities having jurisdiction.
      a. Factory Mutual Laboratories.
      b. Intertek
      c. Southwest Research Institute.
      d. Underwriters Laboratories, Inc.
   2. Where reference is made to only one testing authority, equivalent fire ratings as determined or listed by another testing agency are acceptable if approved by applicable authorities having jurisdiction.

B. Marking and Identification: Fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions, or any other walls required to have protected openings or penetrations, shall be permanently identified with signage or stenciling. Such identification shall:
   1. Be located in accessible floor plenums, ceiling plenums, or attic spaces.
   2. Be repeated at intervals not exceeding 30 feet o.c., measured horizontally along the partition or wall.
   3. Include lettering not less than 0.5- inch in height, worded as follows: "FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS AND PENETRATIONS."

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 014200

REFERENCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes reference standards, definitions and specification format and content.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. Indicated: The term “indicated” refers to requirements expressed by graphic representations, or in written form on Drawings, in Specifications, and in other Contract Documents. Terms such as “shown”, “noted”, “scheduled”, and “specified” are used to help the user locate the reference.

C. Directed: The term “directed” is a command or instruction by Architect. Other terms including “requested,” “authorized,” “selected,” “approved,” and “permitted” have the same meaning as “directed.”

D. Approved: The term “approved”, when used to convey Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

E. Regulations: The term “regulations” includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. Furnish: The term “furnish” means supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. Install: The term “install” describes operations at Project site including unloading, temporary storage, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. Provide: The term “provide” means to furnish and install, complete and ready for the intended use.

I. Submitted: The terms “submitted”, “reported”, “satisfactory” and similar words and phrases means submitted to Architect, reported to Architect and similar phrases.

J. Installer: An “Installer” is the Contractor or another entity engaged by the Contractor, as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

K. Experienced: The term “experienced”, when used with an entity, means having successfully completed a minimum of ten previous projects similar in size and scope to this Project; being familiar with the special requirements indicated, and having complied with requirements of authority having jurisdiction.

L. Trades: Using terms such as “carpentry” does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

M. Project Site: The term "Project site" means the space available for performing construction activities. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

N. Testing Agencies: A “testing agency” is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the 16-Division format and CSI/CSC’s “MasterFormat 1995” numbering system.

1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

B. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
3. The words “shall” "shall be" or “shall comply with”, depending on the context are implied where a colon (:) is used within a sentence or phrase.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

D. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.

E. Copies of Standards: Each entity engaged in construction on the Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where other Sections of the Specifications require that a product, material, or installation complies with specified industry standard, the Contractor shall obtain copies directly from the publication source, and submit copies of standards at same time as submittal of other specified submittals.

F. Industry Organization Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications and other Contract Documents they shall mean the name of a trade association, standards-developing organization or other entity in the context of referencing a standard or publication. The following abbreviations and acronyms, as referenced in the Contract Documents, mean the associated names.

1. Names and Web site addresses are subject to change and are believed, but not assured, to be accurate and up to date as of the date of Contract Documents.
2. Refer to Gale Research's "Encyclopedia of Associations," or Columbia Book's "National Trade and Professional Association of the U.S.".

AA	Aluminum Association, Inc. (The)	www.aluminum.org
AAADM	American Association of Automatic Door Manufacturers	www.taol.com/aaadm
AABC	Associated Air Balance Council	www.aabchq.com
AAMA	American Architectural Manufacturers Association	www.aamanet.org
AAN	American Association of Nurserymen	(See ANLA)
AASHTO	American Association of State Highway and Transportation Officials	www.aashto.org
AATCC	American Association of Textile Chemists and Colorists	www.aatcc.org
ABMA	American Bearing Manufacturers Association	www.abma-dc.org
ACI	American Concrete Institute/ACI International	www.aci-int.org
ACPA	American Concrete Pipe Association	www.concrete-pipe.org
ADC	Air Diffusion Council	
AEIC	Association of Edison Illuminating Companies, Inc. (The)	www.aeic.org
AFPA	American Forest & Paper Association	(See AF&PA)
AF&PA	American Forest & Paper Association	www.afandpa.org
AGA	American Gas Association	www.aga.org
AGC	Associated General Contractors of America (The)	www.agc.org
AHA	American Hardboard Association	www.ahardbd.org
AHAM	Association of Home Appliance Manufacturers	www.aham.org
AI	Asphalt Institute	www.asphaltinstitute.org
AIA	American Institute of Architects (The)	www.aiaonline.org
AISC	American Institute of Steel Construction, Inc.	www.aisc.org
AISI	American Iron and Steel Institute	www.steel.org
AITC	American Institute of Timber Construction	
ALA	American Laminators Association	(See LMA)
ALCA	Associated Landscape Contractors of America	www.alca.org
ALSC	American Lumber Standard Committee	
AMCA	Air Movement and Control Association International, Inc.	www.amca.org
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen)	www.anla.org
ANSI	American National Standards Institute	www.ansi.org

AOSA	Association of Official Seed Analysts	www.zianet.com/AOSA
APA	APA-The Engineered Wood Association	www.apawood.org
APA	Architectural Precast Association	www.archprecast.org
API	American Petroleum Institute	www.api.org
ARI	Air-Conditioning & Refrigeration Institute	www.ari.org
ASCA	Architectural Spray Coaters Association	www.ascassoc.com
ASCE	American Society of Civil Engineers	www.asce.org
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers	www.ashrae.org
ASME	ASME International (American Society of Mechanical Engineers International)	www.asme.org
ASSE	American Society of Sanitary Engineering	www.asse-plumbing.org
ASTM	American Society for Testing and Materials	www.astm.org
AWCI	AWCI International (Association of Wall and Ceiling Industries International)	www.awci.org
AWCMA	American Window Covering Manufacturers Association	(See WCMA)
AWI	Architectural Woodwork Institute	www.awinet.org
AWPA	American Wood-Preservers' Association	www.awpa.com
AWS	American Welding Society	www.aws.org
AWWA	American Water Works Association	www.awwa.org
BHMA	Builders Hardware Manufacturers Association	www.buildershardware.com
BIA	Brick Industry Association (The)	www.bia.org
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)	www.bifma.com
CCC	Carpet Cushion Council	www.carpetcushion.org
CCFSS	Center for Cold-Formed Steel Structures	www.umr.edu/~ccfss
CDA	Copper Development Association Inc.	www.copper.org
CEA	Canadian Electricity Association (The)	www.canelect.ca
CFFA	Chemical Fabrics & Film Association, Inc.	www.taol.com/cffa
CGA	Compressed Gas Association	www.cganet.com
CGSB	Canadian General Standards Board	www.pwgsc.gc.ca/cgsb
CIMA	Cellulose Insulation Manufacturers Association	www.cellulose.org
CISCA	Ceilings & Interior Systems Construction Association	www.cisca.org
CISPI	Cast Iron Soil Pipe Institute	www.cispi.org
CLFMI	Chain Link Fence Manufacturers Institute	www.chainlinkinfo.com (under construction)
CPA	Composite Panel Association (Formerly: National Particleboard Association)	www.pbmdf.com
CPPA	Corrugated Polyethylene Pipe Association Division of Plastics Pipe Institute	www.cppa-info.org
CRI	Carpet and Rug Institute (The)	www.carpet-rug.com
CRSI	Concrete Reinforcing Steel Institute	www.crsi.org
CSA	CSA International (Formerly: IAS - International Approval Services) Division of Canadian Standards Association	www.iasapprovals.org
CSI	Construction Specifications Institute (The)	www.csinet.org
CSSB	Cedar Shake & Shingle Bureau	www.cedarbureau.org
CTI	Cooling Tower Institute	www.cti.org
DHI	Door and Hardware Institute	www.dhi.org
EIA/TIA	Electronic Industries Alliance/Telecommunications Industry Association	www.eia.org
EIMA	EIFS Industry Members Association	www.eifsfacts.com
EJMA	Expansion Joint Manufacturers Association, Inc.	www.ejma.org
FCI	Fluid Controls Institute	www.fluidcontrolsinstitute.org
FGMA	Flat Glass Marketing Association	(See GANA)
FM	Factory Mutual System	(See FMG)

FMG	FM Global (Formerly: FM - Factory Mutual System)	www.fmglobal.com
GA	Gypsum Association	www.gypsum.org
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association)	www.glasswebsite.com/gana
GRI	Geosynthetic Research Institute	www.drexel.edu/gri
GTA	Glass Tempering Division of Glass Association of North America	(See GANA)
HI	Hydraulic Institute	
HI	Hydronics Institute Division of Gas Appliance Manufacturers Association	www.gamanet.org
HMMA	Hollow Metal Manufacturers Association Division of National Association of Architectural Metal Manufacturers	(See NAAMM)
HPVA	Hardwood Plywood & Veneer Association	www.hpva.org
HPW	H. P. White Laboratory, Inc.	
IAS	International Approval Services (See CSA International)	
ICEA	Insulated Cable Engineers Association, Inc.	www.icea.net
ICRI	International Concrete Repair Institute	www.icri.org
IEC	International Electrotechnical Commission	www.iec.ch
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)	www.ieee.org
IESNA	Illuminating Engineering Society of North America (The)	www.iesna.org
IGCC	Insulating Glass Certification Council	www.igcc.org
ILI	Indiana Limestone Institute of America, Inc.	www.iliai.com
IRI	HSB Industrial Risk Insurers	www.industrialrisk.com
ITS	Intertek Testing Services	www.itsglobal.com
IWS	Insect Screening Weavers Association (Now defunct)	
KCMA	Kitchen Cabinet Manufacturers Association	www.kcma.org
LGSI	Light Gage Structural Institute	www.loseke.com
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association)	www.lma.org
LPI	Lightning Protection Institute	www.lightning.org
LSGA	Laminated Safety Glass Association	(See GANA)
MBMA	Metal Building Manufacturers Association	www.mbma.com
MFMA	Maple Flooring Manufacturers Association	www.maplefloor.org
MFMA	Metal Framing Manufacturers Association	
MGPHO	Medical Gas Professional Healthcare Organization, Inc.	www.mgpho.org
MHIA	Material Handling Industry of America	www.mhia.org
MIA	Marble Institute of America	www.marble-institute.com
ML/SFA	Metal Lath/Steel Framing Association (See SSMA)	
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry, Inc.	www.mss-hq.com
NAAMM	National Association of Architectural Metal Manufacturers	www.naamm.org
NAAMM	North American Association of Mirror Manufacturers	(See GANA)
NACE	NACE International (National Association of Corrosion Engineers International)	www.nace.org
NAIMA	North American Insulation Manufacturers Association	www.naima.org
NAMI	National Accreditation and Management Institute, Inc.	
NAPM	National Association of Photographic Manufacturers	(See PIMA)
NBGQA	National Building Granite Quarries Association, Inc.	www.nbgqa.com
NCMA	National Concrete Masonry Association	www.ncma.org
NCPI	National Clay Pipe Institute	www.ncpi.org
NCTA	National Cable Television Association	www.ncta.com

NEBB	National Environmental Balancing Bureau	www.nebb.org
NECA	National Electrical Contractors Association	www.necanet.org
NeLMA	Northeastern Lumber Manufacturers' Association	www.nelma.org
NEMA	National Electrical Manufacturers Association	www.nema.org
NETA	InterNational Electrical Testing Association	www.electricnet.com/neta
NFPA	National Fire Protection Association	www.nfpa.org
NFRC	National Fenestration Rating Council	www.nfrc.org
NGA	National Glass Association	www.glass.org
NHLA	National Hardwood Lumber Association	www.natlhardwood.org
NLGA	National Lumber Grades Authority	www.nlga.org
NOFMA	National Oak Flooring Manufacturers Association	www.nofma.org
NPA	National Particleboard Association	(See CPA)
NRCA	National Roofing Contractors Association	www.nrca.net
NRMCA	National Ready Mixed Concrete Association	www.nrmca.org
NSA	National Stone Association	www.aggregates.org
NSF	NSF International (National Sanitation Foundation International)	www.nsf.org
NTMA	National Terrazzo & Mosaic Association (The)	www.ntma.com
NWWDA	National Wood Window and Door Association	(See WDMA)
PCI	Precast/Prestressed Concrete Institute	www.pci.org
PDCA	Painting and Decorating Contractors of America	www.pdca.com
PDI	Plumbing & Drainage Institute	www.pdionline.org
PGI	PVC Geomembrane Institute/Technology Program University of Illinois-Urbana Champaign	//pgi-tp.ce.uiuc.edu
PIMA	Photographic & Imaging Manufacturers Association (Formerly: NAPM - National Association of Photographic Manufacturers)	www.pima.net
RCSC	Research Council on Structural Connections (c/o AISC)	www.boltcouncil.org
RFCI	Resilient Floor Covering Institute	(Contact by mail only)
RIS	Redwood Inspection Service Division of the California Redwood Association	www.calredwood.org
RMA	Rubber Manufacturers Association	www.rma.org
SAE	SAE International	www.sae.org
SDI	Steel Deck Institute	www.sdi.org
SDI	Steel Door Institute	www.steeldoor.org
SEFA	Scientific Equipment and Furniture Association	www.sefalabfurn.com
SGCC	Safety Glazing Certification Council	www.sgcc.org
SIGMA	Sealed Insulating Glass Manufacturers Association	www.sigmaonline.org/sigma
SJI	Steel Joist Institute	www.steeljoist.org
SMA	Screen Manufacturers Association	
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association	www.smacna.org
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)	www.sprayfoam.org
SPI	The Society of the Plastics Industry, Inc.	www.plasticsindustry.org
SPIB	Southern Pine Inspection Bureau (The)	www.spib.org
SPI/SPFD	The Society of the Plastics Industry, Inc. Spray Polyurethane Foam Division	(See SPI)
SPRI	SPRI (Single Ply Roofing Institute)	www.spri.org
SSINA	Specialty Steel Industry of North America	www.ssina.com
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association)	www.ssma.com

SSPC	SSPC: The Society for Protective Coatings	www.sspc.org
STI	Steel Tank Institute	www.steeltank.com
SWI	Steel Window Institute	www.steelwindows.com
SWRI	Sealant, Waterproofing & Restoration Institute	www.swrionline.org
TCA	Tile Council of America, Inc.	www.tileusa.com
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance	www.tiaonline.org
TPI	Truss Plate Institute	
TPI	Turfgrass Producers International	www.turfgrasssod.org
UFAC	Upholstered Furniture Action Council	www.ufac.org
UL	Underwriters Laboratories Inc.	www.ul.com
UNI	Uni-Bell PVC Pipe Association	//members.aol.com/unibell
USITT	United States Institute for Theatre Technology, Inc.	www.culturenet.ca/usitt
USP	U.S. Pharmacopeia	www.usp.org
WASTEC	Waste Equipment Technology Association	www.wastec.org
WCLIB	West Coast Lumber Inspection Bureau	www.wclib.org
WCMA	Window Covering Manufacturers Association (Formerly: AWCMA-American Window Covering Manufacturers Association)	www.windowcoverings.org
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA-National Wood Window and Door Association)	www.wdma.com
WIC	Woodwork Institute of California	www.wicnet.org
WMMPA	Wood Moulding & Millwork Producers Association	www.wmmpa.com
WWPA	Western Wood Products Association	www.wwpa.org

G. Code Agency Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the following entities. Names and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

BOCA	BOCA International, Inc.	www.bocai.org
CABO	Council of American Building Officials	(See ICC)
IAPMO	International Association of Plumbing and Mechanical Officials	www.iapmo.org
ICBO	International Conference of Building Officials	www.icbo.org
ICC	International Code Council (Formerly: CABO - Council of American Building Officials)	www.intlcode.org
SBCCI	Southern Building Code Congress International, Inc.	www.sbcci.org

H. Federal Government Agency Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the following entities. Names and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADA	Americans with Disabilities Act.	(See ADAAG)
ADAAG	Americans with Disabilities ACT (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board	www.access.board.gov
CE	Army Corps of Engineers	CRD Standards
CFR	Code of Federal Regulations	www.access.gpo.gov/nara/cfr
CPSC	Consumer Product Safety Commission	www.cpsc.gov
CRD	Handbook for Concrete and Cement Available from Army Corps of Engineers Waterways Experiment Station	www.wes.army.mil
DOC	Department of Commerce	www.doc.gov

DOD	Department of Defense DOD Specifications and Standards	//astimage.daps.dla.mil/online
EPA	Environmental Protection Agency	www.epa.gov
FAA	Federal Aviation Administration Department of Transportation	www.faa.gov
FCC	Federal Communications Commission	www.fcc.gov
FDA	Food and Drug Administration	www.fda.gov
FED-STD	Federal Standard	(See FS)
FS	Federal Specification (Available from DOD, GSA, and NIBS)	
FTMS	Federal Test Method Standard	(See FS)
GSA	General Services Administration	www.gsa.gov
HUD	Department of Housing and Urban Development	www.hud.gov
LBL	Lawrence Berkeley Laboratory	(See LBNL)
LBNL	Lawrence Berkeley National Laboratory	www.lbl.gov
MILSPEC	Military Specification and Standards	(See DOD)
NCHRP	National Cooperative Highway Research Program	(See TRB)
NIST	National Institute of Standards and Technology	www.nist.gov
OSHA	Occupational Safety & Health Administration (See CFR 29)	www.osha.gov
RUS	Rural Utilities Service	(See USDA)
TRB	Transportation Research Board	www.nas.edu/trb
UFAS	Uniform Federal Accessibility Standards Available from Access Board	www.access-board.gov
USDA	Department of Agriculture	www.usda.gov
USPS	Postal Service	www.usps.gov

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including but not limited to, the following:

1. Waste disposal facilities.
2. Field offices.
3. Storage and fabrication sheds.
4. Construction aids and miscellaneous services and facilities.
5. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.

B. Temporary utilities are specified in Division 01 Section “Temporary Utilities”.

C. Security and protection facilities are specified in Division 01 Section “Temporary Barriers and Enclosures”.

1.2 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Testing agencies.
2. Personnel of authorities having jurisdiction.

1.4 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to, the following:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.
6. City ordinances and regulations.

1.5 PROJECT CONDITIONS

A. Temporary Facilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary facilities to use of permanent facilities.

1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials and equipment may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.2 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Field Offices: Prefabricated with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.

C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY FACILITIES INSTALLATION

A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Temporary Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
3. Drinking-Water Facilities: Provide bottled-water, drinking-water units. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F.

B. Support Facilities: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

D. Common-Use Field Office: Provide an insulated, weathertight, air-conditioned field office for use as a common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings at Project site. Keep office clean and orderly. Provide a clean working toilet.

E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

3.3 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures".

END OF SECTION

SECTION 015600

TEMPORARY BARRIERS AND ENCLOSURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary barriers and enclosures, including but not limited to, the following:

1. Environmental protection.
2. Tree and plant protection.
3. Site enclosure fence.
4. Security enclosure and lockup.
5. Barricades, warning signs, and lights.
6. Temporary partitions.

1.2 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to, the following:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.
6. City ordinances and regulations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.

B. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rail.

1. Provide green colored screening material full height of chain-link fence fabric including gates to reduce visibility through fencing where adjacent to existing operations or along perimeter sidewalks in order to limit visibility directly from the school or students walking to the school site.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate temporary utilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify utilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

D. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.

E. Site Enclosure Fence: Before construction operations begin install chain-link enclosure fence with lockable entrance gates if required to secure the project site beyond existing fence. Enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

1. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.

F. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

G. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.

1. Construct dustproof, floor-to-ceiling partitions of not less than nominal 4-inch studs, 2 layers of 3-mil polyethylene sheets, inside and outside temporary enclosure. Cover floor with 2 layers of 3-mil polyethylene sheets, extending sheets 18 inches up the side walls. Overlap and tape full length of joints. Cover floor with 3/4-inch fire-retardant plywood.
2. Insulate partitions to provide noise protection to occupied areas.
3. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
4. Weatherstrip openings.

3.2 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures".

END OF SECTION

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SECTION 016000

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

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

B. Administrative procedures for handling requests for substitutions made after award of Contract are included in another Division 01 Section “Substitution Procedures”.

C. Procedures for receiving and installing products furnished by Owner are included in another Division 01 Section ”Owner Furnished Products”.

1.2 PERFORMANCE REQUIREMENTS

A. Contractor shall comply with environmental laws controlling hazardous substances.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term “product” includes the terms “material,” “equipment,” “system,” and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Products: Items that are demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, and equipment from those required by the Contract Documents and proposed by Contractor. Refer to Division 01 Section “Substitution Procedures”.

C. Basis-of-Design Product Standard Specification: Where a specific manufacturer's product is named and accompanied by the words "Product Standard," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

F. Hazardous Substances Prohibited by Law: Including, but not limited to, any product, material, element, constituent, chemical, substance, compound, or mixture, which is defined in, included under, or regulated by any environmental laws.

G. Environmental Laws: Applicable local, state, and federal laws, rules, ordinances, codes, regulations, and requirements in effect at the time Contractor's services are rendered, any amendments for Contractor's services rendered after the effective date of any such amendments, including, without limitation, the following:

1. The Comprehensive Environmental Response, Compensation and Liability Act of 1980.
2. The Resource Conservation and Recovery Act.
3. The Toxic Substances Control Act.
4. The Clean Water Act.
5. The Clean Air Act.
6. The Marine Protection Research and Sanctuaries Act.
7. The Occupational Safety and Health Act.
8. The Superfund Amendments and Reauthorization Act of 1986.
9. The Environmental Protection Agency.
10. Other state superlien or environmental clean-up or disclosure statutes including all state and local counterparts of such.

1.4 SUBMITTALS

A. Contractor shall submit an affidavit on construction company letterhead signed by an officer of the company, notarized by a notary public, which certifies compliance with the environmental laws controlling hazardous substances for the construction of this Project.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products or materials for use on Project, product or material selected shall be compatible with products or materials previously selected, even if previously selected products or materials were also options.

B. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to the Architect.

1. Maintain one set of complete instructions at the job site during installation and until completion.

C. Compliance: Contractor shall take whatever measures deemed necessary to insure that all employees, suppliers, vendors, fabricators, subcontractors, or their assigns, to comply with hazardous substance requirements.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturers written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products and materials to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store products in a manner that will not endanger Project structure.
7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
8. Comply with product manufacturers written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
9. Protect stored products from damage.

1.7 PRODUCT AND MATERIAL WARRANTIES

A. General: Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. General Warranty: Special warranties specified in each Section 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.

C. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

D. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures".

PART 2 - PRODUCTS

2.1 PRODUCT SELECTIONS

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Products and materials brought onto the Project Site, and products and materials incorporated into the Work, shall comply with environmental laws.

B. Descriptive Specification Requirements: Where Specifications describe a product, or assembly, listing exact characteristics required, without use of a brand or trade name, provide a product, material or assembly that provides the characteristics and otherwise complies with Contract requirements.

C. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product or material is specified for a specific application.

1. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

D. Compliance with Standards, Codes and Regulations: Where Specifications only require compliance with imposed code, standard or regulation, select product that complies with standards, codes or regulations specified.

E. Visual Matching Specification: Where Specifications require matching an established sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.

1. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.

F. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.

1. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that does not include premium items.
2. Custom Range: Where Specifications include the phrase "custom range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.
3. Special Custom Range: Where Specifications include the phrase “special custom range of colors patterns, textures” or similar phrase, Architect will select a new color, pattern, or texture different from those normally produced by the manufacturer.

G. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

2.2 PRODUCT OPTIONS

A. For products proprietarily specified by a "Named Manufacturer" and model name or number, this is to establish standard of quality. Other manufacturers listed as "Acceptable Manufacturers" have been listed because they have implied compliance with requirements of the "Named Manufacturer". Listed "Acceptable Manufacturers" are not considered "Substitutions", and therefore, are not required to be submitted as such. However, costs, including professional service fees for changes or modifications to adjacent, contiguous, surrounding, supporting, or otherwise related areas, portions or parts of Project which are required to accommodate products and materials of "Acceptable Manufacturers", for complete, proper and functional installation, in lieu of specified "Named Manufacturer", shall be borne or paid by Contractor.

B. For products specified by naming several "Acceptable Manufacturers", select one of products, or manufacturers named, which complies with Contract Documents. Requests for manufacturer's products not listed must be submitted as Substitutions.

C. For products specified by naming only one product, or manufacturer, Contractor must submit request as for substitutions for product, or manufacturer not specifically named.

D. For products specified by naming only one product and manufacturer and indicated as "no substitute", there is no option.

E. For products specified only by reference standard, select product meeting that standard.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

A. Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

B. Inspect products immediately upon delivery and again prior to installation. Reject damaged and defective items.

C. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

D. Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

E. Recheck measurements and dimensions, before starting each installation.

F. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible product or material as necessary to prevent deterioration.

G. Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

H. Handle, install, connect, clean, condition and adjust products and materials in accord with manufacturer's instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with manufacturer for further instructions.
2. Do not proceed with work without clear instructions.

I. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

J. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

3.2 RESTRICTION OF HAZARDOUS SUBSTANCES

A. Contractor agrees that it shall not knowingly after reasonable diligence and effort, incorporate into the Work any hazardous substance other than as may be lawfully contained within products, except in accordance with applicable environmental laws. Further, in performing any of its obligations hereunder, Contractor shall not cause any release of hazardous substances into, or contamination of, the environment, including soil, the atmosphere, any watercourse or ground water, except in accordance with applicable environmental laws. In the event that Contractor engages in any of the activities prohibited in this paragraph, to the fullest extent permitted by law, Contractor hereby indemnifies and holds harmless Owner and its partners, members, officers, directors, agents, employees and consultants from and against any and all claims, damages, losses, causes of action, suits and liabilities of every kind, including, but not limited to, expenses of litigation, court costs, punitive damages and attorney's fees, arising out of, incidental to or resulting from the activities prohibited.

B. In the event Contractor observes on the Project Site any substance which Contractor reasonably believes to be a hazardous substance, and which is being introduced into the Work, or exists on the Project Site, in a manner violative of any applicable environmental laws, Contractor shall immediately notify Owner and report the condition to Owner in writing. The Work in the affected area shall not thereafter be resumed except by written authorization of Owner if in fact a hazardous substance has been encountered and has not been rendered harmless. In the event that Contractor fails to give Owner proper notification hereunder, upon knowingly observing a hazardous substance at the Project Site, to the fullest extent permitted by the law, Contractor hereby indemnifies and holds harmless Owner, and all of its partners, members, officers, directors, agents, employees and consultants from and against all claims, damages, losses, causes of action, suits and liabilities of every kind, including, but not limited to, expenses of litigation, court costs, punitive damages and attorneys' fees, arising out of, incidental to, or resulting from Contractor's failure to stop the Work.

C. If Owner believes that hazardous substances may have been located, generated, manufactured, used or disposed of on or about the Project Site by Contractor or any of its employees, agents, subcontractors, suppliers, or invitees, Owner may have environmental studies of the Project Site conducted as it deems appropriate, and Contractor shall be responsible for the cost of such studies to the extent that Contractor or any of its employees, agents, subcontractors, suppliers or invitees are responsible for the presence of any hazardous substances.

END OF SECTION

SECTION 016400

OWNER FURNISHED PRODUCTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes work required to relocate and install owner furnished products indicated by Contract Documents and furnish supplementary items necessary for their proper installation.

1.2 SUBMITTALS

A. Obtain following from Owner or Owner’s product manufacturer:

1. Shop drawings for product requirements.
2. Installation drawings for items requiring coordination with work of other Sections.
3. Actual layout of installations pertinent to this Work.
4. Rough-in requirements.

1.3 QUALIFICATIONS

A. Installation of Owner furnished products shall be by skilled experienced and qualified mechanics of the appropriate trade for the work involved.

PART 2 - PRODUCTS

2.1 OWNER FURNISHED, OWNER INSTALLED PRODUCT

A. The specific product is not in this contract, and actual installation of the product will be made by the Owner.

B. Products will be indicated as follows:

1. Product prefixed with "Space for"
2. N.I.C.
3. Owner Furnished - Owner Installed
4. Product noted as "Future"

C. Roughing-in for Owner Furnished, Owner Installed Product is provided by applicable Sections governing the type of work. Obtain rough-in requirements from Owner.

2.2 OWNER FURNISHED, CONTRACTOR INSTALLED PRODUCT

A. Install products indicated as follows:

1. Owner Furnished, Contractor Installed".
2. “Reuse”.
3. “Relocate.”

B. Provide labor, transportation, materials, tools, appliances and utilities necessary for the following:

1. Removing installed product from the Owner's existing facility, as required.
2. Transportation of product from Owner's facility to the job site.
3. Receiving and storage of Owner furnished, Contractor installed product, as required.

4. Providing materials and components for the product as necessary to install in an operating condition, but not including repairing of existing damages to the product.
5. Modification of product only as specified under the particular item.
6. Installation of product in this project, complete and in operating condition, including the adjusting and calibration of the product as necessary for proper operation.
7. Testing of product.
8. Paying of fees, licenses, and taxes in conjunction with the installation of the product.
9. Roughing-in and final utility connections for the Owner furnished, Contractor installed product remains the work of Sections governing the specific utility.

PART 3 - EXECUTION

3.1 COORDINATION

A. Coordinate work of this Section with related work of other Sections to obtain proper installation of items. Become acquainted with the work of other Sections whose work abuts, adjoins or is in any way affected by or related to work under this Section.

B. Carefully examine the drawings and directions and be responsible for proper installation of materials and product without substantial changes.

C. Indication of pipe connection sizes on the plans shall in no way relieve Contractor of the responsibility of checking and verifying their sizes and locations from the actual product to be installed and any available roughing-in diagrams.

3.2 PRODUCT INSTALLATION - GENERAL

A. Locations: The general arrangement of the Owner Furnished Product is indicated on the drawings.

B. Roughing-in: When product is not available prior to the installation schedule, rough-in the utility service at walls or floors as directed, and leave ready for future connection.

C. Installations: Install product and material in conformance with manufacturer's directions where available. Work shall be assembled and installed in harmony with other trades at such times and in such sequence as acceptable to the Owner.

3.3 PROTECTION TO PRODUCT AND MATERIALS

A. Utilities: Close pipe openings with caps or plugs, and protect electrical work as necessary.

B. Product: Tightly cover and protect product against dirt, water and mechanical or chemical injury.

C. Damage to Owner's property due to fault or negligence of the Contractor shall be repaired or replaced at no additional expense to the Owner.

3.4 REMOVING PRODUCT FROM EXISTING FACILITY

A. Schedule for removal of product from existing facility shall be coordinated with Owner's requirements.

B. Minimize shut down of existing building operations.

C. No utilities may be turned off without the Owner's approval.

D. Take necessary precaution to protect building and occupants from injury due to work of this Section.

E. Cover and insulate exposed wires to removed product.

F. Adequately cover floor openings and flag projections as necessary.

3.5 SCHEDULE OF OWNER FURNISHED, CONTRACTOR INSTALLED PRODUCTS

A. Refer to drawings.

END OF SECTION

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SECTION 017000

EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work.

1.2 SUBMITTALS

A. Qualification Data: For land surveyor or professional engineer to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Final Topographical and Property Survey: After the Work is completed, submit one paper and electronic copy showing the Work performed and record survey data, including a digital copy in AutoCAD.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: Engage a professional land surveyor or engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities~~,~~ and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility company that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Refer to Division 01 Section “Project Communications”.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

C. Final Topographical and Property Survey: After the Work is completed, prepare a final topographical and property survey showing significant features (real property) for Project with one foot contour increments. Include on the survey a certification, signed by land surveyor or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, contours, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights recommended by industry standards.
2. Allow for building movement, including thermal expansion and contraction.

G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Control."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

SECTION 017310

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

1.2 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.3 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures for major cutting and patching at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Extent: Describe cutting and patching, show how it will be performed, and indicate why it cannot be avoided.
2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

C. Miscellaneous Elements: Do not cut and patch elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

END OF SECTION

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SECTION 017700

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Project Record Documents.
3. Operation and maintenance manuals.
4. Warranties.
5. Instruction of Owner's personnel.
6. Final cleaning.

SUBSTANTIAL COMPLETION

B. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs and photographic negatives, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

C. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.2 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures".
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.3 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.4 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

B. Electronic File of Project Record Documents: Provide Architect with an independent electronic archive of accepted project record documents using electronic project management software as defined in Division 01 Section "Project Management and Coordination", in addition to the printed documents described below.

C. Record Drawings: Maintain and submit one set of reproducible Contract Drawings and one set of blue- or black-line white prints of Shop Drawings.

1. Mark Record Drawings to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
b. Accurately record information in an understandable drawing technique.

c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Mark important additional information that was either shown schematically or omitted from original Drawings.
4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

D. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Note related Change Orders, Record Drawings, and Product Data, where applicable.

E. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Drawings, and Record Specifications, where applicable.

F. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.5 OPERATION AND MAINTENANCE MANUALS

A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data:

a. Emergency instructions and procedures.
b. System, subsystem, and equipment descriptions, including operating standards.
c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
d. Description of controls and sequence of operations.
e. Piping diagrams.

2. Maintenance Data:

a. Manufacturer's information, including list of spare parts.
b. Name, address, and telephone number of Installer or supplier.
c. Maintenance procedures.
d. Maintenance and service schedules for preventive and routine maintenance.
e. Maintenance record forms.
f. Sources of spare parts and maintenance materials.
g. Copies of maintenance service agreements.
h. Copies of warranties and bonds.

B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 REQUIRED DOCUMENTS TO BE PROVIDED TO THE OWNER

- 2 - Sets of As-Built Drawings (Hard Copy)
    - 1 Set is to be provided to IDEA HQ

  - 1 Set is to be provided to the Project Specific Campus

- 1 – CD of As-Built Drawings provided to IDEA HQ

- 2 - Sets of Close-Out Binders
  - 1 Set is to be provided to IDEA HQ
  - 1 Set is to be provided to the Project Specific Campus

Required Electronic Documents sent to Owner's Representative (PMSI)

- Punch Lists
- Special Tests
- Special Inspector Sign-Off
- Asbestos Affidavit
- Certificate of Occupancy
- Certificate(s) of Substantial Completion
- Owner Training / System Demonstrations (Sign-In sheet w/ hours)
- Change Orders
- As-Built Drawings
- Spare Parts / Attic Stock (Transmittal of delivery to Campus & IDEA sign-off)
- Subcontractor / Supplier Contact List
- Warranties
- Elevation Certificates
- Final Release of Liens
- Consent of Surety

3.2 DEMONSTRATION AND TRAINING

A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Provide instructors experienced in operation and maintenance procedures.
2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
3. Schedule training with Owner with at least seven days' advance notice.
4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:

1. System design and operational philosophy.
2. Review of documentation.
3. Operations.
4. Adjustments.
5. Troubleshooting.
6. Maintenance.
7. Repair.

3.3 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

C. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
4. Remove tools, construction equipment, machinery, and surplus material from Project site.
5. Remove snow and ice to provide safe access to building.
6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.
7. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
8. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
9. Sweep concrete floors broom clean in unoccupied spaces.
10. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
11. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials.
12. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
13. Remove labels that are not permanent.
14. Touch up and otherwise repair and restore marred, exposed finishes and surfaces.
15. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
16. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
17. Wipe surfaces of mechanical, electrical, elevator, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
18. Replace parts subject to unusual operating conditions.
19. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
20. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
21. Clean ducts, blowers, and coils if units were operated without filters during construction.
22. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
23. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
24. Leave Project clean and ready for occupancy.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

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SECTION 019900

AVAILABLE PROJECT INFORMATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section references other information relevant to the construction of this Project that is available project information.

B. At the request of the Owner, the information identified below represents services that have been provided by others, not as an Architect's Consultant, regarding conditions that affect this Project that are beyond the responsibilities of the Architect and Architect's Consultants. Reference to such information herein is solely for the convenience of the Owner. Architect makes no representation, express or implied, as to the accuracy or validity of the information.

C. Bidders are expected to examine the site and the information available from the Owner to determine for themselves the conditions to be encountered.

D. If conditions other than those indicated in the information available from the Owner are encountered before or during construction, notify the Owner before work continues.

1.2 PROPERTY SURVEY

A. The Owner's Surveyor has performed a property survey and the some of the survey information is included on the Drawings for the convenience of the Contractor.

1.3 GEOTECHNICAL REPORT

A. The Owner's Geotechnical Consultant has made subsurface borings at the Project site, has performed an investigation of the geotechnical and site conditions, and has prepared a report of the investigation that contains specific requirements of the Contractor.

B. A copy of the report is provided following this section.

C. The information was obtained for use in preparing the foundation design, but is indicative only of the soil conditions where the borings are taken.

PRODUCTS (NOT USED)

PART 2 - EXECUTION (NOT USED)

END OF SECTION

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

RELATED DOCUMENTS:
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:
Definition: Rough carpentry includes carpentry work not specified as part of other sections and which is generally not exposed, except as otherwise indicated. Types of work in this section include rough carpentry for:

Finish carpentry is specified in another section within Division 6.

REFERENCES:
Lumber Standards: Comply with PS 20 70 and with applicable rules of the respective grading and inspecting agencies for species and products indicated.

Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provision, with applicable APA Performance Standard for type of panel indicated.

SUBMITTALS:
Wood Treatment Data: Submit treatment manufacturer's instructions for proper use of each type of treated material.

Preservative Treatment: For each type specified, include certification by treating plant stating type of preservative retained and conformance with applicable standards.

For water borne treatment, include statement that moisture content of treated materials was reduced to a maximum of 15% prior to shipment to project site.

PRODUCT HANDLING:
Delivery and Storage: Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within stacks.

JOB CONDITIONS:
Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

PART 2 PRODUCTS

LUMBER, GENERAL:
Factory mark each piece of lumber with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.

Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.

Provide dressed lumber, S4S, unless otherwise indicated.

Provide seasoned lumber with 19% maximum moisture content at time of dressing.

Framing Lumber (2" through 4" thick) (Wd Frm):

For light framing (less than 6" wide), provide "Stud" grade lumber for stud framing and "Standard" grade for other light framing, any species.

For light framing (less than 6" wide), provide the following grade, any species:

For structural framing (6" and wider and from 2" to 4" thick), provide the following grade and species:

Select Structural grade.
No. 1 grade.
No. 2 grade.
No. 3 grade.

Any species of the specified grade.
Any species and grade which meets or exceeds the following values:

Fb (minimum extreme fiber stress in bending); 1500 psi.
E (minimum modulus of elasticity); 1,500,000 psi.

Exposed Framing Lumber (2" through 4" thick):

Where framing will not be concealed by other work, provide the following grade and species:

Douglas Fir, Appearance Framing (WCLB or WWPA).
Southern Pine, Appearance Grade, Kiln Dried (SPIB).
Redwood Clear All Heart (RIS).
Boards (less than 2" thick).

Exposed Boards: Where boards will be exposed in the finished work, provide the following:

Moisture Content: 19% maximum, "S DRY."
Where painted finish is indicated, provide Southern Pine, No. 2 Boards per SPIB, or Douglas Fir Construction Boards (WCLB or WWPA).

Concealed Boards: Where boards will be concealed by other work, provide lumber of 19% maximum moisture content (S DRY) and of following species and grade:

Board Sizes: Provide sizes indicated or, if not indicated (for sheathing, sub flooring and similar uses), provide 1" x 8" boards.

MISCELLANEOUS, LUMBER:
Provide wood for support or attachment of other work including cant strips, bucks, nailers, blocking, furring, grounds, stripping and similar members. Provide lumber of sizes indicated, worked into shapes shown, and as follows:

Moisture content: 15% maximum for lumber items not specified to receive wood preservative treatment.

Grade: Construction Grade light framing size lumber of any species or board size lumber as required. Provide construction grade boards (RIS or WCLB) or No. 2 boards (SPIB or

WWPA).

PLYWOOD (Pwd):
Trademark: Identify each plywood panel with appropriate APA trademark.

Plywood Decking / Sheathing: Refer to Structural.

Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant treated plywood panels with grade designation, APA C-D PLUGGED INT with exterior glue, in thickness indicated, or, if not otherwise indicated, not less than ½".

Plywood Exterior Sheathing: Provide fire-retardant treated plywood panels with grade designation, APA C-D plugged exterior with exterior glue in thickness shown.

MISCELLANEOUS MATERIALS:
Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices.

Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.

Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners and anchorages with a hot dip zinc coating (ASTM A 153).

WOOD TREATMENT:
Preservative Treatment: Where lumber or plywood is indicated as "Trt Wd" or "Treated," or is specified herein to be treated, comply with applicable requirements of AWPA Standards C2 (Lumber) and C9 (Plywood) and of AWPB Standards listed below. Mark each treated item with the AWPB Quality Mark Requirements.

Pressure treat above ground items with water borne preservatives complying with AWPB LP 2. After treatment, kiln dry to maximum moisture content, respectively of 19% and 15%. Treat indicated items and the following:
Wood cants, nailers, curbs, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.

Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

Inspect each piece of treated lumber or plywood after drying and discard damaged of defective pieces.

BARRIER MEMBRANE AND FLASHING:
Membrane over plywood roof deck (exterior): Acceptable Product: Sharkskin Ultra SA™ as manufactured by: Kirsch Building Products LLC, 1464 Madera Road, Suite 387, Simi Valley, CA 93065; Tel: (805) 750-0084 Fax: 805-526-1116; www.sharkskin.us.

Provide a self-adhered roof underlayment that has passed the requirements set forth in ICC/ES Report 1708 and Miami/Dade TAS 103.

PART 3 – EXECUTION

INSTALLATION, GENERAL:
Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.

Set carpentry work to required levels and lines, with members plumb and true to line and cut and fitted.

Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.

Countersink fasteners on exposed carpentry work and fill holes.

Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.

WOOD GROUNDS, NAILERS, BLOCKING AND SLEEPERS:
Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.

Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

Provide permanent grounds of dressed, preservative treated, key beveled lumber not less than 1 1/2" wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

Fire stop concealed spaces with wood blocking not less than 2" thick, if not blocked by other framing members. Provide blocking at each building story level and at ends of joist spans.

Installation of Plywood:

General: Comply with applicable recommendations contained in Form No. E 304, "APA Design/Construction Guide Residential & Commercial," for types of plywood products and applications indicated.

Fastening Methods: Fasten panels as indicated below:
Sheathing: Screw to framing.
Plywood Backing Panels: Screw to supports.

END OF SECTION 06100

SECTION 07220 - ROOF AND DECK INSULATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, and materials to install over the 22 ga. steel deck. Loose lay a minimum thickness of 1-1/2", 1/4" per foot tapered Polyisocyanurate, 1/2" per foot Crickets followed by a 1/2" Securock cover board all fastened down to the steel deck with Trufast 3" metal Insulation Plates with Trufast HD fasteners. Install cants, crickets and saddles where required and/or shown on the drawings.

1.02 RELATED SECTIONS

A. Division 6 "Rough Carpentry"

B. Division 7 “Modified Bituminous Sheet Roofing”

1.03 SUBMITTALS

A. Samples and product literature for all products listed.

B. Design Loads: Submit copy of minimum design load calculations according to ASCE 7-10 for Components and Cladding. In no case shall the design loads be taken to be less than those detailed in article 1.06 of this specification.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original unopened packages, dry, undamaged, seals and labels intact.

B. Store all insulation delivered to the site in enclosed trailers.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Apply insulation only when the weather conditions are in compliance with the roof system limitations.

B. Protect the installed insulation from water penetration at the end of each day's work.

C. Application of the roof system shall immediately follow the installation of the roof insulation as it is installed.

1.06 DESIGN AND PERFORMANCE CRITERIA

A. Uniform Wind Uplift Load Capacity

1. Installed roof system over 22 ga. steel decks, shall withstand negative (uplift) design wind loading pressures complying with the structural drawings. Attachment shall be installed exactly as given in article 3.03.

Roof Area	Design Uplift Pressure
Zone 1 - Field of roof	- 43.9 psf
Zone 2 – Eaves and rakes	- 73.6 psf
Zone 3 - Corners	- 110.8 psf

PART 2 - PRODUCTS

2.01 GENERAL

A. When a particular make or trade name is specified, it shall be indicative of a standard required.

2.02 MATERIALS

A. Tapered ACFoam-III Polyiso Roof Insulation: 1/4” per foot, **5” minimum start.**

B. Hinged Triangular One-Piece Pre-Cut Tapered and Fill Panels, Gemini Pre-Cut Crickets (CKT) Polyiso, 0.50” per ft

C. SHEATHING (parapet) shall be Georgia Pacific DensDeck Prime, 5/8" thick, with taped seams, at all parapet roofing applications.

2.03 RELATED MATERIALS

A. As indicated on plans.

B. Fasteners & Plates: Steel Deck: TRUFAST® 3” Recessed Metal Insulation Plates & HD Fasteners.

C. Adhesive: Cold applied single component polyurethane adhesive Insult-Lock HR for Tapered insulation & Gypsum-Fiber roof board.

D. Cant Strips: Fiberglass, Glass Cant.

E. As required by the membrane manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrate surfaces to receive roof and deck insulation and associated work and conditions under which insulation will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

B. Verify deck and surfaces are clean, smooth, dry, free of depressions or irregularities prior to beginning installation of materials.

C. Verify roof openings, curbs, pipes, sleeves, ducts, penetrations or vents through roof are solidly set, wood nailing strips are in place.

D. Verify all specifications related to Carpentry, have been followed prior to beginning installation of insulation. Beginning installation means acceptance of substrate.

3.02 PROTECTION

A. During execution of work covered by this Section, the Contractor shall provide protection for roof insulation from water and wind penetration at the end of each day's work.

B. Protect the roof insulation in areas that will receive excessive traffic with surface protection such as plywood.

C. All workmen shall wear clean, soft rubber-soled shoes for any application work where they may be walking on the in-place insulation.

3.03 GENERAL INSTALLATION

A. Polyisocyanurate boards shall be installed loose laid and joints offset between boards. Securock shall be installed over the Tapered Polyisocyanurate boards.

1. STEEL DECKS

a. Fastener attachment shall be 1 per sq. ft. (32 fasteners per 4x8 board)

b. Placement of any fastener from edge of insulation board shall be a minimum of three inches, and a maximum of six (6) inches. .

B. Filler pieces of insulation require at least two fasteners per piece if size of insulation is less than four square feet.

C. Offset joints of Securock Simply apply Insul-Lock HR in 1/4 in. – 1/2 in. wide beads 6 in. o.c. per 4 ft. x 4 ft. insulation board. Simply place, do not slide, the boards into the adhesive.

D. All boards shall be cut and fitted where the roof deck intersects a vertical surface. The boards shall be cut to fit a minimum of 1/4" away from the vertical surface.

E. Sump all roof boards at all scuppers.

F. Cant Strips/Tapered Edge/Crickets: Install preformed 45-degree cant strips at junctures of vertical surface. Install crickets where indicated on the plans.

END OF SECTION

SECTION 07250 - GYPSUM BOARD WEATHER-RESISTANT BARRIER AND AIR BARRIER SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Work of this section includes coated fiberglass-mat gypsum sheathing board system with integral weather-resistant barrier (WRB) and air barrier (AB) features, and all accessory materials required for covering sheathing joints, fasteners, penetrations, rough openings, and material transitions, for use under exterior wall claddings.

B. Fluid-applied membrane air barrier

1.2 RELATED SECTIONS

A. Section 05400 Cold-Formed Metal Framing

B. Section 06100 Rough Carpentry

C. Section 07900 Joint Sealants; sealant materials and installation techniques

D. Section 09250 Gypsum Board

E. Exterior wall claddings

1.3 DEFINITIONS

A. Air Barrier (AB): Airtight barrier made of material that is relatively air impermeable but moisture vapor permeable, with sealed joints and penetrations, and with terminations sealed to adjacent surfaces.

B. Weather-Resistant Barrier (WRB): Water-shedding barrier made of material that is moisture-resistant, installed to shed water, with sealed joints and penetrations, and with terminations sealed to adjacent surfaces.

C. Rough Openings: Openings in the wall to accommodate windows and doors.

D. Material Transitions: Areas where the WRB / AB coated fiberglass-mat gypsum sheathing connects to beams, columns, slabs, parapets, foundation walls, roofing systems, and at the interface of dissimilar materials.

1.4 REFERENCE STANDARDS

A. ASTM C473 Standard Test Method for Physical Testing of Gypsum Panel Products.

B. ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

C. ASTM C1280 Standard Specification for Application of Gypsum Sheathing.

D. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

E. ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.

F. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.

G. ASTM E119 Standard Test Method for Fire Tests of Building Construction and Materials.

H. ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 C.

I. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
J. ASTM E2178 Standard Test Method for Air Permeance of Building Materials.
K. ASTM E2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.
L. ICC ES AC212 Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing.
M. AAMA 714 Voluntary Specification for Liquid Applied Flashing Used to Create a Water Resistive Seal Around Exterior Wall Openings in Buildings.

1.5 SUBMITTALS

A. Submittals: Submit in accordance with Division 1 requirements.
B. Product Data and Installation Instructions: Submit manufacturer's product data including sheathing and accessory material types, composition, descriptions and properties, installation instructions and substrate preparation recommendations.
C. Shop Drawings: Submit shop drawings indicating locations and extent of WRB / AB system, including details of typical conditions, special joint conditions, intersections with other building envelope systems and materials; counter flashings and details showing bridging of envelope at substrate changes, details of sealing penetrations, and detailed flashing around windows and doors
D. Test Reports: Submit test reports indicating compliance with specified performance characteristics and requirements
E. Sample warranty: Submit a sample warranty identifying the terms and conditions of the warranty as herein specified.
F. Evaluation reports: Accredited laboratory testing for materials

1.6 WARRANTY

A. Provide manufacturer's exposure warranty that offers twelve (12) months of coverage against in-place exposure damage (delamination, deterioration) beginning with the date of installation of the product.
B. Provide manufacturer's standard warranty for sheathing to be free of manufacturing defects that make it unsuitable for its intended use. Warranty period shall be five (5) years from the date of purchase of the product.
C. Provide to contractor the performance warranty registration for DensElement™ Barrier System. When properly installed, DensElement™ Barrier System is warranted to perform as a water-resistive barrier and air barrier as defined in the 2015 IBC and IECC for a period of five (5) years from the date of installation of the system in such structures.
D. Material Warranty: Provide material manufacturer's standard product warranty, for a minimum three (3) years from date of Substantial Completion.

1.7 QUALITY ASSURANCE- MOCK UP

A. Install WRB / AB sheathing with sealed joints and penetrations in mock-up as specified in Section 01010.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store WRB / AB coated fiberglass mat gypsum sheathing under cover and keep dry and protected against weather, condensation, direct sunlight, construction

traffic, and other potential causes of damage. Stack sheathing flat and supported on risers on a flat platform to prevent sagging.

B. Protect fluid applied material, primers and accessory materials from damage, weather, excessive temperatures and construction traffic.

C. Store fluid applied material and primers at temperatures of 40 degrees F or above.

D. Apply fluid applied material to clean surfaces free of contaminants. Chemical residues, surface coatings or films may adversely affect adhesion. Pressure-treated wood and other contaminated surfaces should be cleaned with a solvent wipe before application.

1.9 FIELD CONDITIONS

A. Application standards where applicable are in accordance with Gypsum Association Publication GA-253 for gypsum sheathing and ASTM C1280.

B. Do not install sheathing that is moisture damaged. Indications that panels are moisture damaged include, but not limited to, discoloration, sagging, or irregular shape.

C. Allow installed sheathing to be dry to the touch before sealing joints, penetrations, rough openings, and material transitions.

D. Do not attempt to seal joints, corners, penetrations, rough openings, and material transitions when installed sheathing surface is frozen or has frost on the surface.

E. Do not apply sealing materials to sheathing when air or surface temperature is below 40F for fluid applied materials.

F. Sequencing. Do not install air barrier material before the roof assembly has been sufficiently installed to prevent a buildup of water in the interior of the building.

G. Compatibility. Do not allow air barrier materials to come in contact with chemically incompatible materials.

H. Ultra-violet exposure. Do not expose air barrier materials to sunlight longer than as recommended by the material manufacturer.

PART 2 PRODUCTS

2.1 WEATHER BARRIER ASSEMBLIES

A. Acceptable products: DensElement Barrier System as manufactured by Georgia-Pacific Gypsum, LLC.

1. Sheathing: DensElement Sheathing.
2. Fluid-applied flashing materials: Fluid-applied flashing as approved by Georgia-Pacific Gypsum, LLC.
3. Primers, backer rods and accessory materials: As approved by Georgia-Pacific Gypsum, LLC.

B. System Description: Weather-Resistant Barrier and Air Barrier assembly installed at exterior stud walls under exterior cladding, consisting of the following components as herein specified:

1. Sheathing: WRB / AB coated fiberglass mat gypsum sheathing.
2. Fluid-applied flashing to seal sheathing joints, inside and outside corners, penetrations, rough openings, and material transitions.
3. Primer to seal raw gypsum edges before applying fluid applied flashing.
4. Backer rods and accessory materials.

2.2 WEATHER-RESISTANT BARRIER (WRB) AND AIR BARRIER (AB) GYPSUM SHEATHING

A. Description: Coated fiberglass mat gypsum sheathing with integral weather-resistant barrier (WRB) and air barrier (AB) complying with applicable requirements of ICC- ES AC212, ASTM E2178, ASTM E2357.
B. Vapor Permeability: When tested as system in accordance with ASTM E96 (water method) the WRB and AB system has a minimum vapor permeance of 20 perms with sealed joints and fasteners.
C. The WRB and Air Barrier Gypsum Sheathing has a moisture absorption rate < 6%
D. Air Barrier performance requirements:
    1. ir permeance of sheathing: Sheathing with an air permeability not greater than 0.001 cfm/ft2 (0.02L/s/m2) when tested in accordance with ASTM E2178.
    2. Air permeance of assembly: Assembly of sheathing and sealing components with an average air leakage not greater than 0.04 cfm/ft2 (0.2L/s/m2) when tested in accordance with ASTM E2357.

2.3 FLUID-APPLIED FLASHING AND ACCESSORY MATERIALS FOR JOINTS, INSIDE AND OUTSIDE CORNERS, FASTENERS, ROUGH OPENINGS, AND MATERIAL TRANSITIONS

A. Substrate requirements:
    1. Sheathing joint and transition gaps to receive fluid-applied flashing shall be less than 1/4" (6.4 mm).
    2. Gaps that are more than 1/8” and less than ¼” shall be filled with a backer rod to support the fluid applied flashing at the transition joint.
    3. For gaps larger than 1/4" use fluid-applied flashing as approved by Georgia-Pacific Gypsum, LLC.
B. Fluid applied flashing for panel joints, inside and outside corners, and penetrations
    1. Description: Water based fluid applied flashing.
    2. Properties:
        a. Acceptable substrate: Georgia-Pacific Gypsum LLC DensElement Sheathing.
        b. Adhesion to fiberglass mat faced sheathing: No delamination from face of sheathing.
        c. Applied wet film thickness: 16 mils.
        d. Air permeance: meets 0.004 cubic feet per minute per square foot (0.02L/s/sq m), maximum, when tested in accordance with ASTM E2178.
        e. Water vapor permeance: >10 perms (287 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M.
        f. Ultraviolet and weathering resistance: Approved for 12 months weather exposure.
        g. Comply with applicable requirements of AAMA 714
    2. Primer: Provide primer to seal the cut edges of gypsum sheathing.
B. Fluid applied flashing for sealing fasteners:
    1. Description: Water based fluid applied flashing.
    2. Properties:

a. Acceptable substrate: Georgia-Pacific Gypsum LLC DensElement Sheathing.
b. Adhesion to fiberglass mat faced sheathing: No delamination from face of sheathing.
c. Applied wet film thickness: 16 mils.
d. Air permeance: meets 0.004 cubic feet per minute per square foot (0.02 L/s/sq m), maximum, when tested in accordance with ASTM E2178.
e. Water vapor permeance: >10 perms (287 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M.
f. Ultraviolet and weathering resistance: Approved for 12 months weather exposure.
g. Comply with applicable requirements of AAMA 714.

C. Fluid applied flashing for sealing rough openings
1. Fluid applied flashing: Water based fluid applied flashing.
2. Primer: Water based primer to seal the cut edges of gypsum exposed in rough openings for windows and doors. Apply primer to raw gypsum board edges by brushing on a thin, uniform coat.
3. Properties:
a. Acceptable substrate: Georgia-Pacific Gypsum LLC DensElement Sheathing.
b. Flashing adhesion to fiberglass mat faced sheathing: No delamination from face of sheathing.
c. Applied wet film thickness: 16 mils.
d. Flashing air permeance: meets 0.004 cubic feet per minute per square foot (0.02 L/s/sq m), maximum, when tested in accordance with ASTM E2178.
e. Flashing water vapor permeance: >10 perms (287 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M.
f. Ultraviolet and weathering resistance: Approved for 12 months weather exposure.
g. Flashing comply with applicable requirements of AAMA 714.

D. Material transitions using fluid applied flashing:
1. Refer to substrate requirements for treatment of gaps as specified herein. Gaps from 1/8” to ¼” shall be filled with a backer rod prior to applying fluid applied flashing. Gaps greater than ¼” shall be sealed with fluid-applied flashing as approved by Georgia-Pacific Gypsum, LLC
2. Fluid applied flashing for material transitions: Water based fluid applied flashing.
3. Properties:
a. Acceptable substrate: Georgia-Pacific Gypsum LLC DensElement Sheathing.
b. Adhesion to fiberglass mat faced sheathing: No delamination from face of sheathing.
c. Applied wet film thickness: 16 mils
d. Air permeance: 0.004 cubic feet per minute per square foot (0.02L/s/sq m), maximum, when tested in accordance with ASTM E2178

e. Water vapor permeance: >10 perms (287 ng/(Pa s sq m)), minimum, when tested in accordance with ASTM E96/E96M
f. Ultraviolet and weathering resistance: Approved for 12 months weather exposure
g. Comply with applicable requirements of AAMA 714

PART 3 EXECUTION

3.1 PREPARATION

A. Remove projections, protruding fasteners, loose or damaged sheathing material at edges of panel that might interfere with proper installation to seal joints, corners, fasteners, penetrations, openings, or material transitions.
B. Wipe down the sheathing surface to receive sealing materials with a clean cloth.
C. Ensure field conditions are met as outlined in Part 1 – General Requirements.

3.2 INSTALLATION OF WEATHER-RESISTANT BARRIER (WRB) AND AIR BARRIER (AB) SHEATHING

A. WRB / AB Coated fiberglass mat sheathing:
1. Install and fasten DensElement Sheathing according to manufacturer's detailed installation instructions
2. Fastener and penetration treatment: Treat all countersunk fasteners (penetrating through the fiberglass mat) with specified fluid applied flashing used for sealing joints.

3.3 FLUID APPLIED FLASHING FOR SEALING SHEATHING JOINTS, INSIDE AND OUTSIDE CORNERS, FASTENERS, ROUGH OPENINGS, AND MATERIAL TRANSITIONS

A. Sealing DensElement Sheathing Joints using specified Fluid Applied Flashing
1. Apply fluid applied flashing over the joint in a zig-zag or ribbon pattern dispensed from a tube type container. Cover a minimum of 1" on both sides of the joint.
2. With a 4 or 6" straight edge knife or trowel, spread evenly over the sheathing joint.
3. Apply at a rate to achieve a wet mil thickness of 16 mils over the entire joint area.

B. Sealing DensElement Sheathing Vertical Corners using specified Fluid Applied Flashing
1. Prime exposed gypsum edges with specified primer.
2. Apply fluid applied flashing over the inside and/or outside corner in a zig-zag or ribbon pattern dispensed from either a tube type container. Cover a minimum of 2" on both sides of the corner.
3. With a 4 or 6" straight edge knife or trowel, spread evenly over the sheathing corner.
4. Apply at a rate to achieve a wet mil thickness of 16 mils over the corner area.

C. Sealing DensElement Sheathing Fasteners using specified Fluid Applied Flashing: Apply the fluid applied flashing material to fasteners, and wipe down with a straight edge tool; provide a minimum 16 mil thick coating over the fastener

D. Sealing DensElement Sheathing Rough Openings using specified Fluid Applied Flashing
   1. Prime exposed gypsum edges with specified primer
   2. Apply a bead of fluid applied flashing into the entire width of the inside corners of the opening dispensed from a tube type container.
   3. Apply fluid applied flashing onto:
      a. Sills of openings
      b. Jambs of openings
      c. Headers of openings
   4. Apply fluid applied flashing 2” over the entire width of the opening sill, jamb, and header on exterior set windows and doors. Apply fluid applied flashing over the entire width of the opening sill, jamb, and header on interior set windows and doors. Apply in a zig-zag or ribbon pattern dispensed from a tube type container.
   5. Apply fluid applied flashing over the sheathing adjacent to the opening sill, jamb, and header in a zig-zag or ribbon pattern dispensed from a tube type container. Cover a minimum of 2” of the sheathing surface adjacent to the opening.
   6. With a 4 or 6” straight edge knife or trowel, spread fluid applied flashing over entire width of the sill, jamb, header, and sheathing surface adjacent to the opening.
   7. Apply at a rate to achieve a wet mil thickness of 16 mils over the opening area.

E. Sealing DensElement sheathing material transitions using specified Fluid Applied Flashing
   1. Sheathing joint and transition gaps to receive fluid-applied flashing shall be less than 1/4" (6.4 mm).
   2. For gaps larger than 1/4" use shall be sealed with fluid-applied flashing as approved by Georgia-Pacific Gypsum, LLC
   3. Gaps that are more than 1/8” and less than ¼” shall be filled with a backer rod to support the fluid applied flashing at the transition joint.
   4. If necessary, prime the adjacent material with primer per the material manufacturer’s recommendations.
   5. Apply fluid applied flashing over the sheathing and adjacent material in a zig-zag or ribbon pattern dispensed from a tube type container. Ensure the flashing is a minimum of 2” on each substrate material surface.
   6. With a 4 or 6” straight edge knife or trowel, spread fluid applied flashing over material transition joint.
   7. Apply at a rate to achieve a wet mil thickness of 16 mils.

3.4 SEALING EXTERIOR WALL PENETRATIONS

A. Exterior wall penetration shall be sealed to prevent air and water infiltration. Penetrations may be sealed with fluid applied flashing.

B. For round or square pipe/duct penetrations use specified fluid applied flashing, refer to DensElement Barrier System Technical Guide for instructions for proper sealing.

3.5 FIELD QUALITY CONTROL

A. Do not cover installed WRB / AB assembly until required inspections have been completed and installation has been accepted.
B. Where applicable, allow for owner's inspection and air barrier testing and reporting.

3.6 PROTECTION

A. Protect WRB / AB assembly from damage during installation and during the construction period.

END OF SECTION

SECTION 07251 – COMMERCIAL WEATHER BARRIER WRAP

PART 1 - GENERAL

0.1 RELATED DOCUMENTS

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

0.2 SUMMARY

A. Section Includes:

1. Commercial weather barrier assemblies.
2. Flexible flashing.
3. Weather barrier flashing.
4. Fluid-applied flashing.
5. Weather barrier accessories.
6. Drainage material.

B. Related Requirements:

1. Section 04200 "Unit Masonry" for masonry ties and flashing installation.
2. Section 07200 " Insulation" for installation of exterior insulation.
3. Section 07460 "Fiber-Cement Siding" for installation of fiber-cement board siding.

0.3 DEFINITIONS

A. Weather Barrier: A combination of materials and accessories that do the following:

1. Prevents the accumulation of water as a water-resistive barrier.
2. Minimizes the air leakage into or out of the building envelope as a continuous air barrier.
3. Provides 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 E 96 per definition in International Building Code. Vapor permeable material permits the passage of moisture vapor through vapor diffusion.

0.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Manufacturer's Certified Installer, Weather barrier manufacturer's designated field representative, and installers of work that interfaces with or affects weather barrier.
2. Review methods and procedures related to weather barrier installation, including manufacturer's written instructions.
3. Review and finalize construction, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine substrate conditions and finishes for compliance with requirements.
5. Review flashings, special weather barrier details, weather barrier penetrations, and condition of other construction that affects weather barrier.
6. Review weather barrier manufacturer's Project Registration and Observation process.
7. Review Construction Indoor Air Quality Management Plan "Moisture Protection for Absorbent Materials."
8. Review temporary protection requirements for weather barrier during and after installation.

0.5 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.

B. Sustainable Design Submittals:

1. Test Reports: Envelope testing and verification of the following:

a. Water-Spray Test.
b. Air Infiltration Test.
c. Water Penetration Test.

2. Product Data: Including the following information:

a. Provide Health Product Declarations (HPDs) or list of weather barrier ingredients by name and Chemical Abstract Service (CAS) registry number or Proprietary Ingredients hazards associated with LT-1/LT-P1 down to 0.1 percent (1000 ppm).
b. Provide Environmental Product Declarations (EPD’s)
c. Provide SDS (formerly MSDS), third-party certifications, or product technical data confirming that systems meet or exceed emissions guidelines for volatile organic compounds (VOCs) and hazardous air pollutants (HAPs), as follows:

1) Commercial weather barrier complies with California Department of Public Health (CDPH) Standard.
2) Adhesives and sealants wet-applied onsite are to meet/exceed VOC content requirements for wet-applied products and comply with SCAQMD Rule 1168.
3) Flashing systems comply with SCAQMD Rule 1168 on VOC limits.

C. Shop Drawings: Show details of weather barrier at terminations, openings, and penetrations. Show details of flexible flashing applications.

D. Evaluation Reports: For weather barrier and flexible flashing, from ICC-ES.

E. Manufacturer's Instructions: For installation of each product specified.

F. Qualification Data: For Installer[and] [laboratory mockup testing agency] [field testing agency].

G. Sample Warranty: For manufacturer's warranty.

H. Reports: Field test and inspection reports.

I. Installer's weather barrier manufacturer-training certificate.

0.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is certified by weather barrier system manufacturer to install manufacturer's product.

B. Laboratory Mockup Testing Agency Qualifications: Qualified in accordance with ASTM E 699 for testing indicated.

C. Mockups: Build mockups to set quality standards for materials and execution.

1. Build integrated mockups of exterior wall assembly 150 sq. ft. (14 sq. m, incorporating backup wall construction, external cladding, window, storefront, door frame and sill, insulation, ties and other penetrations, and flashing to demonstrate surface preparation, crack and joint treatment, application of weather barriers, and sealing of gaps, terminations, and penetrations of air-barrier assembly.

    a. Include junction with roofing membrane building corner condition, and fenestration and wall interface.
    b. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply weather barrier until mockups are approved.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Manufacturer's Field Service: Register project with weather barrier manufacturer prior to installation of weather barrier and comply with weather barrier manufacturer's Project registration and observation process.

0.7 DELIVERY, STORAGE, AND HANDLING

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

0.8 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

0.1 MANUFACTURERS

A. Source Limitations: Obtain weather barrier assembly components, including weather barrier flashing and foam insulation from same manufacturer as weather barrier or manufacturer approved by weather barrier manufacturer.

0.2 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.

B. High-Performance Installations:

1. For installation with one of the following building envelope performance or structural characteristics:

a. Exceeding 65 mph (100 km/h) equivalent structural load.
b. Exceeding 15 mph (24 km/h) equivalent wind-driven rainwater infiltration.
c. Buildings with 60 feet (18 m) or more total height above grade plane, as defined in the International Building Code.
d. Construction with gypsum or cement-based exterior sheathing.
e. Non-wood based primary structure such as: steel, light gage steel, masonry or concrete.

0.3 WEATHER BARRIER

A. Commercial Building Wrap: ASTM E 2357 passed, ABAA (Air Barrier Association of America) evaluated air barrier assembly, and assembly water resistance per ASTM E 331; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested in accordance with ASTM E 84; UV stabilized for nine-month exposure; and acceptable to authorities having jurisdiction.

1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont Safety & Construction: E. I. du Pont de Nemours and Company; Tyvek® CommercialWrap® D .

2. System Description, Single-Layer Weather Barrier: Single-layer weather barrier, including flashing and sealing of penetrations and seams.
3. System Description, Single-Layer Drainable: Single-layer weather barrier with integral drainage, including flashing and sealing of penetrations and seams.
4. System Description, Double-Layer Drainable: Double-layer weather barrier, including flashing and sealing of penetrations and seams, arranged as follows:

    a. Primary Layer: Commercial building wrap [with] [without] integral drainage installed closest to building interior.
    b. Secondary Layer: Commercial building wrap [with] [without] integral drainage installed over primary layer.

5. Drainability: 98 percent or greater when tested in accordance with ASTM E 2273.
6. 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 E 2178.
7. 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.
8. Water Penetration Resistance, Product: Hydrostatic head resistance greater than 7.7 feet (2.35 m) in accordance with AATTC 127.
9. Water Penetration Resistance, Assembly: Assembly wall specimen described in ASTM E 2357 to water resistance in accordance with ASTM E 331 to [2.86 lbf/sq. ft. (137 Pa)] [6.24 lbf/sq. ft. (300 Pa)] [10.4 lbf/sq. ft. (500 Pa)] [12.5 lbf/sq. ft. (575 Pa)].
10. Water-Vapor Permeance: Not less than 23 perms (1300 ng/Pa x s x sq. m) per ASTM E 96/E 96M, Desiccant Method (Procedure A) or not less than 28 perms (1600 ng/Pa x s x sq. m) per ASTM E 96/E 96M, Water Method (Procedure B).
11. Water-Vapor Permeance: Not less than 30 perms (1700 ng/Pa x s x sq. m) per ASTM E 96/E 96M, Desiccant Method (Procedure A) or not less than 46 perms (2600 ng/Pa x s x sq. m) per ASTM E 96/E 96M, Water Method (Procedure B).
12. Allowable UV Exposure Time: Not less than nine months when tested in accordance with ASTM G 155 (Accelerated Weathering).
13. Flame Propagation Test: Materials and construction shall be as tested in accordance with NFPA 285.
14. Heat and Visible Smoke Release Rates: Maximum rates in accordance with NFPA 285.

    a. Peak Heat Release: 13,217 Btu/sq. ft. (150 kW/sq. m).
    b. Total Heat Release: 1762 Btu/sq. ft. (20 MJ/sq. m)
    c. Effective Heat of Combustion: 7744 Btu/lb (18 MJ/kg)

15. Weather barrier system to have a VOC content of 30 g/L or less.

0.4 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 7 days.

1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont Safety & Construction: E. I. du Pont de Nemours and Company; FlexWrap™ .

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 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.

B. 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 7 days.

1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont Safety & Construction: E. I. du Pont de Nemours and Company; StraightFlash™ VF.

2. Water Penetration: No leakage at 15 psf (720 Pa) per ASTM E 331.
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.

0.5 FLUID-APPLIED FLASHING

A. Fluid-Applied Flashing: Trowel or brush applied, non-water soluble, single component, silyl terminated polyether technology (STPE), vapor permeable, flashing material.

1. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont Safety & Construction: E. I. du Pont de Nemours and Company; Tyvek® Fluid Applied Flashing & Joint Compound.

2. VOC Content: ASTM C 1250, less than 2 percent by weight and between 25 to 30 g/L.
3. Water Vapor Transmission: ASTM E 96, Method B, greater than 20 perms (1100 ng/Pa x s x sq. m) at 25 mils (0.635 mm) thick.
4. Minimum Tensile Strength: ASTM D 412, 165 lb/sq. ft. (1140 kPa)
5. Minimum Elongation at Break: ASTM D 412; 360 percent.

0.6 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: DuPont Safety & Construction: E. I. du Pont de Nemours and Company; Tyvek® Tape.

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 E 84.

1. Basis-of-Design Product: DuPont Safety & Construction: E. I. du Pont de Nemours and Company; DuPont™ Window & Door Foam.
2. Pressure Build-Up: 0.0247 psi (0.170 kPa) maximum, AAMA 812.
3. Deflection: 0.0050 inch (0.127 mm) maximum, AAMA 812.

C. Fasteners with Self-Gasketing Washers: Commercial building wrap manufacturer's recommended pneumatically or hand-applied fasteners with [1-inch- (25-mm-)] [2-inch-(50-mm-)] diameter, high-density polyethylene cap washers with UV inhibitors.

1. Basis-of-Design Product: DuPont Safety & Construction: E. I. du Pont de Nemours and Company; Tyvek® Wrap Caps.

D. 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. Basis-of-Design Product: DuPont Safety & Construction: E. I. du Pont de Nemours and Company, DuPont™ Adhesive Primer.
2. Peel Adhesion Test: Passes in accordance with ASTM D 3330, Test Method F, for the following.

a. Peel Angles: 0, 25, 72, and 180 degrees.
b. Substrates: Concrete masonry units (CMU), exterior gypsum sheathing, oriented strand board (OSB), aluminum, and vinyl.

3. Chemical Compatibility: Pass; AAMA 713.
4. Flame Spread Index: 5; ASTM E 84.
5. Smoke Development Index: 0; ASTM E 84.

PART 3 - EXECUTION

0.1 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.

0.2 PREPARATION

A. Direct water onto an acceptable weather barrier drainage plane with an unobstructed path to exterior of wall.

1. Provide a drainage path for water intrusion through window and door attachment system that collects at window and door sills and directs water to the exterior or weather barrier.

0.3 COMMERCIAL BUILDING WRAP INSTALLATION

A. General: Comply with weather barrier manufacturer's written instructions 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. Start weather barrier installation at a building corner, leaving 12 inches (300 mm) of weather barrier extended beyond corner to overlap.
3. Install weather barrier horizontally starting at lower portion of wall surface.
4. Provide minimum 6 inches (150 mm) 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 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 according to 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 according to weather barrier manufacturer's installation guidelines.

0.4 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. Apply weather barrier manufacturer’s recommended primer over concrete, masonry, and glass-mat gypsum wall sheathing substrates to receive weather barrier flashing.
4. Lap weather barrier flashing a minimum of 2 inches (50 mm) onto weather barrier.
5. 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 [6-inch- (150-mm-)] [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. Penetrations: Apply weather barrier manufacturer's recommended weather barrier flashing patches behind fastening plates, such as brick-tie base plates, metal-flashing clips, and metal channels.

1. Seal weather barrier around each penetration with weather barrier manufacturer's recommended self-adhered flashing product or sealant. Integrate products with flanges into the weather barrier.

D. 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.

0.5 FLUID-APPLIED FLASHING INSTALLATION

A. General: Before installing fluid-applied flashing, do the following:

1. Ensure drainage path is not blocked or disrupted. Do not install on walls that do not feature a continuous path for moisture drainage. Blocked or disrupted paths for drainage can result in excess moisture buildup in wall cavity. Do not install below grade.

2. Remove surface dust, dirt, and loose mortar.
3. Verify that surface is free of grease and other contaminants and that surface is smooth.
4. Fill joints in concrete masonry units, and voids in cast-in-place concrete with trowel-applied fluid-applied flashing to ensure surface is flush and smooth.
5. Allow masonry mortar and cast-in-place concrete a minimum of 24 hours to cure before installing fluid-applied flashing.

B. Fluid-Applied Flashing Installation: Using a trowel or brush, apply fluid-applied flashing around perimeter of window and door openings to a minimum thickness of 25 mils (0.635 mm).

1. Extend flashing a minimum of 2 inches (50 mm) onto exterior face of adjacent surface.
2. Inspect for gaps and pinholes in fluid-applied flashing and apply additional coats until no gaps and pinholes appear.
3. Joint Applications: Using a trowel or a brush, fill cracks and voids up to 1/4 inch (6 mm) in width.

    a. For joints and cracks between 1/4 and 1/2 inch (6 and 12 mm) wide, cover first with mesh tape.
    b. For joints and cracks between 1/2 and 1 inch (12 and 24 mm) wide, cover first with butyl-based strip flashing.
    c. Apply a bead, then trowel smooth.
    d. Seam coverage should be a minimum of 2 inches (50 mm) wide and 15 to 20 mils (0.38 to 0.51 mm) thick.
    e. Inspect for gaps and pinholes in fluid-applied flashing and apply additional coats until no gaps and pinholes appear.

0.6 DRAINAGE MATERIAL INSTALLATION

A. Install drainage material with grooves or channels running vertically in compliance with manufacturer's written instructions.

0.7 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to train installers and observe subject test-wall areas and installations.

0.8 CLEANING

A. Immediately remove release paper and scrap from work area and dispose of material in accordance with requirements of [Section 017300 "Execution."] [Section 017419 "Construction Waste Management and Disposal."] [Section 017300 "Execution" and Section 017419 "Construction Waste Management and Disposal."]

0.9 PROTECTION

A. Protect installed weather barrier from the following:

1. Damage from cladding, structure, or a component of the structure (e.g., 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 07251

SECTION 07276 FIRE RESISTANT, FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. A fluid-applied membrane and accessory products of inherent, fire-resistant composition for use as an air barrier in exterior walls.
B. Materials and installation to bridge and seal the following air leakage pathways and gaps:
    1. Connections of the walls to the roof air barrier
    2. Connections of the walls to the foundations
    3. Seismic and expansion joints
    4. Openings and penetrations of window frames, door frames, store front, curtain wall
    5. Barrier pre-cast concrete and other envelope systems
    6. Door frames Piping, conduit, duct and similar penetrations
    7. Masonry ties, screws, bolts and similar penetrations
    8. All other air leakage pathways through the walls

1.02 RELATED SECTIONS

A. Section 04200 - Unit Masonry
B. Section 07115 - Sheet Waterproofing
C. Section 07160 – Fluid-Applied Waterproofing
D. Section 07200 – Insulation
E. Section 07520 – Modified Bituminous Sheet Roofing
F. Section 07600 - Sheet Metal Flashing and Trim
G. Section 07900 - Joint Sealant
H. Section 08100 – Steel Door and Frames
I. Section 08410 – Aluminum Entrances and Storefronts
J. Section 08250 - Metal Windows
K. Section 09250 - Gypsum Sheathing: Gypsum sheathing over metal studs.

1.03 REFERENCES

A. American Association of Textile Chemists and Colorists (AATCC) Test Method 127. “Water Resistance – Hydrostatic Pressure Test”
B. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1-2010 “Energy Standard for Buildings Except LowRise Residential Buildings”
C. ASTM C 920 Standard Specification for Elastomeric Joint Sealants
D. ASTM C 1305 Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
E. ASTM C 1522 Standard Test Method for Extensibility after Heat Aging of Cold, Liquid-Applied Elastomeric Waterproofing Membrane
F. ASTM D 1970 Standard Specification for Self-Adhering Polymer Modifed Bituminous Sheet Materials Used as Steep slope roofing Underlayment for Ice Dam Protection.
G. ASTM D 4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

H. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
I. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials.
J. ASTM E 783 Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors
K. ASTM E 1105 Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference
L. ASTM E 1354 Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter
M. ASTM E 2178 Standard Test Method for Air Permeance of Building Materials
N. ASTM E 2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
O. Canadian General Standards Board (CGSB) 71-GP-24M Standard for: Adhesive, Flexible, for Bonding Cellular Polystyrene Insulation
P. National Fire Protection Association (NFPA) 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-LoadBearing Wall Assemblies Containing Combustible Components Q.

1.04 PERFORMANCE REQUIREMENTS

A. Installed product and accessories constitute a continuous air barrier, as described in ASHRAE Standard 90.1-2010 Section 5.4.3.1
B. Installed product and accessories shall perform as a liquid water drainage plane flashed to discharge to the exterior any incidental condensation or water penetration.
C. Installed product and accessories shall exhibit an air leakage rate, infiltration and exfiltration modes, measured after pressure cycling, not to exceed 0.2 L/s*m2 at 75 Pa (0.040 CFM/ft2 at 1.57 PSF) according to ASTM E 2357.
D. Exterior wall assemblies incorporating the product and accessories shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.
E. Product shall be of flame-retardant, non-asphalt synthetic polymer composition.
F. Product shall be a nominal 0.040 inch (40 mils) thickness membrane, with dry film thickness of installed product measuring a minimum of 0.030 inch (30 mils) with a comb gauge.
G. Product shall meet the following requirements:

REQUIREMENT	RESULT	TEST METHOD
Air Permeance – on Porous Substrate	Not more than 0.02 L/s*m2 at 75 Pa (0.004 CFM/ft2 at 1.57 PSF)	ASTM E-2178, mod sprayed on CMU
Air Permeance – Free Film	Not more than 0.02 L/s*m2 at 75 Pa (0.004 CFM/ft2 at 1.57 PSF)	ASTM E-2178
Low Temperature Flexibility	No cracking at minus 20 degrees F, 180 degree bend over 1 inch mandrel	ASTM D 1970
Low-Temperature Crack Bridging	No cracking after 10 cycles at minus 15 deg F	ASTM C 1305, mod 40 mil membrane thickness

Long-Term Aging/ Flexibility	No cracking or tearing after aging	ASTM C 1522, mod 40 mil membrane thickness OR CGSB 71GP-24M
Fastener Sealability	No water leaking through nail penetration after 24 h.	ASTM D 1970
Water Resistance	Product spray-applied to CMU and gypsum sheathing with joint shall resist a 55 cm (22 inch) column of water for 5 hours, no leaking or wet through.	AATCC-127 - mod, static head generated with 5”diameter PVC pipe sealed to specimen
Pull Adhesion	Not less than 16 lbf per square inch (or report value at substrate failure) on glass-faced gypsum sheathing and concrete masonry unit (CMU)	ASTM D 4541, modified 4 inch wood puck
Water Vapor Permeance – Vapor Barrier Type Only	Not more than 1 Perm	ASTM E-96, Method B
Water Vapor Permeance – Vapor Permeable Type Only	Not less than 10 Perms	ASTM E-96, Method B
Surface Burning Characteristics.	Flame Spread Index: Not more than 25 Smoke Generation Index: Not more than 450	ASTM E 84, sample tested at full coverage, 40 mil dry film, cement board substrate
Measurement of Heat Release Rate by Cone Calorimeter	Average Effective Heat of Combustion: Not more than 12.3 MJ/kg [5,300 BTU/lb] Total Heat Released per Area: not more than 14.7 MJ/m2[1,296 BTU/ft2]	ASTM E 1354, membrane applied to glass-faced gypsum sheathing

1.05 SUBMITTALS

A. Provide submittals in accordance with Section 01340.
B. At bid submission, provide evidence to the Architect of installer qualification by the air barrier manufacturer.
C. Shop drawings showing locations and extent of air barrier and details of all typical conditions.
D. Manufacturer’s list and description of wall assemblies, incorporating product, approved per NFPA 285
E. Manufacturer's technical data sheets and material safety data sheets for product and accessories.
F. Manufacturer's installation instructions.
G. Certification of compatibility by manufacturer, listing all materials on the project with which the product and accessories may come into contact.
H. Free film sample of product at representative cured thickness, minimum 2 inch by 3 inch size.
I. Sample of detail flashing and transition membrane, minimum 2 inch by 3 inch size.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Shall be experienced in applying the same or similar materials and shall be specifically approved in writing by Manufacturer.

B. Single-Source Responsibility: Obtain product and accessories from single manufacturer.
C. Product and Accessories shall comply with all state and local regulations controlling use of volatile organic compounds (VOCs).
D. Pre-Installation Meeting: Convene one week prior to commencing Work of this Section, in accordance with Section 01 31 19 - Project Meetings.
E. Field-Constructed Mock-Ups: Prior to installation on Project, apply product and accessories on mock-up to verify details under shop drawing submittals, to demonstrate tie-ins with adjoining construction and other termination conditions and to become familiar with properties of materials in application:
    1. Construct typical exterior wall panel, 8 feet long by 8 feet wide, incorporating back-up wall, cladding, window and doorframe and sill, insulation, flashing, building corner condition, junction with roof system, illustrating interface of materials and seals
F. Allow full cure of product and test mock-up in accordance with ASTM E 783 and ASTM E1105 for air and water infiltration
G. Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover any installed product unless it has been inspected, tested and approved.

1.07 DELIVERY, STORAGE AND HANDLING
A. Deliver materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product, lot number and directions for storage.
B. Store materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by manufacturer.
C. Avoid spillage. Immediately notify Owner, Architect, if spillage occurs and start clean up procedures. Clean spills and leave area as it was prior to spill.

1.08 WASTE MANAGEMENT AND DISPOSAL
A. Separate and recycle waste materials in accordance with the Waste Reduction Work Plan.
B. Place materials defined as hazardous or toxic waste in designated containers.
C. Ensure emptied containers are stored safely for disposal away from children.

1.09 PROJECT CONDITIONS
A. Do not apply product or accessories during rain or accumulating snowfall.
B. Apply product and accessories within approved ambient and substrate temperature range stated in manufacturer’s literature.
C. Do not apply product or accessories over incompatible materials.
D. Observe safety and environmental measures indicated in manufacturer’s MSDS, and mandated by federal, state and local regulations.

1.10 WARRANTIES: Provide the manufacturer’s minimum five year material warranty.

PART 2 PRODUCTS

2.01 PRODUCTS: Provide as manufactured by Carlisle Coatings & Waterproofing, Incorporated. 900 Hensley Lane, Wylie, TX 75098. Phone 1-800-527-7092. Website http://www.carlisle-ccw.com :

A. Vapor Barrier Type: Fire Resist Barritech NP
B. Vapor-Permeable Type: Fire Resist Barritech VP

2.02 ACCESSORIES: Provide as manufactured by Carlisle Coatings & Waterproofing, Incorporated.

A. Detail Flashing: Fire Resist CCW-705 FR Strips. 40 mil thickness, fireresistant self-adhering flashing consisting of foil-faced glass laminated with fire-resistant butyl adhesive. Provided in rolls of various widths B. Contact Adhesive, select any:
    1. CCW-702 Solvent-Based
    2. CCW-702 LV VOC Compliant, Solvent-Based
    3. CCW-702 WB Water-Based
    4. CAV-GRIP™ Aerosol Spray
C. Detail Mastic: SURE-SEAL Lap Sealant
D. Transition Membrane: CCW SURE-SEAL Pressure-Sensitive Elastoform. 90 mil composite membrane consisting of 60 mils un-cured EPDM laminated with 30 mils of synthetic rubber pressure-sensitive adhesive. E. Transition Membrane Primer, select any:
    1. SURE-SEAL HP-250 Primer
    2. SURE-SEAL EP-95 Splicing Cement
    3. SURE-SEAL Low VOC EPDM Primer
F. Reinforcing Fabric: DCH Reinforcing Fabric. Woven polyester fabric offered in rolls of various widths
G. Glass Mat: LiquiFiber-W. Randomly-oriented glass strands held in watersoluble binder. Offered in rolls of various widths. H. Fill Compound, select either:
    1. CCW-703 V Modified polyurethane, 2-part
    2. CCW-201 Polyurethane, 2-part

2.03 RELATED MATERIALS BY OTHERS

A. Paintable Sealant, select any:
    1. Sikaflex-1A 1-part polyurethane sealant
    2. Sonneborn NP-1 1-part polyurethane sealant
    3. ChemLink Novalink 1-part polyether sealant
    4. Pecora AC-20 outdoor grade, acrylic latex sealant
    5. DAP ALEX PLUS outdoor grade, acrylic latex sealant
    6. Other product approved by air barrier manufacturer B. Silicone Sealant, select any:
    1. Dow 790, 791, 795
    2. Pecora 890, 891, 895
    3. GE Silpruf, Silpruf LM
    4. Other product approved by air barrier manufacturer C. Polyurethane Foam Sealant, select any:
1. Great Stuff by Dow Chemical Company
2. Froth Pack by Dow Chemical Company
3. Other product approved by air barrier manufacturer

D. Insulation Adhesive, select any
    1. Sonneborn Premium Adhesive
    2. QB-300 Multi-Pupose Construction Adhesive by OSI
    3. PL-300 VOC Foamboard Adhesive by Loctite
    4. Other product approved by air barrier manufacturer

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions affecting installation of the air & vapor barrier and accessory products for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing Work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected.
B. Verify that wall assemblies are dried in, such that water intrusion will not occur from above, behind or around the air barrier installation.
C. Concrete shall be cured for a minimum of seven days. It shall be smooth, with sharp protrusions such as form joints ground flush. Honeycomb and holes/cracks exceeding ¼ inch across shall be filled with grout or mortar.
D. Surfaces shall be sound, dry and free of oil, grease, dirt, excess mortar or other contaminants.
E. Surfaces shall be supported and flush at joints without large voids or sharp protrusions.
F. Mortar joints shall be struck flush and shall be free of voids exceeding ¼ inch across. Mortar droppings shall be removed from brick ties and all other surfaces accepting air barrier.
G. Sheathing boards shall be flush at joints, with gaps between boards according to building code and sheathing manufacturer's requirements. Sheathing boards shall also be securely fastened to the structure with proper fastener type, technique and spacing according to building code and sheathing manufacturer's requirements. Sheathing boards shall be repaired or replaced if inspection reveals moisture damage, mechanical damage or if sheathing boards have exceeded the exposure duration or exposure conditions as required by the sheathing manufacturer.
H. Plywood, OSB, lumber or pressure-treated wood moisture content, measured with a wood moisture meter in the core of the substrate, shall be below 20%.
I. Inform Architect [Consultant] [Owner] in writing of
    1. Cracks in concrete and masonry.
    2. Gaps or obstructions such as steel beams, angles, plates and projections which cannot be spanned or covered by Product or Accessories.
    3. Anticipated problems applying product and accessories over substrate.

3.02 SURFACE PREPARATION

A. Concrete masonry unit (CMU) wall shall be prepared as follows to accept the air & vapor barrier:
    1. Surfaces shall be free of contaminants such as grease, oil and wax on surfaces to receive membrane
    2. The CMU surfaces shall be free from projections.
    3. Strike all mortar joints flush to the face of the concrete block.

4. Fill all voids and holes greater than ¼ inch across at any point with mortar, sealant or other approved fill material.
5. Surface irregularities exceeding ¼ inch in height or sharp to touch shall be ground flush or made smooth.
6. Fill around all penetrations with mortar, sealant or other approved fill material and strike flush.
7. If the surfaces cannot be made smooth to the satisfaction of the Architect, it will be the responsibility of the trade to alternatively apply a parge coat (typically one part cement to three parts sand) over the entire surface to receive Air & Vapor Barrier Membrane
8. Remove mortar droppings on brick ties, shelf angles, brick shelves or other horizontal obstructions.

B. Fill cracks, gaps and joints exceeding ¼ inch width with fill compound or paintable sealant.
C. Fill rough gaps around pipe, conduit and similar penetrations with mortar, non-shrink grout, fill compound or polyurethane foam sealant shaved flush.
D. Apply a ¾ inch cant of fill compound at the intersection of the base of the wall and the footing.

3.03 DETAILING.

A. Additional materials and installation are required at joints, transitions, openings, terminations, penetrations and similar surface irregularities. Perform detailing before or after product installation.
B. Install product and accessories in details as directed in manufacturer's literature.
C. Sheathing joints, use any of the following methods:
   1. 4 inch detail flashing centered over joint.
   2. 4 inch reinforcing fabric imbedded in product and centered over joint.
   3. Paintable sealant or fill compound, tooled as shown in details.
D. Sheathing inside and outside corners. Flashing or reinforcement shall bear 3 inches minimum onto either side of angle change. Use any of the following methods:
   1. Minimum 9 inch detail flashing centered over angle change
   2. 12 inch reinforcing fabric centered over angle change and imbedded in product
   3. 12 inch glass mat centered over angle change and imbedded in product
E. Window openings. Flashing or reinforcement shall bear onto wall 3 inches minimum and shall return into window opening according to Project drawings. Use any of the following methods:
   1. Detail flashing
   2. Glass mat imbedded in product
F. Pipe or duct penetrations. Flashing or reinforcement shall bear onto wall 3 inches minimum and shall bear onto pipe or duct 3 inches, or according to Project drawings. Select any:
   1. Detail flashing
   2. Glass mat imbedded in product
G. Expansion or deflection joints. Flashing shall bear 3 inches minimum onto either side of joint. Select any:

1. Detail flashing bellows or expansion bulb
2. Transition membrane expansion bulb

H. Interface of dissimilar substrates: Flashing or reinforcement shall bear 3 inches minimum onto either side of joint. Select any:
   1. Minimum 9 inch detail flashing
   2. 12 inch reinforcing fabric imbedded in product
   3. 12 inch glass mat imbedded in product

3.04 INSTALLATION

A. Apply product over opaque wall surfaces as indicated in Project drawings.
B. Spray or roller-apply product to achieve specified thickness in accordance with manufacturer's literature.

3.05 SCHEDULE

A. Wall substrates and roof or temporary roof shall be in place, effectively enclosing interior space, before proceeding with air barrier installation.
B. Seal penetrations made through installed product according to manufacturer's instructions and drawings.
C. Seal fenestration to product with detail membrane, transition membrane, polyurethane sealant, silicone sealant or polyurethane foam sealant according to Project drawings
D. Through-wall flashing may be installed before or after product. Seal termination of metal through-wall flashing to product with 6 inch width counter-flashing strip consisting of any of these:
   1. Detail flashing
   2. Reinforcing fabric imbedded in product
   3. Glass mat imbedded in product E. Cladding shall be installed after product.
F. Rigid or semi-rigid insulation installed over product shall be attached with insulation adhesive and mechanical fastening according to insulation manufacturer and air barrier manufacturer's instructions.
G. Sequence Work to enable air barrier continuity at wall-to-foundation, shelf angle, wall-to-roof, fenestration, different wall assemblies and other conditions providing challenges to air barrier continuity.

3.06 REPAIR AND PROTECTION

A. Protect from damage during application and remainder of construction period.
B. Inspect before covering. Repair or replace damaged material according to manufacturer's literature.
C. Product and accessories are not designed for permanent exposure. Cover with insulation or exterior cladding as soon as schedule allows.
D. Outdoor exposure of installed product and accessories shall not exceed 180 days.

END OF SECTION

SECTION 07460 – CEMENTITIOUS SIDING AND PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fiber cement lap siding, panels, shingle, trim, fascia, moulding and accessories; James Hardie HZ10 Engineered for Climate Siding.

B. Factory-finished fiber cement lap siding, panels, shingle, trim, fascia, moulding and accessories; James Hardie HZ10 Engineered for Climate Siding.

1.2 RELATED SECTIONS

A. Section 05400 - Cold-Formed Metal Framing.

B. Section 06100 - Rough Carpentry.

C. Section 07210 - Rockwool Insulation.

D. Section 09250 – Gypsum Sheathing

1.3 REFERENCES

A. AS D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.

B. AS E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings: Provide detailed drawings of atypical non-standard applications of cementitious siding materials which are outside the scope of the standard details and specifications provided by the manufacturer.

D. Selection Samples:For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches (100 by 150 mm), representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.

B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Remodel mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Product Warranty: Limited, non-pro-rated product warranty.
1. HardiePlank HZ10 lap siding for 30 years.
2. HardiPanel HZ10 vertical siding for 30 years.
3. HardieTrim HZ10 boards for 15 years.

B. Finish Warranty: Limited product warranty against manufacturing finish defects.
1. When used for its intended purpose, properly installed and maintained according to Hardie's published installation instructions, James Hardie's ColorPlus finish with ColorPlus Technology, for a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip. Finish warranty includes the coverage for labor and material.

C. Workmanship Warranty: Application limited warranty for 2 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: James Hardie Building Products, Inc., which is located at: 231 S. La Salle St. Suite 2000; Chicago, IL 60604; Toll Free Tel: 877-236-7526; Email: request info (info@jameshardie.com); Web: www.jameshardiepros.com | www.jameshardie.com

B. Substitutions: Not permitted.

C. Requests for approval of equal substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 SIDING AND TRIM

A. HardiePlank HZ10 lap siding requirement for materials:

1. Fiber-cement siding - complies with ASTM C 1186 Type A Grade II.
2. Fiber-cement siding - complies with ASTM E 136 as a noncombustible material.
3. Fiber-cement siding - complies with ASTM E 84 Flame Spread Index = 0, Smoke Developed Index = 5.
4. ICC-ES evaluation reports ESR-2290, ESR-1844, and ESR-2273 (IBC, IRC, CBC, CRC)
5. Texas Department of Insurance Product Evaluation EC-23.

B. Cement Cladding Panels: Hardie Reveal Panel as manufactured by James Hardie Building Products, Inc. 7/16 inches thick, 3 feet 11.5 inches (1206 mm) wide by 7 feet 11.5 inches (2426 mm) long. Product shall be engineered for climate conditions.

1. Manufacturer's Climate Zone Product: HZ10 for hot humid and wet climates with a yellow tint primer.

C. 2X Smooth HardieTrim:
1. 2X Smooth HardieTrim manufactured by James Hardie Building Products, Inc.
2. Overall Thickness: 1-1/2 in (38 mm).
3. Width: 3-1/2 inch (89 mm).
4. Width: 5-1/2 inch (140 mm).
5. Width: 7-1/4 inch (184 mm).
6. Width: 9-1/4 inch (235 mm).
7. Width: 11-1/4 inch (286 mm).
8. Texture: Smooth.

2.3 FURRING (STRAPPING)

A. Z-Clips:
1. Size 1-1/2"
2. Gauge: 16 ga.
3. Finish: G90

B. Rainscreen Cavity: Install Hardie Reveal Panels on a drained and vented rainscreen cavity, with a minimum 3/4 inch (19mm) air cavity. Selection of cavity vent materials shall be incorporated into the design to prevent insect and pest entry.

2.4 ACCESSORIES

A. Trims: Reveal™ Trims manufactured by Custom Aluminum of Elgin, IL in the following profiles supplied by James Hardie. Aluminum alloy 6063-T5 with a minimum thickness of 0.050 inch. All reveal trims are 8 feet in length.
1. Surround horizontal trim.
2. Surround vertical trim.
3. Surround horizontal end cut transition trim.
4. Surround outside corner trim.
5. Surround inside corner trim.
6. Surround J channel trim.
7. Surround drainage flashing.

2.5 FASTENERS

A. Metal Framing:
1. Metal Framing: 1-1/4 inches (32 mm) No. 8-18 by 0.375 inch (9.5 mm)

head self-drilling, corrosion resistant S-12 ribbed buglehead screws.

2. Metal Framing: 1-5/8 inches (41 mm) No. 8-18 by 0.323 inch (8.2 mm) head self-drilling, corrosion resistant S-12 ribbed buglehead screws.

3. Metal Framing: 1 inch (25 mm) No. 8-18 by 0.323 inch (8.2 mm) head self-drilling, corrosion resistant ribbed buglehead screws.

4. Metal Framing: 1 inch (25 mm) No. 8-18 by 0.311 inch (7.9 mm) head self-drilling, corrosion resistant S-12 ribbed buglehead screws.

5. Metal Framing: 1.5 inch (38mm) [AGS-100] .100 inches by 25 inches (2540 mm by 635 mm) ET&F Pin or equivalent pneumatic fastener.

2.6 FINISHES

A. Factory Primer: Provide factory applied universal primer.

1. Primer: Factory primed by James Hardie.

2. Topcoat: Refer to Section 09 90 00 - Painting and Coating and Exterior Finish Schedule.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Nominal 2 inch by 4 inch (51 m by 102 mm) wood framing selected for minimal shrinkage and complying with local building codes, including the use of water-resistive barriers or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.

1. Install water-resistive barriers and claddings to dry surfaces.

2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.

3. Protect siding from other trades.

D. Minimum 20 gauge (33 mm) 3-5/8 inch (92 mm) C-Stud 16 inches maximum on center or 16 gauge (54 mm) 3-5/8 inches (92 mm) C-Stud 24 inches (610 mm) maximum on center metal framing complying with local building codes, including the use of water-resistive barriers and/or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.

1. Install water-resistive barriers and claddings to dry surfaces.

2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.

3. Protect siding from other trades.

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.

C. Install a water-resistive barrier is required in accordance with local building code requirements.

D. The water-resistive barrier must be appropriately installed with penetration

and junction flashing in accordance with local building code requirements.

E. Install Engineered for Climate HardieWrap weather barrier in accordance with local building code requirements.

F. Use HardieWrap Seam Tape and joint and laps.

G. Install and HardieWrap flashing, HardieWrap Flex Flashing.

3.3 INSTALLATION - HARDIEPLANK HZ10 LAP SIDING WITH LOCK JOINT SYSTEM

A. Install materials in strict accordance with manufacturer's installation instructions.

B. Starting: Install a minimum 1/4 inch (6 mm) thick lath starter strip at the bottom course of the wall. Apply planks horizontally with minimum 1-1/4 inches (32 mm) wide laps at the top. The bottom edge of the first plank overlaps the starter strip.

C. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.

D. Align vertical joints of the planks over framing members.

E. Butt joints must not fall within 4 inches (102 mm) of a stud. Do not nail within 2 inches (51 mm) of the end of planks.

F. Maintain clearance between siding and adjacent finished grade.

G. Locate splices at least one stud cavity away from window and door openings.

H. For proper fastener selection and fastening schedules for various wind load requirements and framing options, refer to the Technical Data Sheet at www.aspyredesign.com.

I. Face nail to sheathing.

J. Locate splices at least 12 inches (305 mm) away from window and door openings.

3.4 INSTALLATION – HARDIEPANEL

A. Fastening Method: Countersunk and filled.
B. Place fasteners no closer than 3/4 inch (9.5 mm) from panel edges and 2 inches (51 mm) from panel corners.
C. Use fasteners as specified in the James Hardie Tech Data sheet and in the Hardie Reveal Panel Installation Instruction.
D. Install panel using 1/2 inch (13 mm) spacers at horizontal joints. Leave bottom edge of panel above all horizontal trims exposed, no caulking shall be placed at this overlap of Horizontal Reveal Trim. Factory primed edge shall always be used.
E. Install a kickout flashing to deflect water away from the siding at the roof intersection.
F. Install a self-adhering membrane on the wall before the subfascia and trim boards are nailed in place, and then install the kickout.
G. Allow minimum vertical clearance between the bottom edge of siding and any other material in strict accordance with the manufacturer's installation instructions and as determined by James Hardie Zone.

H. Maintain clearance between siding and adjacent finished grade.

I. Specific framing and fastener requirements - refer to the applicable building code compliance reports.

3.5 INSTALLATION - HARDIETRIM HZ10 BOARDS

A. Install materials in strict accordance with manufacturer's installation instructions. Install flashing around all wall openings.

B. Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate minimum 3/4 inch (19 mm) or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.

C. Place fasteners no closer than 3/4 inch (19 mm) and no further than 2 inches (51 mm) from side edge of trim board and no closer than 1 inch (25 mm) from end. Fasten maximum 16 inches (406 mm) on center.

D. Maintain clearance between trim and adjacent finished grade.

E. Trim inside corner with a single board trim both side of corner.

F. Outside Corner Board Attach Trim on both sides of corner with 16 gage corrosion resistant finish nail 1/2 inch (13 mm) from edge spaced 16 inches (406 mm) apart, weather cut each end spaced minimum 12 inches (305 mm) apart.

G. Allow 1/8 inch gap between trim and siding.

H. Seal gap with high quality, paint-able caulk.

I. Shim frieze board as required to align with corner trim..

J. Fasten through overlapping boards. Do not nail between lap joints.

K. Overlay siding with single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten HardieTrim boards to HardieTrim boards.

L. Shim frieze board as required to align with corner trim.

M. Install HardieTrim Fascia boards to rafter tails or to sub fascia.

3.6 FINISHING

A. Finish unprimed siding with a minimum one coat high quality, alkali resistant primer and one coat of either, 100 percent acrylic or latex or oil based, exterior grade topcoats or two coats high quality alkali resistant 100 percent acrylic or latex, exterior grade topcoat within 90 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

B. Finish factory primed siding with a minimum of one coat of high quality 100 percent acrylic or latex or oil based exterior grade paint within 180 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

3.7 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07520 - MODIFIED BITUMINOUS SHEET ROOFING

PART 1 - GENERAL

1. 1 WORK INCLUDED
- A. Modified bitumen sheet roofing
- B. Flashings

1. 2 RELATED WORK
- A. Section 07210 – Roof and Deck Insulation
- B. Section 06100 - Rough Carpentry
- C. Section 07600 - Flashing and Sheet Metal

1. 3 SYSTEM DESCRIPTION
- A. Modified Membrane roofing system: One-ply fiberglass base sheet over tapered insulation fill, One-ply of torch-applied 85-mil thick SBS (styrene-butadiene-styrene) rubber modified base sheet, One-ply of torch-applied 160mil thick SBS rubber, mineral surfaced, dual fiberglass scrim reinforced, modified roof membrane. 160 mil torch-applied SBS mineral surfaced, dual fiberglass scrim reinforced, rubber modified roof membrane flashings.

1. 4 REFERENCES
- A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)Roofing Terminology: Refer to ASTM D 1079 for definitions of terms related to roofing work not otherwise defined in this Section.

  ASTM D 41 1994 Asphalt Primer Used in Roofing, Damproofing, and Waterproofing

  ASTM D 2178 1997a Asphalt Glass Felt Used in Roofing and Waterproofing.

  ASTM D 2822 1997e1 Asphalt Roof Cement.

  ASTM D4897-0100 Asphalt Coated Glass Fiber Venting Base Sheet Used in Roofing

  ASTM D6163-0100 Styrene Butadiene Styrene (SBS) Modified Bituminous
  Sheet Materials Using Glass Fiber Reinforcements

  ASTM D5147 2001a Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material.
  ASTM E108-00 Test Methods for Fire Test of Roof Coverings.
- B. FACTORY MUTUAL GLOBAL RESEARCH, FACTORY MUTUAL APPROVALS0(FMG) .

  FM A/S4470 Class 1 Roof Covers

1. 5 REGULATORY REQUIREMENTS
- A. Fire Rating: Provide modified bitumen roof system and component materials that have been tested for application and slopes indicated and are listed by Factory Mutual Corporation to comply with Standard No.4470 Approval requirements for Class 1 Fire. and 1-90 Windstorm Classification.

B. Wind Uplift Rating: Complies with IBC (latest version) and Structural Wind Design Pressures.

C. Provide roof-covering materials bearing Factory Mutual Classification Marking on bundle, package, or container indicating that materials have been produced under FM's Classification and Follow-up Service.

1. 6 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

B. Manufacturer's Certification: The Manufacturer's Certification Form must be signed by a corporate officer of the roofing system manufacturer with the Corporate Seal affixed thereto.

C. Product data for each type of product specified include manufacturer's technical product data, installation instructions, and recommendations for each type of roofing product required. Include data substantiating that materials comply with specified requirements.

D. For all modified bituminous sheet roofing include independent test data according to ASTM Designation D 514797 “Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material”, substantiating that materials comply with specified requirements.

E. Factory Mutual 4470 Certification

F. Samples of the following: Minimum, 3by5inch samples of each colored modified bituminous mineral surfaced cap sheet and flashing materials to be exposed as finished roof surface.

G. Manufacturer's ISO 9001 Certification.

H. Manufacturer's Warranty: Submit sample copy of specified roofing manufacturer's “Thirty (30) Year Warranty".

I. Manufacturer’s Inspection Reports: The Roofing System Manufacturer will provide, when the project is in progress the following:

1. Keeping the Architect informed as to the progress and quality of the work as observed.
2. Provide jobsite inspections at least two (2) times a week.
3. Provide detailed weekly reports to the Architect along with digital photographs of work in progress. All reports and photographs shall be descriptive of actual work in progress and be presented in a pre-approved manner.
4. Reporting to the Architect in writing, any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.
5. Confirming, after completion of the project and based on manufacturer's observations and tests, that manufacturer has observed no application procedures in conflict with the specifications other than those that may have been previously reported. Submit product data and shop drawings under provisions of Section 01300.

1. 7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Roofing system manufacturer shall be ISO 9001 Certified and have a minimum of 10 years experience in manufacturing modified bitumen roofing products in the United States. Show evidence that the products and materials are manufactured in the United States and that materials provided conform to all requirements specified herein, and are chemically and physically compatible with each

other and are suitable for inclusion within the total roof system specified herein.

B. Installer Qualifications: Installer (Roofer) shall be specializing in Built-up bituminous roof application with minimum 5 years' experience and who is currently authorized by modified bituminous sheet roofing system manufacturer as qualified to install manufacturer's roofing materials. Any one or more of the following causes may be considered sufficient for the disqualification of installer:
   1. Lack of responsibility as revealed by either financial, experience or equipment statements.
   2. Lack of expertise as shown by past work and judged from the standpoint of workmanship and performance history.
   3. Uncompleted work under other contracts which, in the judgment of the Owner, might hinder or prevent the prompt completion of additional work if awarded.
   4. Being in arrears on existing contracts, in litigation with an Owner, or having defaulted on a previous contract.

C. Installer's Field Supervision: Installer to maintain a full-time supervisor/foreman on job site during all phases of modified bituminous sheet roofing work and at any time roofing work is in progress, proper supervision of workmen shall be maintained. A copy of the Specifications shall be in the possession of the supervisor/foreman at all times.

D. Pre-application Roofing Conference:0Before scheduled commencement of modified bitumen sheet roofing installation and associated work, meet at Project site with Installer, installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in and around roofing that must precede or follow roofing work (including mechanical work if any), Architect, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including test agencies, and governing authorities. Review foreseeable methods and procedures related to roofing work, including but not necessarily limited to the following:
   1. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations, and other preparatory work.
   2. Review roofing system requirements (drawings, specifications, and other contract documents).
   3. Review required submittals, both completed and yet to be completed.
   4. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   5. Review required inspection, testing, certifying, and material usage accounting procedures.
   6. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not a mandatory requirement).

   Record (Contractor) discussions of conference, including decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be

resolved and set date for reconvening conference.

E. Roofing Drain Watertightness Testing Standard: ASTM D5957-98

1. Standard Guide for Flood Testing Horizontal Waterproofing Installations. ASTM D5957-98(2013) illustrates a method for testing the water-tightness of waterproofing installations applied to horizontal surfaces having a slope of no greater than 20 mm/m (2% slope) (1/4” per ft).

1. 8 EQUIPMENT SAFEGUARDS

A. Proper equipment is to be used to heat roofing membranes. Torches should be equipped with a pilot adjustment, flame height adjustment, 25 to 50 ft. of Approved or listed hose, pressure gauge and regulator. A spark igniter should be used. Torch trolleys and multiple torch head machines should be equipped with listed safety valves.

B. Safety caps are to be tied to all propane cylinders and installed on the valves whenever cylinders are not in use. Carts used to transport propane cylinders should be stable. Tall, narrow, standing cylinders should be chained against walls or in proper carts.

C. The propane cylinder should be adequately sized for the torch used. If frost buildup occurs on propane cylinders and the rate of vapor withdrawal is no longer adequate for operating conditions, the cylinder should not be placed on its side or heated with the torch flame. The hose should be disconnected and a larger cylinder used. Liquid propane cylinders may be of either the vapor withdrawal or liquid withdrawal type. With the vapor withdrawal type, vapor is drawn off from the torch head. Vapor withdrawal cylinders are equipped with female cylinder valves. Liquid withdrawal cylinders transfer the liquid, via a siphon tube, from the cylinder to the torch head where it is vaporized. Liquid withdrawal cylinders have male cylinder valves, which may be equipped with adapters.

D. Frost buildup only occurs with vapor withdrawal cylinders. This buildup can be the result of an undersized cylinder or low air temperatures. When vapor is dawn off more quickly than it is replaced, heat is absorbed and frost buildup occurs on the outside of the cylinder. Vapor pressure then further declines. Consequently, liquid withdrawal cylinders are preferred. However, if vapor withdrawal cylinders are used, or if the temperatures are low (below 20°F, -7°C), 40 or 100 lb (18.2 or 45.5 kg) cylinders should be used with larger torches (such as those used in the field of the roof).

E. Equipment should be thoroughly inspected and repaired or replaced as needed. Propane cylinders should be inspected for dents. If dents larger than 1 in. (25 mm) in diameter are found, the cylinder should be replaced. Torch and cylinder connectors should be visually inspected and checked for leaks with soap and water solution. An open flame should not be used to test for leaks.

F. Leaky equipment should not be used. Regulators adjustments and pressure gauges should be checked to assure they are operable. The vent on the regulator should be checked to assure it is not blocked. If an unstable flame occurs (one which roars loudly and tends to blows itself out), the equipment should be repaired or replaced immediately.

G. Propane cylinders should not be hoisted by their valves. Straps placed around the cylinders should be utilized.

H. A fire watch should be conducted for at least one hour after torch work has been completed. All roof areas worked on should be checked for hot

spots and signs of smoldering. If available, infrared roof scanners should be used. The inside of the building should also be inspected for signs of fire and smoke. All “hot spots” or fires, even if extinguished, should be reported to the fire department. Smoldering may continue after extinguishment, may take place for hours before flaming begins, and may take place in areas unsuspected by the layman.

1. 9 FIRE EXTINGUISHING EQUIPMENT

A. There should be at least one 10 lb (4.5 kg) multipurpose dry chemical portable extinguisher within 20 ft. (6.1 m) horizontal travel distance of torch-applied roofing equipment. For large roof areas, additional protection such as charged hose lines or additional extinguishers should be provided as practical.

1.10 FUEL HANDING SAFEGUARDS

A. Fuel containers, burners and related appurtenances of roofing equipment in which liquefied petroleum gas is used for heating should comply with NFPA58, *Standard for Storage and Handling of Liquefied Petroleum Gases.*

B. All fuel containers should be located at least 10 ft. (3 m) from the burner flame or at least 2 ft. (0.6 m) away when properly insulated from heat or flame.

1.11 INSTALLATION SAFEGUARDS

A. The flame from a hand-held torch should be constantly moved from side to side. The exposed outer surface of the membrane coil should be heated until a slight sheen develops.

B. Caution should be used when working around roof openings, penetrations or flashings. Wood nailers, cant strips and metal flashing should not come in direct contact with the flame of the torch. Small detail torches should be used to heat the underside of the membrane away from these areas before securement.

C. The torch should not be used in areas where the flame impingement cannot be fully viewed. Back-heat and flop the material when flame is not visible.

D. Extreme caution is to be used near penetrations such as exhaust vents. Air conditioning units and ventilating fans should be shut down before torch work is done in surrounding areas.

E. Feather seams around details with heated trowel.

F. Expansion joints should be filled with mineral wool or ceramic fiber with a steel cover plate below.

G. No full-time torches should be used under any circumstances.

H. A torch stand is to be used to direct the flame upward when momentarily not in use.

I. The cylinder valve should be closed to burn off propane in the line before shutting of the torch head. The gas supply should be shut off whenever a propane odor is detected.

J. Torches should not be used near gas lines, electrical wires or flammable liquids during roof construction.

K. When foam plastic, kraft-faced glass fiber or wood fiber insulation or cant strips, or plastic fasteners are to be used, they should be covered with a minimum 40 lb base sheet adhered with hot asphalt before the torch applied membrane is installed.

L. Torch flames should not come in contact with exposed plastic roofing cement.

1.12 WARRANTY

A. Manufacturer's Warranty: “Thirty (30) year Warranty", signed by a corporate officer of the corporation of modified bitumen sheet roofing system manufacturer, will pay all authorized cost or repair to the roof membrane system necessary to stop any leaks which occur during a Thirty (30) year period from the date of completion. Leaks which occur only as a result of the following will be repaired:
   1. Deterioration of the roofing system or flashing system resulting from ordinary wear and tear by the elements.
   2. Workmanship on the part of the authorized roofing contractor in the application of the roofing system.
   3. Splits or breaks in the roofing system which are not caused by structural movement or failure.
   4. Failure or movement of any material underlying the roofing system or base flashing.
   5. Blisters, wrinkles, ridges, fish mouths or open laps in the roofing system.
   6. Slippage of the roofing system or flashing system.

B. Contractor’s warranty: Provide two-year warranty in accordance with Section 01705.

1.13. DESIGN AND PERFORMANCE CRITERIA

A. Uniform Wind Uplift Load Capacity

1. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria.
   Attachment shall be installed exactly as given in article 3.03.

   a. Design Code: 2018 IBC Edition

   b. Risk Category III.

   c. Wind Exposure Category - C

   d. Wind Speed: 120 mph

   e. Internal Pressure Coefficient +/- 0.18

   f. Kzt = 1.0

   g. Kd = 0.85

Roof Area	**Design Uplift Pressure**
Zone 1 - Field of roof	25 psf
Zone 2 – Eaves and rakes	33 psf

Zone 3 - Corners 45 psf

(Edge Zone Width 3'-5"')

PART 2 - PRODUCTS

2. 1 GENERAL

A. When a particular performance standard is specified, it shall be indicative of a minimum standard required. Products not meeting these minimum performance requirements, shall not be bid and will not be considered.

B. Provide as listed or approved substitution. All request for substitution must be submitted at least 7 DAYS prior to bidding and shall include the Substitution Request Form attached to the end of this Section.

C. Obtain primary products, including each type of roofing sheet, bitumen, membrane flashings from a single manufacturer. Provide secondary products as recommended by manufacturer of primary products for use with roofing system specified.

2. 2 SHEET MATERIALS

A. Fiberglass Base Sheet: ASTM D-4601, Tested in accordance with D 5147 with mineral surfacing that meets the following minimum requirements:

Equal to Firestone Basegard SA Base Sheet

Thickness:	70 mil
Bottom Side Coating	20 mil
Maximum Load:	25 lbf/in.
Elongation:	10%
Tear Resistance	20 lbf
Sealability around Nail	Pass

B. SBS Modified Torch Base Sheet: SBS (styrene-butadiene-styrene), rubber membrane, reinforced with dual fiberglass scrim designed for torching applications, conforming to the following minimum performance requirements according to ASTM D-6164, Type I, Grade S and ASTM D 5147 @ 73° F:

Equal to Firestone SBS Torch Base

	Machine Direction	Cross Machine Direction
Tensile Strength	160 lbf/in.	90 lbf/in.
Elongation at Peak Load	40 %	40 %
Tear Strength	60 lbf	60 lbf
Low Temp. Flex.	Passes -15° F	
Thickness	120 mils	

C. Modified Bitumen Cap Sheet Membrane: mineral surfaced SBS (styrene-butadiene-styrene), rubber modified roof membrane; reinforced with a dual fiberglass scrim designed for torching applications, conforming to the following minimum performance requirements according to ASTM D-6164, Type II, Grade G and ASTM D-5147 @ 73° F:

Equal to Firestone Premium FR Torch – Ultra White finish

	Machine Direction	Cross Machine Direction
Tensile Strength	75 lbf.	75 lbf

Elongation at Peak Load	55 %	55 %
Tear Strength	75 lbf	75 lbf
Low Temp. Flex.	Passes -15° F	
Thickness	160 mils	
Solar reflectivity	71%	

D. Modified Bitumen Flashing Membrane: mineral surfaced SBS (styrene-butadiene-styrene), rubber modified roof membrane; reinforced with a dual fiberglass scrim designed for torching applications, conforming to the following minimum performance requirements according to ASTM D-6164, Type II, Grade G and ASTM D-5147 @ 73° F:

	Machine Direction	Cross Machine Direction
Tensile Strength	75 lbf.	75 lbf
Elongation at Peak Load	55 %	55 %
Tear Strength	75 lbf	75 lbf
Low Temp. Flex.	Passes -15° F	
Thickness	160 mils	
Solar reflectivity	71%	

2. 3 BITUMINOUS MATERIALS

A. Asphalt Primer: ASTM D 41, V.O.C compliant.

B. Asphalt Roofing Mastic: ASTM D 4586, Type II, V.O.C compliant.

2. 4 CANTS

A. Fiberglass cant strips preformed to a 45 degree angle with nominal horizontal and vertical lengths, as acceptable to the primary membrane manufacturer.

B. Wood Cants: Specified in Section 06100

2. 5 FASTENERS

A. General:

1. Exposed fasteners shall be hex head stainless steel self-tapping screws with stainless steel jacketed neoprene washers.

2. Fasteners shall be compatible with all materials with which they come in contact so that dielectric corrosion does not occur.

B. Base Sheet Fasteners: per test report complying with IBC and Structural Engineer Design Wind Pressures.

2. 6 ACCESSORIES

A. Parapet Flashing: Firestone SBS Metal Flashing AL

B. Electrical / Gas Roof Penetration Fittings: Nicholson Roofport RP 150 / RP 110SBS

C. HVAC Protection Pad: Manufacturer's Modified Cap sheet or product approved by membrane manufacturer.

D. Sealant: One component gun-grade sealant, ASTM C-920-87, Federal Specification TT-S-00230-C.

PART 3 - EXECUTION

3. 1 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Beginning of installation means installer accepts existing surfaces.
C. Verify under deck conditions are clear for fastener installation.

3. 2 GENERAL INSTALLATION REQUIREMENTS

A. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing modified bitumen sheet roofing system.
B. Protect other work from spillage of modified bitumen roofing materials, and prevent liquid materials from entering or clogging drains and conductors. Replace or restore other work damaged by installation of modified bituminous sheet roofing system work.
C. Code Compliance: Where required, install and test modified bitumen sheet roofing system to comply with governing regulations and specified requirements.
D. Coordinate installing roofing system components so that insulation and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut offs at end of each day's work to cover exposed ply sheets and insulation with a course of coated felt with joints and edges sealed with roofing cement. Remove cut offs immediately before resuming work.
E. Apply roofing materials as specified herein unless recommended otherwise by manufacturer's instructions. Keep roofing materials dry before and during application. Do not permit phased construction. Complete application of roofing plies, cap sheet and flashing in a continuous operation. Begin and apply only as much roofing in one day as can be completed that same day.
F. Water Cutoffs: At end of each day's roofing installation, protect exposed edge of incomplete work, including ply sheets and any insulation. Provide temporary covering of one ply of torch base sheet; remove at beginning of next day's work. Seal off flutes in metal decking along cut off edge. Pull membrane free or cut to expose the insulation when resuming work, and remove the insulation sheets used for filling.

3. 3 TORCH BASE SHEET UNDERLAYMENT INSTALLATION

A. Install one layer of SBS Torch Base Sheet to venting base sheet, Shingle in proper direction to shed water on each area of roofing.
B. To the above substrates, lay out the roll in the course to be followed and unroll six (6) feet.
C. Using a roofing torch, heat the surface of the coiled portion until the burn-off backer melts away. At this point, the material is hot enough to lay into the substrate. Progressively unroll the sheet while heating and press down with your foot to insure a proper bond.
D. After the major portion of the roll is bonded, re-roll the first six (6) feet and bond it in a similar fashion.
E. Repeat this operation with subsequent rolls with side laps of four (4) inches and end laps of eight inches.
F. Give each lap a finishing touch by passing the torch along the joint and spreading the melted bitumen evenly with a rounded trowel to insure a smooth, tight seal.
G. Extend underlayment two (2) inches beyond top edges of cants at wall and projection bases.
H. Install base flashing ply to all perimeter and projections details.

3. 5 MINERAL SURFACED SBS MODIFIED MEMBRANE APPLICATION

A. Over the SBS Torch Base Sheet underlayment, lay out the roll in the course to be followed and unroll six (6) feet. Seams for the top layer of modified membrane will be staggered over the SBS Torch Base Sheet seams.

B. Using a roofing torch, heat the surface of the coiled portion until the burn-off backer melts away. At this point, the material is hot enough to lay into the substrate. Progressively unroll the sheet while heating and press down with your foot to insure a proper bond.

C. After the major portion of the roll is bonded, re-roll the first six (6) feet and bond it in a similar fashion.

D. Repeat this operation with subsequent rolls with side laps of four (4) inches and end laps of eight (8) inches.

E. Give each lap a finishing touch by passing the torch along the joint and spreading the melted bitumen evenly with a rounded trowel to insure a smooth, tight seal.

3. 6 BASE FLASHING INSTALLATION

A. All base flashings are to be installed and completed on a daily basis. No condition should exist that will permit moisture entering behind, around, or under the roof or flashing membrane.

B. Prepare all walls, penetrations and expansion joints to be flashed and where shown on the drawings, with asphalt primer at the rate of .75 to 1 gallon per square. Allow primer to dry tack free.

C. The heat fused flashing membrane will be adhered to an underlying base ply of Self-Adhering Fire Retardant base sheet where indicated, or Torch Base Sheet nailed off at all vertical surfaces where shown on the drawings.

D. The entire sheet of flashing membrane must be heated to the point when surface bitumen melts and begins to flow. Both surfaces along the lap areas shall be heated. The heated area will immediately be worked into place and securely bonded.

E. Seal all vertical laps of flashing membrane with an additional ply of 8inch wide flashing membrane. All laps must be tested with a round nosed trowel putting pressure against the side lap to insure that a complete, positive bond has been achieved and to protect against a superficially closed lap.

F. After the laps have been tested, and a complete positive bond has been achieved, the applicator shall heat the seam edge and trowel along the seam edge. Troweling shall continue until a sloped, beveled edge has been produced.

G. Secure top of flashing membrane with termination bar and fasten 8 inches o. c.

H. Factory fabricated flashings, cap flashings and similar work to be coordinated with modified bitumen roofing work are specified in other Sections.

I. Miscellaneous sheet metal accessory items, including piping vents to be coordinated with modified bituminous roofing system work, are specified in other Sections.

3. 7 PROTECTION

A. During execution of work covered by this Section, the Contractor shall provide protection for equipment, materials, inside and outside the building against falling debris, sparks, and water. Protection shall be

provided in a manner to minimize interference, interruption, and inconvenience to other trades.

B. Protect building surfaces against damage from roofing work.

C. All workmen shall wear clean, soft rubbersoled shoes for any application work where they may be walking on the in-place roofing membrane. Precautions shall be taken to protect the membrane and to maintain a clean appearance. Protect roofing during remainder of construction period.

D. At end of construction period, or at a time when remaining construction will in no way affect or endanger roofing, inspect roofing and prepare a written report, with copies to Owner, describing nature and extent of deterioration or damage found.

3. 8 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with Installer, installer of associated work. Owner, Architect, roofing system manufacturer's representative and other representatives directly concerned with performance of roofing system.

B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party attending.

C. Contractor to perform Roof Drain Flood Testing according to ASTM D5957-98(2013) – Standard Guide for Flood Testing Horizontal Waterproofing Installations. ASTM D5957-98(2013) illustrates a method for testing the water-tightness of waterproofing installations applied to horizontal surfaces having a slope of no greater than 20 mm/m (2% slope) (1/4” per ft). Testing is to confirm no leaks at the connection between roofing and plumbing roof drain. Contractor to include photos of testing with monthly reports.

D. The Owner, Architect and Roofing System Manufacturer reserve the right to request a certified photographic and recorded thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan and photographic records shall be provided by the Roofing Contractor free of charge.

E. If core cuts verify the presence of damp or wet materials, the Roofing Contractor shall be required to replace the damaged areas at his own expense.

F. Repair or replace (as required) deteriorated or defective work found at time of above inspection to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

G. The Contractor is to notify the Architect upon completion of corrections.

H. Following the final inspection, acceptance will be made in writing by the material manufacturer.

3. 9 CLEANING

A. Remove drippage of the bitumen adhesives from all walls, windows, floors, ladders, and finished surfaces.

B. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.

SECTION 07600 - SHEET METAL FLASHING AND TRIM

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Provide all labor, equipment, and materials to fabricate and install the following.

1. Edge strip and flashing.

2. Fascia and trim.

3. Coping cap at parapets.

4. Fascia and edge metal.

B. Related Work Specified Elsewhere:

1. Division 06 Rough Carpentry

2. Division 07 Modified Bituminous Membrane Roofing

3. Division 07 Roof Accessories

4. Division 07 Roof & Deck Insulation

5. Division 07 Manufactured Metal Roof Panels

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

2. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

B. American National Standards Institute and Single Ply Roofing Institute (ANSI/SPRI)

1. ANSI/SPRI ES-1 Testing and Certification Listing of Shop Fabricated Edge Metal

C. Warnock Hersey International, Inc., Middleton, WI (WH)

D. Factory Mutual Research Corporation (FMRC)

E. Underwriters Laboratories (UL)

F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

1. Latest Edition Architectural Sheet Metal Manual

2. Roofing and Waterproofing Manual

G. National Roofing Contractors Association (NRCA)

H. American Society of Civil Engineers (ASCE)

1. ASCE 7-05 Minimum Design Loads for Buildings and Other Structures.

1.4 SUBMITTALS FOR REVIEW

A. Product Data:

1. Provide manufacturer's specification data sheets for each product.

2. Metal material characteristics and installation recommendations.

3. Submit color chart prior to material ordering and/or fabrication so that equivalent colors to those specified can be approved.

B. Samples: Submit two (2) samples, illustrating typical metal edge, coping, gutters, fascia extenders for material and finish.

C. Shop Drawings

1. For manufactured and shop fabricated gravel stops, fascia, scuppers, and all other sheet metal fabrications.

2. Indicate material profile, jointing pattern, jointing details, fastening methods, flashing, terminations, and installation details.

3. Indicate type, gauge and finish of metal.

D. Specimen Warranty: Provide an unexecuted copy of the warranty specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner.

1.5 SUBMITTALS FOR INFORMATION

A. Design Loads: Any material submitted must be accompanied by a report signed and sealed by a professional engineer licensed in the

state of Texas. This report shall show that the submitted equal meets the wind uplift and perimeter attachment requirements according to ASCE 7-05 and ANSI/SPRI ES-1. Submitals without licensed engineer approval will be rejected for non-conformance.

B. A letter from an officer of the manufacturing company certifying that the materials furnished for this project are the same as represented in tests and supporting data.

C. Mill production reports certifying that the steel thicknesses are within allowable tolerances of the nominal or minimum thickness or gauge specified.

D. Certification of work progress inspection. Refer to Quality Assurance Article below.

E. Certifications:

1. Submit certification that the perimeter/edge metal products being used on this project have been tested according to ANSI/SPRI ES-1 criteria. Certification submitted must be provided by either NRCA, Independent Test Agency or the perimeter/edge metal manufacturer.

1.6 QUALITY ASSURANCE

A. Engage an experienced roofing contractor specializing in sheet metal flashing work with a minimum of five (5) years experience.

B. Maintain a full-time supervisor/foreman who is on the job-site at all times during installation. Foreman must have a minimum of five (5) years experience with the installation of similar system to that specified.

C. Upon request fabricator/installer shall submit work experience and evidence of financial responsibility. The Owner's representative reserves the right to inspect fabrication facilities in determining qualifications.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.

B. Stack pre-formed and pre-finished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials which may cause discoloration or staining.

1.8 PROJECT CONDITIONS

A. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage requirements for pre-formed metal edge system.

1.9 DESIGN AND PERFORMANCE CRITERIA

A. Wind Uplift Pressures: Metal edge system must meet minimum design load pressures as determined by ASCE 7. Provide completed calculations to show ANSI/SPRI ES-1 test results meet the minimum wind uplift pressures.

B. Thermal expansion and contraction:

1. Completed metal edge flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.

1.10 WARRANTIES

A. Owner shall receive one (1) warranty from manufacturer covering all of the following criteria. Multiple warranties are not acceptable.

1. Pre-finished aluminum material shall require a written twenty (20)-year non-prorated warranty covering fade, chalking and film integrity. The material shall not show a color change greater than 5 NBS color units per ASTM D2244 or chalking excess of 8 units per ASTM D659. If either occurs material shall be replaced per warranty, at no cost to the Owner.

2. Changes: Changes or alterations in the edge metal system without prior written consent from the manufacturer shall render the system unacceptable for a warranty.

3. Warranty shall commence on date of substantial completion or final payment, whichever is agreed by contract.

4. The Contractor shall provide the Owner with a notarized written warranty assuring that all sheet metal work including caulking and fasteners to be watertight and secure for a period of (2) two years from the date of final acceptance of the building. Warranty shall include all materials and workmanship required to repair any leaks that develop and make good any damage to other work or equipment caused by such leaks or the repairs thereof.

PART 2 — PRODUCTS

2.1 PRODUCTS, GENERAL

A. Refer to Division 01 Section "Common Product Requirements."

B. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

2.3 ACCEPTABLE FABRICATORS

A. Any fabricator which has been certified by the NRCA (National Roofing Contractors Association) to fabricate their ANSI/SPRI ES-1 tested profiles on their Gravel-Stop, Metal Edge, Fascia and Coping Cap products**.**

B. Provide a product carrying a signed and sealed Performance Test Report from a testing company for ANSI/SPRI ES-1 on their Gravel-Stop, Metal Edge, Fascia and Coping Cap products.

C. Any fabricator with a Gravel-Stop, Metal Edge, Fascia and Coping Cap products that has been tested in accordance with ANSI/SPRI ES-1 standards. Proof of this testing must be provided via a report signed and sealed by a qualified third party testing agency. This report shall show that the submitted equal meets the wind uplift and perimeter attachment requirements according to ASCE 7-05 and ANSI/SPRI ES-1. Substitution requests submitted without licensed engineer approval will be rejected for non-conformance

2.4 MATERIALS

A. Materials:

1. Exposed base metal material:

a. Aluminum, ASTM B209, alloy 3105-H14, in thickness of .032" nom. or .040" nom.

2. Unexposed base metal material:

a. Aluminum, ASTM B209, alloy 3105-H14, in thickness of .032" nom. or .040" nom.

3. Minimum gauge of steel or thickness of Aluminum to be specified in accordance with Architectural Sheet Metal Manual, Sheet Metal and Air Conditioning Contractor's National Association, Inc. recommendations.

B. Finishes:

1. Exposed surfaces for coated panels:

a. Steel Finishes: fluorocarbon finish. Epoxy primer baked both sides, .2-.25 mils thickness as approved by finish coat manufacturer.

Weathering finish as referred by National Coil Coaters Association (NCCA).

PROPERTY	TEST METHOD	FLUOROCARBON*
Pencil Hardness	ASTM D3363 NCCA II-2	HB-H
Bend	ASTM D-4145 NCCA II-19	O-T
Cross-Hatch Adhesion	ASTM D3359	no loss of adhesion
Gloss (60° angle)	ASTM D523	25+/-5%
Reverse Impact	ASTM D2794	no cracking or loss of adhesion
Nominal Thickness	ASTM D1005	
Primer		0.2 mils
Topcoat		0.8 mils
TOTAL		1.0 mils

* Subject to minimum quantity requirements

b. Color as selected by Architect. Refer to Specification Section 07410.

2. Exposed and unexposed surfaces for mill finish flashing, fascia, and coping cap, shall be as shipped from the mill.

3. Exposed and unexposed surfaces for anodized aluminum flashing, fascia, and coping cap, shall be as shipped from mill.

2.4 RELATED MATERIALS AND ACCESSORIES

A. Metal Primer: Zinc chromate type.

B. Plastic Cement: ASTM D 4586

C. Sealant: Tuff-Stuff One part polyurethane sealant.

D. Underlayment: Refer to Section 07410 for additional underlayment. ASTM D2178, No15 asphalt saturated roofing felt.

E. Slip Sheet: Rosin sized building paper.

F. Fasteners:

1. Corrosion resistant screw fastener as recommended by metal manufacturer. Finish exposed fasteners same as flashing metal.

2. Fastening shall conform to Factory Mutual requirements or as stated on section details, whichever is more stringent.

G. Gutter and Downspout Anchorage Devices: Material as specified for system.

PART 3 — EXECUTION

3.1 EXECUTION, GENERAL

A. Refer to Division 07 Section Common Work Results for Thermal and Moisture Protection.

3.2 PROTECTION

A. Isolate metal products from dissimilar metals, masonry or concrete with bituminous paint, tape, or slip sheet. Use gasketed fasteners where required to prevent corrosive reactions.

3.3 GENERAL

A. Secure fascia to wood nailers at the bottom edge with a continuous cleat.

B. Fastening of metal to walls and wood blocking shall comply with building code standards.

C. All accessories or other items essential to the completeness of sheet metal installation, whether specifically indicated or not, shall be provided and of the same material as item to which applied.

D. Allow sufficient clearances for expansion and contraction of linear metal components. Secure metal using fasteners as required by the system. Exposed face fastening will be rejected.

3.4 INSPECTION

A. Verify that curbs are solidly set and nailing strips located.

B. Perform field measurements prior to fabrication.

C. Coordinate work with work of other trades.

D. Verify that substrate is dry, clean and free of foreign matter.

E. Commencement of installation shall be considered acceptance of existing conditions.

3.5 SHOP-FABRICATED SHEET METAL

A. Metal work shall be shop fabricated to configurations and forms in accordance with recognized sheet metal practices.

B. Hem exposed edges.

C. Angle bottom edges of exposed vertical surfaces to form drip.

D. Lap corners with adjoining pieces fastened and set in sealant.

E. Form joints for gravel stop fascia system, coping cap with a 3/8" opening between sections. Back the opening with an internal drainage plate formed to the profile of fascia piece.

F. Install sheet metal to comply with referenced ANSI/SPRI, SMACNA and NRCA standards.

3.7 CLEANING

A. Clean installed work in accordance with the manufacturer's instructions.

B. Replace damaged work than cannot be restored by normal cleaning methods.

3.8 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated. Comply with requirements of authorities having jurisdiction

3.09 FINAL INSPECTION

A. At completion of installation and associated work, meet with Contractor, Architect, installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.

B. Inspect work and flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.

C. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

D. Notify the Contractor upon completion of corrections.

E. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

F. Immediately correct roof leakage during construction. If the Contractor does not respond within twenty-four (24) hours, the Owner will exercise rights to correct the Work under the terms of the Conditions of the Contract.

END OF SECTION

SECTION 07900 - JOINT SEALERS

PART 1 - GENERAL

RELATED DOCUMENTS:
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:
Extent of each form and type of joint sealer is indicated on drawings and by provisions of this section.

Refer to Division 8 sections glazing requirements; not work of this section.

Refer to sections of Division 15 and 16 for joint sealers in mechanical and electrical work; not work of this section.

General Performance: Except as otherwise indicated, joint sealers are required to establish and maintain airtight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and as indicated for each application. Failures of installed sealers to comply with this requirement will be recognized as failures of materials and workmanship.

SUBMITTALS:
Product Data: Submit manufacturer's product specifications, handling/installation/curing instructions, and performance tested data sheets for each elastomeric product required.

JOB CONDITIONS:
Weather Conditions: Do not proceed with installation of liquid sealants under unfavorable weather conditions. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer for installation.

PART 2 - PRODUCTS

MATERIALS:
General Sealer Requirements: Provide colors indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors. Select materials for compatibility with joint surfaces and other indicated exposures, and except as otherwise indicated select modules of elasticity and hardness or grade recommended by manufacturer for each application indicated. Where exposed to foot traffic, select non-tracking materials of sufficient strength and hardness to withstand stiletto heel traffic without damage or deterioration of sealer system.

Sealant: (with expansion and compression capability of plus or minus 50%).
Silpruf Silicone weatherproofing sealant: General Electric
790 Building Sealant: Down Corning

Caulking:
NP -2 Sonneborn. Polyurethane
Install at all locations where notes as "caulk" or required to provide a neat joint.

Expansion Joint Sealer:
ACMA Seal: ACME Highway Products Corp., Buffalo, N.Y. 14207

System: Series “J”, Style No. 2-602, 1-3/4" wide x 2" high.
Install with manufacturer’s ACMA Lubricant Adhesive.

Foam Joint Filters:
Expanded Polyethylene Joint Filler (ExPe -JF): Provide flexible, compressible, closed -cell, polyethylene of not less than 10 psi compression deflection (25%) except provide higher compression deflection strength as may be necessary to withstand installation forces and provide proper support for sealants; surface water absorption of not more than 0.1 lbs. per sq. ft.

MISCELLANEOUS MATERIALS:
Sealant backer Rod (S -Br): Provide compressible rod stock of polyethylene foam, polyurethane foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable non-absorptive material as recommended by sealant manufacturer for backup of an compatibility with sealant. Where used with hot -applied sealant, provide heat -resistant type which will not be deteriorated by sealant application temperature as indicated.

PART 3 - EXECUTION

INSPECTION:
Installer must examine substrates, (joint surfaces) and conditions under which joint sealer work is to be performed, and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to installer.

JOINT PREPARATION:
Clean joint surfaces immediately before installation of gaskets, sealant or caulking compounds. Remove dirt, insecure coatings, moisture and other substances which could interfere with seal of gasket or bond of sealant or caulking compound. Etch concrete and masonry join surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.

Prime or seal joint surfaces where indicated, and where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.
INSTALLATION:
Install at exterior doors, glass frames (both interior and exterior of frames), exterior louvers, windows, exterior joints in walls and other locations where indicated or required to provide weather tight joints. Indicated for floor or wall assembly in which penetration occurs.

Install in accordance with manufacturer's recommendations.
Produce beads of proper width and depth.
Tool as recommended by manufacturer.
Remove surplus materials.

Study drawings and furnish and install proper materials at each point where called for on the drawings plus all other points essential to continued integrity of the watertight barrier.

CURE AND PROTECTION
Cure sealants and caulking compounds in compliance with manufacturer's instructions

and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability. Advise the Contractor of procedures required for cure and protection of joint sealer during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at time of substantial completion. Cure and protect sealants in a manner which will minimize increases in modules of elasticity and other accelerated aging effects. Replace or restore sealant which are damaged or deteriorated during construction period.

END OF SECTION 07900

SECTION 08700 - BUILDERS HARDWARE

PART 1 - GENERAL

RELATED DOCUMENTS:
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification sections, apply to the work of this section.

DESCRIPTION OF WORK:
Definition: "Builders Hardware" includes items known commercially as builders' hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame. Types of items in this section include (but are not necessarily limited to):

- Hinges
- Pivots
- Lock cylinders and keys
- Lock and latch sets
- Bolts
- Exit devices
- Push/pull units
- Sliding door equipment
- Closures
- Overhead Holders
- Miscellaneous door control devices

QUALITY ASSURANCE:
Manufacturer: Obtain each kind of hardware (latch and lock sets, hinges, closures, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.

Supplier: A recognized builders hardware supplier who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or has in employment, an experienced hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.

SUBMITTALS:
Product Data: Submit manufacturers' technical information for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish. Transmit copy of applicable data to Installer.

Hardware Schedule: Submit final hardware schedule in the manner and format specified, complying with the actual construction progress schedule requirements. Hardware schedules are intended for coordination of work.
Final Hardware Schedule: Based on builders hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:

- Type, style, function, size and finish of each hardware item.
- Name and manufacturer of each item.
- Fastenings and other pertinent information.
- Location of hardware set cross - referenced to indications on Drawings

both on floor plans and in door and frame schedule.
Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
Mounting locations for hardware.
Door and frame sizes and materials.
Keying information.

Submittal Sequence: Submit schedule at earliest possible data particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by builders' hardware, and other information essential to the coordinated review of hardware schedule.

Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

PRODUCT HANDLING:
Packaging of hardware, on a set by set basis, is the responsibility of the supplier. As materials received by the hardware supplier from the various manufacturers, sort and repackage in containers marked with the hardware set number. Two or more identical sets may be packed in the same container.

Inventory hardware jointly with representatives of the hardware supplier and the hardware installer until each is satisfied that the count is correct.

Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling installation of hardware items which are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses, both before and after installation.

JOB CONDITIONS:
Coordination: Coordinate hardware with other work. Tag each item or package separately, with identification related to the final hardware schedule, and include basic installation instructions in the package. Furnish hardware items of proper design for use on doors and frames of the thicknesses, profile, swing, security and similar requirements indicated, as necessary for proper installation and function. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory - prepared for the installation of hardware. Upon request, check the shop drawings of such other work, to confirm that adequate provisions are made for the proper installation of hardware.

PART 2 - PRODUCTS

SCHEDULED HARDWARE:
Requirements for design, grade, function, finish, size and other distinctive qualities of each type of builders hardware is indicated in the Builders Hardware Data Sheet and Hardware Schedule at the end of this section. Products are identified by using hardware designation numbers of the following.

Manufacturer's product designations: One or more manufacturers are listed for each hardware type required. An asterisk (*) after a manufacturer's name indicates whose product designation is used in the Hardware Schedule for purposes of establishing minimum requirements. Provide product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in this section.

MATERIALS AND FABRICATION:

General:
Hand of door: The drawings show the direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation an operation of the door movement as shown.

Base Metals: Produce hardware units of the basic metal and forming method indicated, using the manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for the applicable hardware units by FS FF-H-106, FS FF-g-111, FS FF-E-116 and FS FF-H-121. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

Fasteners: Manufacture hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.

Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws Finish exposed(under any condition) screws to match the hardware finish or , if exposed in surfaces of other work, to match the finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive, painted finish.

Provide concealed fasteners for hardware units which are exposed when the door is closed, except to the extent no standard units of the type specified are available with concealed fasteners. Do not use through bolts for installation where the bolt head or the nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work.

LOCK CYLINDERS AND KEYING:

Cylinders: Suppliers to provide interchangeable core rim cylinders at all locksets, deadbolt and panic hardware, where required for proper operation.

General: Supplier shall prepare the keying schedule according to the Owner’s Keying Program and meet with Owner to finalize keying requirements and obtain final instructions in writing.

Keying System: Grandmaster key the locks to the campus, with a new master key for this project.

HARDWARE FINISHES:
Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming

process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.

Provide finishes which match those established by EEMA or, if none established, match the Architect's sample.

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 for the applicable units of hardware by referenced standards.

Provide protective lacquer coating on all exposed hardware finishes of brass, bronze and aluminum, except as otherwise indicated.

The designations used in schedules and elsewhere to indicate hardware finishes are those listed in "Materials & Finishes Standard 1301" by EEMA, including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

PART 3 - EXECUTION

INSTALLATION:

Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware" by the NEEA, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.

Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware to a surface which will later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

Drill and countersink units which have not been factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

ADJUST AND CLEAN:

Adjust and clean each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy, return to the work during the week prior to acceptance or occupancy to make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

MANUFACTURERS

Butts	Hager	Hagr
Locksets	Schlage Lock Co.	Schl
Exit Device	Von Duprin	Von
Closers	LCN	LCN
Mullions	Von Duprin	Von
Stops	Hager	Hagr
Silencers	Hager	Hagr
Thresholds	Hager	Hagr
Weatherstripping	Hager	Hagr

All Exterior Doors to receive the following:

Single Leaf 36” Wide Door		
weatherstripping	891 x SV x 36" x 2@ 84" x SMS	Hagr
threshold	520 x SV x 36" x SMS	Hagr
door bottom	770 x SV x 36" x SMS	Hagr
door drip	810S x 40" x SMS	Hagr
Double Leaf 36” Wide Door		
threshold	520 x SV x 72" x SMS	Hagr
weatherstripping	891 SV x 72" x 2@ 84" x SMS	Hagr
door bottom	(2)-770 SV x 34" x SMS	Hagr
door drip	810S x 76" x SMS	Hagr
astragal	872S x 84" x SMS	Hagr

SECTION 09900 PAINTING

PART 1 GENERAL

RELATED DOCUMENTS:
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work in this section.

DESCRIPTION OF WORK:
Extent of painting work is indicated on drawings and schedules, and as herein specified.

Work includes painting and finishing of interior and exterior exposed items and surfaces throughout Project, except as otherwise indicated.

Surface preparation, priming and coats or paint specified are in addition to shop priming and surface treatment specified under other sections of work.

"Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

Paint exposed surfaces whether or not colors are designated in “schedules", except where natural finish of material is specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect will select these from standard colors available for materials systems specified.

Pre Finished Items: Unless otherwise indicated, do not include painting when factory finishing or installer finishing is specified for such items as (but not limited to) metal toilet enclosures, pre-finished partition systems, acoustic materials, architectural woodwork and casework, finished mechanical and electrical equipment, including light fixtures, switchgear and distribution cabinets, elevator entrance frames, doors and equipment.

Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.

Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.

Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sensing devices, motor and fan shafts will not require finish painting.

Do not paint over any code required labels, such as Underwriters’ Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

SUBMITTALS:

Product Data: Submit manufacturer's technical information including Paint label analysis

and application instructions for each material proposed for use.
Samples: Submit samples for Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

On 12" x 12" hardboard, provide two samples of each color and material, with texture to simulate actual conditions. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.

On actual wood surfaces, provide two 4" x 8" samples of natural and stained wood finish. Label and identify each as to location and application.

On concrete masonry, provide two 4" square samples of masonry for each type of finish and color, defining filler, prime and finish coat.

DELIVERY AND STORAGE:
Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:

Name or title of material.
Fed. Spec. number, if applicable.
Manufacturer's stock number and date of manufacture.
Manufacturer's name.
Contents by volume, for major pigment and vehicle constituents.
Thinning instructions.
Application instructions.
Color name and number.

JOB CONDITIONS:

Apply water base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.

Apply solvent thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.

Do not paint in snow, rain, fog or mist, or when relative humidity exceeds 85%, or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.

Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

PART 2 PRODUCTS

COLORS AND FINISHES:
Paint colors, surface treatments, and finishes, are indicated in "schedules" of the contract documents.

Prior to beginning work, Architect will furnish color chips for surfaces to be painted.

Use representative colors when preparing samples for review.

MANUFACTURERS: for interior paint system only.
Sherwin Williams
Technical Coatings Inc.
Jones Blair
Pittsburgh Paint

Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

MATERIALS:
Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best grade product will not be acceptable.

EXTERIOR PAINT SYSTEMS (EPS):
Provide following paint systems for various substrates, as indicated.

Cementitious Siding / Panels / Trim:
EPS-1 1st coat - S-W Duration Acrylic Flat, at 7.0 mils wet, 3.0 mils dry.
2nd coat – S-W Duration Acrylic Flat, at 7.0 mils wet, 3.0 mils dry.

Painted Wood Trim:
EPS-2: 1st coat - Primer undercoat (TT-P-25).
2nd coat - Alkyd trim enamel (TT-P-37).
3rd coat - Alkyd trim enamel (TT-P-37).

INTERIOR PAINT SYSTEMS:
Provide following paint systems for various substrates, as indicated.

Exposed Metal:
IPS2: 1st Coat - PROMAR Interior Latex Primer
2nd Coat - PROMAR 200 Interior Latex Semi-Gloss
3rd Coat - PROMAR 200 Interior Latex Semi-Gloss

Gypsum Drywall Systems – (General Use):
1st Coat - Interior Latex Based Primer Coat (FS TT-P-650).
2nd Coat & 3rd Coat - Odorless interior semi-gloss latex enamel (TS TT-E-509). Not less than 2.5 mils dry film thickness.

PART 3 EXECUTION
INSPECTION:
Applicator must examine areas and conditions under which painting work is to be

applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been correct in a manner acceptable to Applicator.

Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.

Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

SURFACE PREPARATION:

General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide surface applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.

Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly painted surfaces.

Cementitious Materials: Prepare cementitious surfaces of concrete, concrete block to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze as required. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer’s printed directions.

Clean concrete floor surfaces scheduled to be painted with a commercial solution or muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid, and allow to dry before painting.

Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sandpaper smooth when dried.

Prime, stain, or seal wood required to be job painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, paneling. When transparent finish is required, use spar varnish for back-priming.

Back-prime paneling on interior partitions only where masonry or other wet wall construction occurs on backside.

Seal tops, bottoms, and cut outs of unprimed wood doors with a heavy coat of varnish or

equivalent sealer immediately upon delivery to job.

Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

Touch up shop applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch up with same type shop primer.

Galvanized Surfaces: Clean free of oil and surface contaminants with non petroleum based solvent.

MATERIALS PREPARATION:

Mix and prepare painting materials in accordance with manufacturer's directions.

Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue. Store materials not in actual use in tightly covered containers.

Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

APPLICATION:
General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.

Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.

Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated. Sand lightly between each succeeding enamel or varnish coat.

Omit first coat (primer) on metal surfaces which have been shop primed and touch up painted, unless otherwise indicated.

Scheduling Painting: Apply first coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firms, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause

lifting or loss of adhesion of the undercoat.

Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.

Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.

Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn through or other defects due to insufficient sealing.

Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.

Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth 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.

Transparent (Clear) Finish: Use multiple coats to produce glass smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections. Provide satin finish for final coats, unless otherwise indicated.

Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

FIELD QUALITY CONTROL:
The right is reserved by Owner to invoke the following material testing procedure at any time, and any number of times during period of field painting:

Engage services of an independent testing laboratory to sample paint being used. Samples of materials delivered to project site will be taken, identified and sealed, and certified in presence of Contractor.

Testing laboratory will perform appropriate tests for any or all of following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance and quantitative materials analysis.

If test results show that material being used does not comply with specified requirements, Contractor may be directed to stop painting work, and remove non complying paint; pay for testing; repaint surfaces coated with rejected paint; remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are non compatible.

CLEAN UP AND PROTECTION:
Clean Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using car not to scratch or otherwise damage finished surfaces.

Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations. At completion of work of other trades, touch up and restore all damaged or defaced painted surfaces.

END OF SECTION 09900

SECTION 221413 – FACILITY STORM DRAINAGE PIPING

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. This Section includes the following storm drainage piping inside the building:

1. Pipe, tube, and fittings.
2. Special pipe fittings.
3. Encasement for underground metal piping.

1.3 PERFORMANCE REQUIREMENTS

A. Components and installation shall be capable of withstanding the following minimum working-pressure, unless otherwise indicated:

1. Storm Drainage Piping: **20-foot head of water**

1.4 SUBMITTALS

A. Product Data: For pipe, tube, fittings, and couplings.

B. Field quality-control inspection and test reports.

1.5 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-drain" for plastic drain piping and "NSF-sewer" for plastic sewer piping.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

2.3 HUBLESS CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 888 or CISPI 301.

B. Shielded Couplings: ASTM C 1277 assembly of metal shield or housing, corrosion-resistant fasteners, and rubber sleeve with integral, center pipe stop.

1. Heavy-Duty, Shielded, Stainless-Steel Couplings: With stainless-steel shield, stainless-steel bands and tightening devices, and ASTM C 564, rubber sleeve.

a. Manufacturers:

1) ANACO.
2) Clamp-All Corp.
3) Ideal Div.; Stant Corp.
4) Mission Rubber Co.
5) Tyler Pipe; Soil Pipe Div.

2.4 PVC PIPE AND FITTINGS

A. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.
1. PVC Socket Fittings: ASTM D 2665, socket type, made to ASTM D 3311, drain, waste, and vent patterns.

2.5 SPECIAL PIPE FITTINGS

A. Flexible, Nonpressure Pipe Couplings: Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition pattern. Include shear ring, ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.

1. Sleeve Materials:

a. For Cast-Iron Soil Pipes: ASTM C 564, rubber.

B. Shielded Nonpressure Pipe Couplings: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

C. Rigid, Unshielded, Nonpressure Pipe Couplings: ASTM C 1461, sleeve-type reducing- or transition-type mechanical coupling molded from ASTM C 1440, TPE material with corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Flexible Ball Joints: Ductile-iron fitting with combination of flanged and mechanical-joint ends complying with AWWA C110 or AWWA C153. Include gasketed ball-joint section and ductile-iron gland, rubber gasket, and steel bolts.

E. Expansion Joints: Two or three-piece, ductile-iron assembly consisting of telescoping sleeve(s) with gaskets and restrained-type, ductile-iron, bell-and-spigot end sections complying with AWWA C110 or AWWA C153. Select and assemble components for expansion indicated. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.

2.6 ENCASEMENT FOR UNDERGROUND METAL PIPING

A. Description: ASTM A 674 or AWWA C105, **high-density, crosslaminated PE film of 0.004-inch** minimum thickness.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Refer to Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

A. Flanges and unions may be used on aboveground pressure piping, unless otherwise indicated.

B. Underground and above ground storm drainage piping **NPS 8 and smaller (UNO)** shall be the following:
   1. Solid-wall PVC pipe, PVC socket fittings, and solvent-cemented joints.
   2. Dissimilar Pipe-Material Couplings: Shielded, nonpressure pipe couplings for joining dissimilar pipe materials with small difference in OD.

C. In Return Air Plenum: Storm drainage piping **NPS 8 and smaller** shall be the following:
   1. Hubless cast-iron soil pipe and fittings; **heavy-duty** shielded, stainless-steel couplings; and coupled joints.

3.3 PIPING INSTALLATION

A. Storm sewer and drainage piping outside the building are specified in Division 33 Section "Storm Utility Drainage Piping."

B. Basic piping installation requirements are specified in Division 22 Section "Common Work Results for Plumbing."

C. Install cleanouts at grade and extend to where building storm drains connect to building storm sewers. Cleanouts are specified in Division 22 Section "Storm Drainage Piping Specialties."

D. Install cleanout fitting with closure plug inside the building in storm drainage force-main piping.

E. Install underground, steel, force-main piping. **Install encasement on piping according to ASTM A 674 or AWWA C105.**

F. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."

1. Install encasement on underground piping according to ASTM A 674 or AWWA C105.

G. Install PVC soil and waste drainage and vent piping according to ASTM D 2665.

H. Install underground PVC soil and waste drainage piping according to ASTM D 2321.

I. Make changes in direction for storm drainage piping using appropriate branches, bends, and long-sweep bends. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

J. Lay buried building storm drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.

K. Install storm drainage piping at the following minimum slopes, unless otherwise indicated:

1. Building Storm Drain: 1 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.
2. Horizontal Storm-Drainage Piping: 2 percent downward in direction of flow.

L. Install force mains at elevations indicated.

M. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade if slab is without membrane waterproofing.

N. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

O. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."

P. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Division 22 Section "Sleeves and Sleeve Seals for Plumbing Piping."

Q. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Division 22 Section "Escutcheons for Plumbing Piping."

3.4 JOINT CONSTRUCTION

A. Basic piping joint construction requirements are specified in Division 22 Section "Common Work Results for Plumbing."

B. Hubless Cast-Iron Soil Piping Coupled Joints: Join according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-coupling joints.

C. PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

3.5 HANGER AND SUPPORT INSTALLATION

A. Pipe hangers and supports are specified in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment." Install the following:

1. Vertical Piping: MSS Type 8 or Type 42, clamps.
2. Individual, Straight, Horizontal Piping Runs: According to the following:

    a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
    b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
    c. Longer Than 100 Feet, if Indicated: MSS Type 49, spring cushion rolls.

3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
4. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Install supports according to Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment."

C. Support vertical piping and tubing at base and at each floor.

D. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch minimum rods.

E. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/2 and NPS 2: 60 inches with 3/8-inch rod.
2. NPS 3: 60 inches with 1/2-inch rod.
3. NPS 4 and NPS 5: 60 inches with 5/8-inch rod.
4. NPS 6: 60 inches with 3/4-inch rod.
5. NPS 8 to NPS 12: 60 inches with 7/8-inch rod.
6. Spacing for 10-foot lengths may be increased to 10 feet. Spacing for fittings is limited to 60 inches.

F. Install supports for vertical cast-iron soil piping every 15 feet.

G. Install hangers for PVC piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/2 and NPS 2: 48 inches with 3/8-inch rod.
2. NPS 3: 48 inches with 1/2-inch rod.
3. NPS 4 and NPS 5: 48 inches with 5/8-inch rod.
4. NPS 6: 48 inches with 3/4-inch rod.

H. Install supports for vertical PVC piping every 48 inches.

I. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.6 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect interior storm drainage piping to exterior storm drainage piping. Use transition fitting to join dissimilar piping materials.

C. Connect storm drainage piping to roof drains and storm drainage specialties.

3.7 INSULATION

A. Refer to Plumbing Insulation specification Section 220700.

B. Service: Rainwater conductors, and roof drain bodies.
1. Operating Temperature: 32 to 100 deg F
2. Insulation Material: Flexible elastomeric.
3. Insulation Thickness: 1” thick.
4. Field-Applied Jacket: ASJ.
5. Vapor Retarder Required: Yes.
6. Finish: Painted (Coordinate with Architect).

3.8 FIELD QUALITY CONTROL

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in.
2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test storm drainage piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
2. Leave uncovered and unconcealed new, altered, extended, or replaced storm drainage piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
3. Test Procedure: Test storm drainage piping**, except outside leaders,** on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.
4. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
5. Prepare reports for tests and required corrective action.

3.9 CLEANING

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

3.10 PROTECTION

A. Exposed **PVC** Piping: Protect plumbing vents exposed to sunlight with two coats of water-based latex paint.

END OF SECTION 221413

SECTION 221423 - STORM DRAINAGE PIPING SPECIALTIES

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. Miscellaneous storm drainage piping specialties.
   2. Cleanouts.
   3. Flashing materials.

1.3 SUBMITTALS

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

1.4 QUALITY ASSURANCE

A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 ROOF DRAINS

A. See schedules:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Josam Company.
      b. MIFAB, Inc.
      c. Zurn Plumbing Products Group; Specification Drainage Operation.

2.2 CLEANOUTS

A. Floor Cleanouts: See schedules
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Josam Company; Josam Div.
      b. MIFAB, Inc.
      c. Zurn Plumbing Products Group; Light Commercial Operation.

B. Test Tees:
1. Manufacturers:
a. Josam Company.
b. MIFAB, Inc.
c. Zurn Plumbing Products Group; Specification Drainage Operation.

2. Standard: ASME A112.36.2M and ASTM A 74, ASTM A 888, or CISPI 301, for cleanout test tees.
3. Size: Same as connected drainage piping.
4. Body Material: Hub-and-spigot, cast-iron soil-pipe T-branch or hubless, cast-iron soil-pipe test tee as required to match connected piping.
5. Closure Plug: **Countersunk brass**.
6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.

C. Wall Cleanouts:
1. Manufacturers:
a. Josam Company.
b. MIFAB, Inc.
c. Zurn Plumbing Products Group; Specification Drainage Operation.

2. Standard: ASME A112.36.2M, for cleanouts. Include wall access.
3. Size: Same as connected drainage piping.
4. Body Material: **Hubless, cast-iron soil-pipe test tee** as required to match connected piping.
5. Closure: **Countersunk**, **drilled-and-threaded**, **cast-iron** plug.
6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
7. Wall Access: Round, **stainless-steel** cover plate with screw.

2.3 THROUGH-PENETRATION FIRESTOP ASSEMBLIES

A. Through-Penetration Firestop Assemblies:

1. Manufacturers:
a. ProSet Systems Inc.

2. Standard: ASTM E 814, for through-penetration firestop assemblies.
3. Certification and Listing: **Insert testing agency acceptable to authorities having jurisdiction** for through-penetration firestop assemblies.
4. Size: Same as connected pipe.
5. Sleeve: Molded PVC plastic, of length to match slab thickness and with integral nailing flange on one end for installation in cast-in-place concrete slabs.
6. Stack Fitting: ASTM A 48/A 48M, gray-iron, hubless-pattern, wye branch with neoprene O-ring at base and gray-iron plug in thermal-release harness. Include PVC protective cap for plug.
7. Special Coating: Corrosion resistant on interior of fittings.

2.4 FLASHING MATERIALS

A. Copper Sheet: ASTM B 152/B 152M, 12 oz./sq. ft..

B. Zinc-Coated Steel Sheet: ASTM A 653/A 653M, with 0.20 percent copper content and 0.04-inch minimum thickness unless otherwise indicated. Include G90 hot-dip galvanized, mill-phosphatized finish for painting if indicated.

C. Elastic Membrane Sheet: ASTM D 4068, flexible, chlorinated polyethylene, 40-mil minimum thickness.

D. Fasteners: Metal compatible with material and substrate being fastened.

E. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

F. Solder: ASTM B 32, lead-free alloy.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions. Roofing materials are specified in Division 07 Sections.
1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
2. Install expansion joints, if indicated, in roof drain outlets.
3. Position roof drains for easy access and maintenance.

B. Install downspout adapters on outlet of back-outlet parapet roof drains and connect to sheet metal downspouts.

C. Install downspout boots at grade with top **12 inches** above grade. Secure to building wall.

D. Install conductor nozzles at exposed bottom of conductors where they spill onto grade.

E. Install cleanouts in aboveground piping and building drain piping according to the following instructions unless otherwise indicated:
1. Use cleanouts the same size as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
2. Locate cleanouts at each change in direction of piping greater than 45 degrees.
3. Locate cleanouts at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.
4. Locate cleanouts at base of each vertical soil and waste stack.

F. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.

G. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.

H. Install test tees in vertical conductors and near floor.

I. Install wall cleanouts in vertical conductors. Install access door in wall if indicated.

J. Install through-penetration firestop assemblies in plastic conductors at concrete floor penetrations.

K. Install sleeve flashing device with each conductor passing through floors with waterproof membrane.

3.2 CONNECTIONS

A. Comply with requirements for piping specified in Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

3.3 FLASHING INSTALLATION

A. Fabricate flashing from single piece of metal unless large pans, sumps, or other drainage shapes are required. Join flashing according to the following if required:
   1. Copper Sheets: Solder joints of copper sheets.

B. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with waterproof membrane.
   1. Pipe Flashing: Sleeve type, matching the pipe size, with a minimum length of 10 inches and with skirt or flange extending at least 8 inches around pipe.
   2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches around sleeve.
   3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches around specialty.

C. Set flashing on floors and roofs in solid coating of bituminous cement.

D. Secure flashing into sleeve and specialty clamping ring or device.

E. Fabricate and install flashing and pans, sumps, and other drainage shapes.

3.4 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 221423