

PROJECT MANUAL
(Volume 1)

**Remodel and Addition to the FloArts
Building, Palatka Campus**

Project No: 23048

5001 St Johns Ave
Palatka, Florida 32177



ST. JOHNS RIVER
S T A T E C O L L E G E



10175 Fortune Parkway, #701, Jacksonville, FL, 32257
P 904.683.9201

PREPARED FOR:

**100% CONSTRUCTION DOCUMENTS
OCTOBER 28, 2024**

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SECTION 00 11 16 – INVITATION TO BID

1.1 INVITATION TO BIDDERS

- A. Sealed bids will be received in the business office of the **Assistant Vice President for Facilities, Planning, and Capital Projects at St. Johns River State College, Palatka, Florida** for the provision of the following project for SJR State College, Palatka, Florida.

BID NO.: BID-SJR-06-2024

**BID TITLE: REMODEL AND ADDITION TO THE FLOARTS BUILDING PROJECT
ST. JOHNS RIVER STATE COLLEGE
5001 ST. JOHNS AVENUE
PALATKA, FL 32177**

1.2 BIDS

- A. Bids will be received at St. Johns River State College, Business Office, Attn: Mrs. Terry Thomas, Assistant Vice President for Facilities, Planning, and Capital Projects, 5001 St. Johns Avenue, Palatka, Florida, until:

LOCAL TIME: **2:00 P.M.**
DAY OF WEEK: **Monday**
DATE: **January 27, 2025**

Bids received by the deadline for submission will be publicly opened, read aloud, and recorded at **2:30 P.M. at St. Johns River State College, Administration Building, Room A-152 (Valhalla Hall), 5001 St. Johns Avenue, Palatka, Florida 32177.**

- B. A **Mandatory Pre-Bid Meeting** will be held on **December 2, 2024, at 9:30 A.M. at St. Johns River State College, Administration Building, Room A0152, Valhalla Hall, 5001 St. Johns Avenue, Palatka, FL 32065.** Primary bidders or their representatives are required to attend in order to be eligible to bid. Attendance will be taken. Subcontractors are welcomed but attendance at the conference is only mandatory for primary bidders. Tour of the worksite will immediately follow the meeting.
- C. **This project is open to Invited, Prequalified Bidders only.** Only those bids from invited, pre-qualified contractors who attend the mandatory pre-bid meeting, and received by the submission deadline will be considered.

1.3 BIDDING DOCUMENTS

- A. An overview of bidding documents/plans will be presented at the mandatory pre-bid meeting on December 2, 2024.
- B. Bidding documents may be examined by appointment at:

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

KASPER ARCHITECTS + Assoc.
10175 Fortune Parkway #701
Jacksonville, FL 32256
TEL: (904) 683-9201
Email all questions to Alex Bahensky at Alex@KasperArch.com

- C. Distribution:
Prime bidders, who will be submitting a bid to the owner, should register with the Owner and Kasper Architects + Assoc. their intention to bid and as a plan holder. Any addenda will be sent automatically (electronically) to the known plan holders. Partial sets of drawings and/or specifications are not advised and neither the architect nor owner will be responsible for partial information given to subcontractors by the general contractors. Electronic drawings and specifications will not be distributed.
- D. All questions concerning the project shall be submitted, in writing, to the Architect:

KASPER ARCHITECTS + Assoc.
10175 Fortune Parkway #701
Jacksonville, FL 32256
TEL: (904) 683-9201

This office is the only point where information will be disseminated. All questions must be received by 5:00 p.m. on Wednesday, January 15, 2025. A final addendum will be issued Friday, January 17, 2025. Send all questions to Alex Bahensky at Alex@KasperArch.com

1.4 BONDS

- A. The successful contractor is required to furnish Performance and Payment Bonds described in the Bidding Documents.
- B. Bid guarantee in the form of a Bid Bond executed by the bidder and a qualified surety or a certified or cashier's check on any national or state bank in the amount of five percent (5%) of the total proposal, including alternates, made payable to St. Johns River State College, must accompany the bidder's proposal. After opening bids, and in the event, contract is awarded to the bidder, the bidder will, within ten (10) days after receiving same, execute contract and furnish the required Performance and Payment bonds, failing which the security shall become the property of St. Johns River State College as liquidated damages.

1.5 PREPARATION AND SUBMISSION OF PROPOSAL

- A. All bids must be made on Proposal Forms, included herein, properly executed and placed in an envelope, sealed, and marked on the outside:

BID-SJR-06-2024

St. Johns River State College
Remodel and Addition to the FloArts Building Project
Palatka Campus

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

Deliver or mail to: **St. Johns River State College**
Business Office, ATTN: Terry Thomas
5001 St. Johns Avenue
Palatka, Florida 32177

- B. St. Johns River State College reserves the right to reject any or all bids, to waive any informalities in regards thereto, to waive any minor deviations in an otherwise valid bid proposal, to rebid or not, to make the award in part or in whole, and to make the award which is in the best interest of the College. It is the intention of the College to award a contract to a single qualified bidder submitting the lowest total base bid and any bid alternate proposals contingent upon availability of funding. The College is not necessarily bound to accept the lowest bid if that bid is contrary to the best interest of the College.
- C. No changes in the amounts of bids appearing on the outside of bids will be considered. Only the amounts shown inside the envelope will be considered. All changes, correction and erasures must be initialed by the person signing the bid.
- D. Furnish with your bid, satisfaction of your proper licensing.

END OF SECTION 00 11 16

SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS

- A. **BID DATE:**
Sealed proposals will be received by St. Johns River State College at the date, time and place so stated in the "Invitation to Bid" Section 00 11 16 for all work herein. The bidder or his authorized representative is invited to be present at the bid opening.
- B. **PROJECT SITE LOCATION:**
ST. JOHNS RIVER STATE COLLEGE
5001 ST. JOHNS AVENUE
PALATKA, FLORIDA
- C. **PROPOSALS:**
All work on the project shall be included in the proposal for the General Construction. Proposals for bid items for this project shall be submitted *in duplicate* on the proposal form enclosed in this project manual. The proposal shall be sealed in an envelope and marked to indicate the project name, bid number and contractor's name. The envelope shall then be forwarded or delivered to Mrs. Terry Thomas, Assistant Vice President for Facilities, Planning, and Capital Projects, in the Administration Building at St. Johns River State College, Business Office, 5001 St. Johns Avenue, Palatka, Florida 32177.
1. The bidder shall fill in their proposal completely and correctly sign the proposal. Proposals that show any omissions, alterations of the proposal, additions not authorized by the St. Johns River State College, conditional bids, or irregularities of any kind, may be rejected.
 2. Proposals shall be submitted in sufficient time for receipt by St. Johns River State College, prior to the scheduled hour for receipt of the proposals. Bids received after the scheduled bid date and time will not be considered. No changes will be permitted after bids have been submitted. All bidders shall be notified of the bid results by posting on the College's web page dedicated to this bid at <https://www.sjrrstate.edu/062024>.
 3. No proposals may be withdrawn, after the schedule closing time for bids, for a period of sixty (60) days.
- D. **COMPLETION:**
Time of completion for this project is a condition of the contract and as such is not flexible. The time of completion is indicated in the specifications and no extension of time is anticipated. If the bidder cannot meet the construction schedule, the bidders should not submit a bid.
- E. **CONTRACTOR'S LICENSE:**
All bidders shall be licensed as required by the State of Florida laws.
- F. **SITE INVESTIGATION:**
Each bidder shall, before submitting their proposal, examine the site to determine the extent of the work involved and the conditions under which they must perform the work.

The submittal of a proposal will be construed as evidence that such examination has been made and no subsequent allowance will be made in this connection.

G PERMITS, FEES AND TAXES:

Cost of social security and other applicable state and federal government taxes and any sales taxes for which the bidder is liable shall be included in his proposal for the work. No local building permits are required for work on the campus. The successful contractor will be required to obtain a permit from the College's permitting agent. The bidder should not include the cost of the permit in their proposal. The College will reimburse the successful bidder for the cost of the permit, upon submission to the Director of Capital Contract Management, a copy of the permit and the paid receipt for the permit.

H. PERFORMANCE AND PAYMENT BOND:

The successful bidder shall furnish a satisfactory performance and payment bond with a corporate surety authorized to do business in the State of Florida and acceptable to the College, within ten (10) days after notice of award. The bond shall be conditioned well and truly to perform the contract and pay all bills and invoices, for labor done and materials furnished in the performance of the work including guarantee period of one (1) year against faulty work and be on **AIA Document Form A312**.

1. All bonds must be executed under corporate seal of the surety and countersigned on the part of the surety by a qualified resident agent of the company or an attorney in fact with proof of power attached.
2. In case of default on the part of the contractor, actions for all expenses incidental to ascertaining and collecting losses under the bond including both architectural and legal services shall lie against bond.
3. Such bond shall be in the penal sum of 100% of the contract.
4. Premiums for the performance and payment bond shall be included in the bidder's proposal.

I. BID SECURITY:

Bid guarantee in the form of a Bid Bond executed by the bidder and a qualified surety or a certified or cashier's check on any national or state bank in the amount of five percent (5%) of the total proposal, including alternates, made payable to St. Johns River State College, must accompany the bidder's proposal. After opening bids, and in the event contract is awarded to the bidder, the bidder will, within ten (10) days after receiving same, execute contract and furnish the required Performance and Payment bonds, failing which the security shall become the property of St. Johns River State College as liquidated damages.

J. INTERPRETATION OF DRAWINGS AND SPECIFICATIONS:

Should a bidder find discrepancies or ambiguities in, or omissions, from the drawings and specifications, or should he be in doubt as to their meaning, the bidder shall at once notify the Architect for an interpretation in the form of an addendum. Addendum will be forwarded to all bidders and each bidder shall acknowledge the receipt of each addendum on his proposal in the spaces provided. Bidders should address all inquiries in written form for this project to:

KASPER ARCHITECTS + ASSOC.
10175 Fortune Parkway #701
Jacksonville, FL 32256

This office is the only point where information will be disseminated. All questions must be received by 5:00 p.m. on Wednesday, January 15, 2025. A final addendum will be issued Friday, January 17, 2025. Send all questions to Alex Bahensky at Alex@KasperArch.com.

K. STANDARD BASIS FOR BIDDING:

1. Equality: Where materials, etc., are referred to in the specifications as "equivalent to" or words of similar import, the Architect shall decide as to equality. In addition to data required under paragraph "Shop Drawings" and "Manufacturer's Description Data", the contractor shall furnish other detailed data as required by the Architect for comparison if the product is mentioned by name. All data shall be submitted at least ten (10) days prior to the scheduled bid opening date. No extra will be allowed because of such substitution, if permitted, either for the article substituted or for revisions in other work affected by the substitution. If permitted, all plan holders will be notified by addendum.
2. Substitutions: Where a particular system, product or material is specified by one or more trade names without the "equivalent" qualification, it shall be considered as a standard basis for bidding and is most satisfactory for its particular purpose in the work. To ensure a uniform basis for bidding, the bidder shall base its proposal on the particular system, product or material named in the specifications.
3. Any proposal submitted that does not conform to the above requirements shall be considered as informal and unfair to other bidder's submitted proposals and will not be accepted.
4. No changes in the amount of bid appearing on the outside of the bid envelope will be considered. Only the amount shown inside the envelope will be considered. All changes, corrections and erasures must be initially by the person signing the bid.
5. Subcontractors and Shop Fabricators:
 - a. Bidders shall furnish with their bids the names and the class of work to be performed by fabricators when the amount to be paid each subcontractor exceeds 5% of the total price.
 - b. The successful bidder shall employ the subcontractors listed in the bidder's proposal along with the class of work to be performed by each. This list shall not be modified in any way whatsoever without the written consent of the College in writing to ensure those subcontractors shall be utilized for the specified class of work.
 - c. Modifications to the listed subcontractors may be granted by the College only in those instances where the bidder presents written evidence that use of the listed subcontractor would not be in the best interest of the College.

L. EQUIVALENTS:

1. In these specifications where one certain kind, type or brand of material manufacturer is named, it shall be regarded as the required minimum standard of quality. Substitutions lowering the performance, quality, method of assembly or installation, or in general, not in keeping with the details and specifications will not be permitted. It is understood that when a bid is submitted, the bidder is aware of the requirements, and that the materials within his bid are equal to or better on such items and that prior approval of

- substitutions has been obtained.
 2. No time extensions will be permitted, to revise or redesign a product found not to comply, and that evidence of noncompliance shall automatically classify the bid as having been informal and rejected.
 3. Since time is of the essence, the College cannot be expected to delay the award of bid, and their decisions shall be in strict accordance to the details and specifications, these items should be brought to the attention of the Architect of the project and of the College prior to submitting a bid proposal.
- M. DISQUALIFICATION OF BIDDERS:
1. Only one proposal from an individual, firm, partnership, or corporation, under the same or different names will be considered.
 2. Should there be any reasonable grounds for the College, believing that a collusion or combination exists between bidders, all proposals may be rejected and all such bidders or participants in such combination or collusion will not be considered in the future proposal for the same work.
 3. No proposal or bid will be considered unless accompanied by a proposal guarantee or good faith deposit in the amount in the form specified in the Invitation to Bid.
 4. Proposals that are incomplete or not signed by the bidder may be rejected.
 5. Proposals that are submitted without the sub-bidders listing completed as required and indicated the specifications may be rejected.
- N. RETURN OF PROPOSAL GUARANTEES:
- Proposal guarantees by certified, or cashier's check will be returned to the bidder immediately after the tabulation and analysis of the bids, except in the event that it pertains the three (3) lowest bidders; these will be returned within fifteen (15) days following award of the contract.
- O. CONTRACT AWARD:
- It is the intention of the College to award a contract to a single qualified bidder submitting the lowest proposal for the work in compliance with the bid specifications/plans, total base bid and any bid alternate proposals, contingent upon availability of funding. The College is not necessarily bound to accept the lowest bid if that bid is contrary to the best interest of the College. St. Johns River State College reserves the right to reject any or all bids, to waive any informalities in regards thereto, to waive any minor deviations in an otherwise valid bid proposal, to rebid or not, to make the award in part or in whole, and to make the award which is in the best interest of the College. The College reserves the right to negotiate with the low bidder on any changes which the Board considers necessary for its interest, including but not limited to direct purchase of materials.
- P. EXECUTION OF CONTRACT:
1. Within the (10) days after Notice of Award, the successful bidder shall enter into a formal contract. The contractor will provide a guarantee period of one (1) year against faulty work and be on the form as provided by the College.
 2. Failure to execute the contract as provided in these documents within ten (10) days from the date of the notification of award shall be just cause and

the College may annul and void the award and declare forfeiture of the proposal guarantee or good faith deposit in liquidation of all damages sustained.

- a. Award may then be made to the next lowest responsible bidder, or the work may be re- advertised.
3. No award will be binding upon the College until the construction contract has been executed.
4. The construction contract shall be signed in triplicate by the College and the Contractor.

Q. BID PROTESTS

Bid protests shall be served on Randy Peterson, Vice President for Finance, and Terry Thomas, Assistant Vice President for Facilities, Planning, and Capital Projects, 5001 St. Johns Avenue, Palatka, Florida 32177, via certified mail. Bid protests may be preliminarily filed, if followed by a certified mail original, via facsimile transmittal to Randy Peterson and Terry Thomas at 386-312-4229. Bid protests must be accompanied by a cost deposit of five thousand dollars (\$5,000.00) or one percent of the total contract price, whichever is greater. Failure to file a notice of protest, failure to file a formal written protest, or failure to post the bond or other security shall constitute a waiver of proceeding. The formal written protest shall state with particularity the facts and law upon which the protest is based.

Failure to file a notice of protest or failure to file a formal written protest within the time prescribed in section 120.57 Florida statues, or failure to post the bond or other security required by law within the time allowed for filing a bond shall constitute a waiver of proceedings. Furthermore, the unsuccessful protester shall be responsible to the College for all other and additional reasonable fees, expenses and costs, in the event the deposit which the College retains pursuant to this paragraph is insufficient to reimburse the College for all costs and fees incurred.

END OF SECTION 00 21 13

SECTION 00 22 13 – SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

Supplemental Instructions to Bidders

All items in this section are incorporated into the contract terms and conditions.

Liquidated Damages

The Bidder agrees that liquidated damages in the amount of *One Thousand Dollars (\$1,000.00) per calendar day* for each day the work remains incomplete, shall be assessed against the Bidder if the work is not completed within the specified time limit. It shall be understood that liquidated damages are not a penalty but are intended to provide a means of recovery of actual damages suffered by the Owner as a result of delayed completion.

Contract Time

Contract time to Substantial Completion is three hundred sixty-five (365) Calendar Days.

Definitions

The College, SJR State, or St. Johns River State College, refers to the District Board of Trustees of St. Johns River State College, Palatka, Florida. The College is a political subdivision of the State of Florida. Firm, vendor, contractor or bidder in this document refers to respondents to this invitation to bid.

Taxes

The College does not pay federal, excise, or state sales taxes.
The applicable tax-exemption number is: Florida Sales Tax: 85-8013170533C-4

Mandatory Pre-Bid Conference

Attendance at the Mandatory Pre-Bid Conference is a requirement for primary prequalified contractors in order to be eligible to bid on this project.

Bidding Costs

St. Johns River State College is not responsible for any cost incurred by bidders in their efforts in submitting this bid.

Bid Bond

Bid guarantee in the form of a Bid Bond executed by the bidders and a qualified surety, or a certified or cashier's check on national or state bank in the amount of five percent (5%) of the proposal, including alternates, made payable to St. Johns River State College, must accompany the proposal.

Open Competition

The College encourages free and open competition among Pre-Qualified Firms. Whenever possible, specifications, bid invitations, and conditions are designed to accomplish this objective, consistent with the necessity to satisfy the College's needs and the accomplishment of a sound economical operation. The Firm's signature on the Bid Checklist/Response Form guarantees that the Firm, its agents, officers, or employees have not been bribed or attempted to bribe or influence in any way an officer, employee or Agent of the College.

Minority & Women Owned Business Enterprises (M/WBE) Participation

M/WBE participation is encouraged.

Insurance Coverage

Contractor shall obtain, maintain, and pay for insurance in the categories listed in the insurance schedule. The insurance coverage in each category shall meet or exceed the minimum limits set forth in the insurance schedule. St. Johns River State college shall be included as additional named insured on each policy. The insurance shall cover the Firm's entire operations under Agreement with the College and shall be effective throughout the effective period of this Agreement. It is not the intent of this schedule to limit the types of insurance otherwise required by this Agreement or that the Firm may desire to obtain.

Minimum Insurance Requirement Schedule

Refer to 00 73 00 Supplementary Conditions for All Insurance Requirements.

Bid Award Process

The bid award shall be made to the lowest and best proposal, Base and Alternates within budget, which meets or exceeds the conditions of the bid specifications and the College reserves the right to award by individual item, groups of items, "All or None" or a combination thereof contingent upon budget availability. The College is not necessarily bound to accept the lowest bid if that bid is contrary to the best interests of the College. St. Johns River State College reserves the right to waive any minor deviations in otherwise valid bid proposal, to waive any informalities, to reject any or all bid proposals, and to accept the bid which will be in the best interest of SJR State. In addition, the College shall have the right to reject any bid not accompanied by data required by the bid specifications, or a proposal in any way incomplete or irregular. Conditional bids will not be accepted. Should the lowest Bidder exceed the proposal budget of the Owner, the Owner may negotiate with the Bidder in order to obtain a bid within budget, including but not limited to College direct purchase of materials.

Bid Rejection

The College shall have the right to reject any or all bids and in particular to reject a bid not accompanied by data required by the bid specifications or a proposal in any way incomplete or irregular. Conditional bids will not be accepted.

Bid Specification Interpretation

Interpretation of the wording of this document shall be the responsibility of the College and that interpretation shall be final.

Bid Response Materials

The materials submitted in response to this invitation to bid becomes the property of the College upon delivery to the Office of the Director of Capital Contract Management and may be appended to any formal document which would further define or expand the contractual relationship between the College and the successful bidder.

Errors and Omissions

The successful bidder is expected to comply with the true intent of these bid specifications taken as a whole and shall not avail itself of any errors or omissions to the detriment of the services. Should successful bidder suspect any error, omission or discrepancy in the bid documents or instructions, the successful bidder shall immediately notify the College, in writing, and the College shall issue written instructions to be followed. The successful bidder is responsible for the contents of its proposal and for satisfying the requirements set forth in the bid documents.

Bidder Responsibility

It is understood, and the bidder hereby agrees, that it shall be solely responsible for all services that it proposes, notwithstanding the detail present in the bid specifications.

Cone of Silence

SJR State employees, with the exception of the Director of Capital Contract Management, and members of the District Board of Trustees are not to be contacted regarding this bid, either directly or indirectly, except as prescribed in section 120.57, Florida Statutes, to discuss the bid or selection process or in an attempt to further their interest in being selected for bid award. Violation of this cone of silence may result in disqualification of the firm seeking recertification.

Public Records

To the extent that CONTRACTOR meets the definition of "contractor" under Section 119.0701, Florida Statutes, in addition to other contract requirements provided by law, CONTRACTOR must comply with public records laws, including the following provisions of Section 119.0701, Florida Statutes: Keep and maintain public records required by COLLEGE to perform the service.

Upon request from COLLEGE's custodian of public records, provide COLLEGE with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in chapter 119, F.S., or as otherwise provided by law. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the CONTRACTOR does not transfer their records to COLLEGE.

Upon completion of the contract, transfer, at no cost, to COLLEGE all public records in possession of the CONTRACTOR or keep and maintain public records required by COLLEGE to perform the service. If the CONTRACTOR transfers all public records to COLLEGE upon completion of the contract, the CONTRACTOR shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the CONTRACTOR keeps and maintains public records upon completion of the contract, the CONTRACTOR shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to COLLEGE, upon request from COLLEGE's custodian of public records, in a form that is compatible with the information technology systems of COLLEGE. IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS LEGAL COUNSEL, 5001 ST. JOHNS AVE, PALATKA, FL 32177 TONIMAST@SJRRSTATE.EDU (386) 312-4106.

THE CONTRACTOR ACKNOWLEDGES THAT SJR STATE CANNOT AND WILL NOT PROVIDE LEGAL ADVICE OR BUSINESS ADVICE TO CONTRACTOR WITH RESPECT TO ITS OBLIGATIONS PURSUANT TO THIS SECTION RELATED TO PUBLIC RECORDS. THE CONTRACTOR FURTHER ACKNOWLEDGES THAT IT WILL NOT RELY ON SJR STATE OR ITS COUNSEL TO PROVIDE SUCH BUSINESS OR LEGAL ADVICE, AND THAT HE HAS BEEN ADVISED TO SEEK PROFESSIONAL ADVICE WITH REGARDS TO PUBLIC RECORDS MATTERS ADDRESSED BY THIS AGREEMENT. THE CONTRACTOR ACKNOWLEDGES THAT ITS FAILURE TO COMPLY WITH FLORIDA LAW AND THIS AGREEMENT WITH RESPECT TO PUBLIC RECORDS SHALL CONSTITUTE MATERIAL BREACH OF THIS AGREEMENT AND GROUNDS FOR TERMINATION.

Sovereign Immunity

St. Johns River State College is a political subdivision of the State of Florida. As such, the College is entitled to sovereign immunity except to the extent of the waiver set forth in 768.28 F.S., the College's

performance under any resulting agreement and any amendments there to or attachments connected there with, shall at all times be subject to any and all state laws, state regulations and College District Board of Trustees which are applicable to the College's operations, commitments and/or activities in furtherance of any terms specified therein.

Severability

If any provisions of the agreement resulting from this bid are contrary to, prohibited by, or deemed invalid by applicable laws or regulations of any jurisdiction in which it is sought to be enforced, then said provisions shall be deemed inapplicable and omitted and shall not invalidate the remaining provisions of the agreement.

In the event any provision of this agreement shall be held invalid or unenforceable by a court of competent jurisdiction, or by an administrative hearing officer in accordance with Chapter 120, Florida Statutes, such holding shall not invalidate or render unenforceable any other provision hereof.

Venue

The contract, when entered into and any disputes hereunder, shall be construed in accordance with the laws of the State of Florida and enforced in the courts of the State of Florida. College and Firm hereby agree that venue shall be in Putnam County, Florida.

Americans with Disabilities Act of 1990

If special accommodations are required in order to attend the Public Meeting to announce bids received, contact the Assistant Vice President for Facilities, Planning, and Capital Projects at 386-312-4110 or email TerryThomas@sjrstate.edu a minimum of three business days prior to the meeting.

Protests of Awards or Specifications

Failure to file a notice of protest or failure to file a formal written protest within the time prescribed in section 120.57 Florida statutes, or failure to post the bond or other security required by law within the time allowed for filing a bond shall constitute a waiver of proceedings.

Independent Firm

Nothing herein is intended or shall be construed in any way creating or establishing the relation of co-partners between the parties or in any way making the Firm the agent or representative of the College for any purposes in any manner whatsoever. Firm is, and shall remain, an independent Firm with respect to all services performed.

Laws, Ordinances, Rules, Regulations, Permits, and Licenses

The Firm shall observe and obey all laws, ordinances, rules, regulation, and policies of the District Board of Trustees of St. Johns River State College and the federal and state governments which may be applicable to the Firm's operation at St. Johns River State College, and shall, at the sole cost to the Firm, obtain and maintain all permits and licenses necessary to comply with such requirements and standards.

Bid Response Authorization

The bid response shall be signed by a person legally authorized to bind the Firm.

Firm Warranty of Ability to Perform

Firm shall warrant by authorized signature on the bid response that there is no action suit, proceeding, inquiry, or investigation, at law or equity, before or by a court, governmental agency, public board or body, pending or, to the best of the Firm's knowledge, threatened, which would in any way prohibit,

restrain, or enjoin the execution or delivery of the Firm's obligations, diminish the Firm's obligations or diminish the Firm's financial ability to perform the terms of the proposed contract.

Contract

The successful bidder will enter into a contract with the College based on bid documents and the result of the bid award within the time prescribed for contract execution.

Assignment

Neither this agreement nor any duties or obligations under this agreement or resulting contract(s) shall be assigned by Firm without prior written consent of the College.

Indemnification

The firm shall indemnify and hold harmless the College, and any agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Firm or anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense, is caused in part by a party indemnified hereunder. Such obligations shall not be considered to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist.

Payment

When the Contractor receives payment from the Owner for labor, services, or materials furnished by subcontractors and suppliers hired by the Contractor for the project, the Contractor shall remit payment due to those subcontractors and suppliers, less the value of any items contested in accordance with the Contract, within 10 days after the Contractor's receipt of payment from the Owner. When the payment due the subcontractor is for final payment, including retainage, the subcontractor must include with the invoice for final payment a conditional release of lien and all appropriate warranties and closeout documentation. When the subcontractor receives payment from the Contractor for labor, services, or materials furnished by subcontractors and suppliers hired by the subcontractor, the subcontractor shall remit payment due to those subcontractors, less the value of any item contested in accordance with the contract, within ten (10) days after the subcontractor's receipt of payment.

INSTRUCTIONS FOR SUBMISSION OF BIDS

Sealed bids will be accepted in the office of the Assistant Vice President for Facilities, Planning, and Capital Projects, St. Johns River State College, Business Office, 5001 St. Johns Avenue, Palatka, FL 32177 until 2:00 PM EST on January 27, 2025. The bid submission must be sealed and clearly marked 'BID SJR-06-2024' on the outside of the package containing the bid response. Bids received after that time and date will be marked late and will not be considered. It is the sole responsibility of the bidder to ensure that the bid is delivered to the Office of the Assistant Vice President for Facilities, Planning, and Capital Projects, in the Business Office of St. Johns River State College, 5001 St. Johns Avenue, Palatka, Florida prior to the deadline. Failure of a delivery service or US mail to deliver bid responses by the due date and time shall not constitute an extension to the deadline. Faxed, e-mailed, conditional, improperly identified submissions, bids delivered to the wrong location, and bids received after the deadline will not be considered.

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

Submit one original and one digital copy of the bid submission. The bid response must include a signed Bid Checklist/Response Form and each document indicated on this form. All documents should be bound or stapled to the Bid Checklist/Response Form. Failure to submit a bid on the required form shall be grounds for disqualification of the bid.

END OF SECTION 00 22 13

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

SECTION 00 22 18 – TRENCH SAFETY CERTIFICATION

Provide price for trench safety for trench excavations in excess of five (5) feet deep in accordance with the Trench Safety Act, Chapters 90-96, Laws of Florida and OSHA Standard 29 C.F.R. s. 1926.650, Subpart P. The Bidder by execution of this Bid Proposal certifies that he will comply fully with the above said Trench Safety Act and OSHA Safety and Health Standards.

The Contractor herein verifies that he is aware of the Trench Safety Act and has in his/her bid all costs related to the requirement of this Act.

Certified by Contractor

SECTION 00 25 13 – MANDATORY PRE-BID MEETING AND SITE VISIT

PART 1 – GENERAL

1.1 SUMMARY

- A. Prime Bidders (Invited, Pre-Qualified Contractors) must attend the **MANDATORY PRE-BID MEETING** described in the Invitation to Bid (Section 00 11 16).
- B. Attendance is mandatory for Pre-Qualified Prime Bidders. Sub-contractors are invited and encouraged to attend the Mandatory Pre-Bid Conference, but attendance is only mandatory for prime bidders.
- C. Agenda Outline: Prepared by St. Johns River State College (Owner)
 - 1. Public Meeting Call to Order
 - 2. Welcome and Opening Remarks
 - 3. Attendance roster to be signed by all attendees
 - 4. Introduction of Owner (SJR State) Project Team Attendees
 - 5. Introduction of Architect/Engineer & Project Team and Attendees
 - 6. Project Summary and Scope of Work
 - 7. Availability of Documents
 - a. Plan Rooms
 - b. General Contractors
 - c. Sub-Trade Plan Availability
 - d. Set Purchases (full)
 - 8. Instructions to Bidders and Review of Bid Process
 - 9. Contractual Agreement
 - 10. Proposal Submission Requirements & List(s) of Subcontractors
 - 11. Products and Substitutions
 - 12. Addenda Schedule
 - 13. Contractor Question Period (answers will be included in an addendum)
 - 14. Closing Statements
 - 15. Public Meeting Adjournment
 - 16. Site Visit

PART 2 – PRODUCTS (Not applicable)

PART 3 – EXECUTION

3.1 AGENDA

- A. Copies of this agenda will be available to all parties in attendance.

END OF SECTION 00 25 13

SECTION 00 31 13 – PROJECT SCHEDULE

- Bid Documents/Plans Available to Pre-Qualified General Contractors
 - Date: December 2, 2024
- **Mandatory Pre-Bid Conference**
 - Date: December 2, 2024
 - Time: 9:30 A.M.
 - Location: Palatka Campus
 - St. Johns River State College, Administration Building, Room A0152 Valhalla Hall, 5001 St. Johns Avenue, Palatka, FL 32177
- **Deadline for Bid Submission**
 - Date: January 27, 2025
 - Time: 2:00 P.M.
 - Location: Palatka Campus
 - Sealed bids, bearing on the outside of the envelope the name of the contractor and '**BID-SJR-06-2024**', must be received in the **St. Johns River State College, Business Office, Attention: Mrs. Terry Thomas, 5001 St. Johns Avenue, Palatka, FL 32177**
- **Public Meeting to Verbally Announce Bids Received (Bid Opening)**
 - Date: January 27, 2025
 - Time: 2:30 P.M.
 - Location: Palatka Campus
 - St. Johns River State College, Administration Building, **Room A-152 (Valhalla Hall)**, 5001 St. Johns Avenue, Palatka, FL 32177
- **Electronic Posting of Bid Results & Notice of Intent to Award**
 - Date: January 28, 2025, at <https://www.sjrstate.edu/-062024>
- **Award of Bid by SJR STATE COLLEGE**
 - Date: February 19, 2025
 - Location: DBOT Meeting, Thrasher Horne Center, Orange Park Campus
 - St. Johns River State College, 283 College Drive, Orange Park, FL 32065
- **Electronic Posting of Bid Award**
 - Date: February 20, 2025, at <https://www.sjrstate.edu/062024>

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
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- **Notice to Proceed Issued:**
 - Upon receipt of Executed Contract, Bonds, Certificate of Insurance, & Permit
 - Pre-Construction Meeting
 - Date/Time/Location: **To Be Determined**
- **Pre-Construction Meeting**
 - Date: **March 19, 2025**
 - Time: **9:30 a.m.**
 - Location: St. Johns River State College, Administration Building, Room A0152 (Valhalla Hall), 5001 St. Johns Avenue, Palatka, Florida 32177
- **Construction Start**
 - Upon Notice to Proceed Issued
- **Substantial Completion**
 - 365 Calendar Days from Notice to Proceed Date
- **Final Completion**
 - 30 Days after Substantial Completion

END OF SECTION 00 31 13

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

SECTION 00 31 26 – EXISTING HAZARDOUS MATERIAL INFORMATION

1.1 EXISTING HAZARDOUS MATERIAL INFORMATION

- A. An updated Asbestos Report will be available before construction period begins.

END OF SECTION 00 31 26

SECTION 003132 – GEOTECHNICAL DATA

1.1 GEOTECHNICAL DATA

1. This document provides Owner's information for Bidders' convenience and is not meant to supplement the Bidders' own investigations. The attachment is made available for Bidders' information only.
2. The subsurface soil investigation is to determine the nature of the soil below the natural grade has been made at various locations on the site. Test borings indicate only the soil conditions at the points where samples were taken and are not intended to indicate the soil conditions for the entire site.
3. Data on indicated subsurface conditions is not intended as representations or warranties of accuracy or continuity of such soil conditions between soil borings. It is expressly understood that the Owner will not be responsible for interpretations or conclusions drawn there from by Bidders.
4. Test boring and exploratory operations may be made by the Contractor at no additional cost to the Owner.
5. The complete soil investigation data report is made available for the convenience of the Contractor only and is included herewith as follows:
6. Report of Geotechnical Engineering Study Report – *Report of a Geotechnical Exploration* prepared by Universal Engineering Sciences, Report No. 2097796, dated July 16, 2024.

END OF SECTION 03 31 32

SECTION 00 41 13 – BID FORM – STIPULATED SUM

Place an "x" on the lines below of the documents attached to this form.

- _____ Bid Form and Addenda Acknowledgement
- _____ Licenses (Specifications Document)
- _____ Certificate of Insurance (COI) (Specifications Document)
- _____ Section 00 22 18 – Trench Safety Certification
- _____ Section 00 43 36 - Subcontractors List
- _____ Section 00 45 19 – Non-Collusion Affidavit
- _____ Section 00 62 00 – Bid Bond Form or Cashier's Check
- _____ Public Entity Crimes Form (After Bid Form and Addenda Acknowledgement)
- _____ Drug Free Workplace Program Form (After Bid Form and Addenda Acknowledgement)
- _____ Conflict of Interest Form (After Bid Form and Addenda Acknowledgement)
- _____ Non-Discrimination In Employment Policy Form (After Bid Form and Addenda Acknowledgement)
- _____ Hold Harmless and Indemnification Agreement (After Bid Form and Addenda Acknowledgement)
- _____ Legal Issues (After Bid Form and Addenda Acknowledgement)

The undersigned Bidder hereby declares that the only person or persons interested in this proposal as Principal is named herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without any connection with any person, company, or party submitting a proposal; and that it is in all respects fair and in good faith, without collusion or fraud.

The Bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the places where the work is to be done; that he has satisfied himself relative to the work to be performed and agrees to and by them.

NAME OF BIDDER

The Bidder proposes and agrees to provide all necessary materials, equipment, machinery, tools, apparatus, means of transportation, labor, and services necessary to complete the work for BID-SJR-03-2019 for St. Johns River State College.

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
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Base Bid: _____ (\$ _____)

Bid Alternate 1: _____ (\$ _____)
Aperio Hub Doors (Add Alternate)

Bid Alternate 2: _____ (\$ _____)
Catwalk in Blackbox (Deductive Alternate)

Bid Alternate 3: _____ (\$ _____)
DMX Dynamic Lighting Function (Add Alternate)

Bid Alternate 4: _____ (\$ _____)
Facelift Finish to Backstage/Dressing Room Area (Deductive Alternate)

Bid Alternate 5: _____ (\$ _____)
Elimination of Equipment Screens (Deductive Alternate)

Bid Alternate 6: _____ (\$ _____)
Office Doors – Narrow Lite (Deductive Alternate)

Bid Alternate 7: _____ (\$ _____)
Reduce Size of Blackbox Windows (Deductive Alternate)

Bid Alternate 8: _____ (\$ _____)
Eliminate Windows Between 2nd Floor Offices and Theater (Deductive Alternate)

Bid Alternate 9: _____ (\$ _____)
President's Box – Cushioned Mobile Seating (Deductive Alternate)

Bid Alternate 10: _____ (\$ _____)
Lobby Acoustic Ceiling – Alternate Product (Deductive Alternate)

Bid Alternate 11: _____ (\$ _____)
Eliminate Corridor Flooring Near Piano/Photo Studio on East Side of South Wing (Deductive Alternate)

Bid Alternate 12: _____ (\$ _____)
TPO Roofing with Fleece-Backed 20-year Warranty (Deductive Alternate)

The Bidder proposes and agrees hereby to commence the Work with adequate workforce and equipment within seven (7) consecutive days after being notified by the Owner to do so and shall carry on at a rate to secure Substantial completion as indicated in the Supplementary Instructions to Bidders. The Bidder agrees that Liquidated Damages in the amount as indicated in the Supplementary Instructions to Bidders for each day that work remains incomplete, shall be assessed against him if the work is not completed within the above specified time limit.

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
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Attached hereto is a Bid Bond in the sum of:

_____ Dollars (\$_____)

made payable to the Owner.

The following Addenda were received:

Addendum _____, Dated _____

Addendum ____, Dated _____

Addendum _____, Dated _____

Addendum ____, Dated _____

Addendum _____, Dated _____

Addendum ____, Dated _____

Date: _____

Authorizing Signature: _____

All companies certify by their signature that they have read and understand the conditions and specifications of the bid and have included all required documents, and that they have the authority, capacity, and capability to perform according to the conditions and specifications of BID-SJR-03-2023.

Company Name: _____

Address: _____

City, State, Zip: _____

Telephone Number: _____

Authorized Signature: _____

Printed Name: _____

Title: _____

END OF SECTION 00 41 13

SWORN STATEMENT UNDER SECTION 287.133(3)(a), FLORIDA
STATUTES, ON PUBLIC ENTITY CRIMES

(To be signed in the presence of a notary public or other officer authorized to administer oaths)

STATE OF _____

COUNTY OF _____

Before me, the undersigned authority, personally appeared _____, who, being by me first duly sworn, made the following statement:

1. The business address of _____ (name of bidder or contractor)
is _____

2. My relationship to _____ (name of bidder or
contractor) is: _____
(state relationship such as sole proprietor, partner, president, vice president)

3. I understand that a public entity crime as defined in Section 287.133 of the Florida Statutes includes a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity in Florida or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or such an agency or political subdivision and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

4. I understand that "convicted" or "conviction" is defined by the statute to mean a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

5. I understand that "affiliate" is defined by the statute to mean (1) a predecessor or successor of a person or a corporation convicted of a public entity crime, or (2) an entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime, or (3) those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate, or (4) a person or corporation who knowingly entered into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months.

6. Neither the bidder or contractor nor any officer, director, executive, partner, shareholder, employee, member, or agent who is active in the management of the bidder or contractor nor any affiliate of the bidder or contractor has been convicted of a public entity crime subsequent to July 1, 1989.

(Draw a line through paragraph 6 if paragraph 7 below applies)

7. There has been a conviction of a public entity crime by the bidder or contractor, or an officer, director, executive, partner, shareholder, employee, member, or agent of the bidder or contractor who is active in the management of the bidder or contractor or an affiliate of the bidder or the contractor. A determination has been made pursuant to Section 287.133(3) by order of the Division of Administrative Hearings that it is not in the public interest for the name of the convicted person or affiliate to appear on the convicted vendor list. The name of the convicted person or affiliate is _____. A copy of the order of the Division of Administrative Hearings is attached to this statement.

(Draw a line through paragraph 7 if paragraph 6 above applies)

Sworn to and subscribed before me in the state and county first mentioned above on the _____ of _____, 20____.

(affix seal)

Notary Public

My Commission Expires _____
PUR 7068 (8/89)
SITE IMPROVEMENTS PROJECT - PALATKA CAMPUS

DRUG FREE WORKPLACE PROGRAM FORM

In order to have a drug-free workplace program, a business shall:

- 1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- 2) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
- 3) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in Subsection (1).
- 4) In the statement specified in Subsection (1), notify the employees that, as a condition of working in the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after conviction.
- 5) Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
- 6) Make good faith effort to continue to maintain a drug-free workplace through implementation of this section.

AS THE PERSON AUTHORIZED TO SIGN THIS STATEMENT, I CERTIFY THAT THIS FIRM,

(Name of Company)

COMPLIES FULLY WITH THE ABOVE REQUIREMENTS.

Authorized Signature

Date

CONFLICT OF INTEREST DISCLOSURE FORM

Name of Firm

Instruction to bidder:

The purpose of this disclosure statement is to give the College the information needed to identify potential conflicts of interest for evaluation committee members and other key personnel involved in the award of the bid.

All responders to this bid must disclose within their response the name of any officer, director, or agent who is also an employee of St. Johns River State College or member of the District Board of Trustees. **Complete Item 1 with requested information or enter 'none' on the first line.**

In addition, all responders to this bid must disclose the name of any SJR State employee or member of the District Board of Trustees of St. Johns River State College who owns, directly or indirectly, an interest of more than five percent (5%) in the responder's firm or any of its branches. **Complete Item 2 with requested information or enter 'none' on the first line.**

To be completed by bidder:

1. List below the bidder's officers, directors, employees or agents who are also employees or members of the District Board of Trustees of St. Johns River State College?

Name

Position Held at SJR State

2. List below the bidder's officers, directors, employees, or agents who owns, directly or indirectly, any interest of more than five percent (5%) in the responder's firm or any of its branches, who are also employees or members of the District Board of Trustees of St. Johns River State College?

Name

Position Held at SJR State

Signature: _____

Date: _____

Printed Name: _____

NON-DISCRIMINATION IN EMPLOYMENT POLICY

(Section 301, Executive Order 10925, March 6, 1961, 26 FR 1977 as amended by Executive Order 11114, June 22, 1963, 28 FR 6485)

"During the performance of this contract the Contractor agrees as follows:

"(1) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include, but not be limited, to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this non-discrimination clause.

"(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor; state that all qualified applicants will receive consideration for employment without regard to race, creed, color or national origin.

"(3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the said labor union or workers' representative of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

"(4) The Contractor will comply with all provisions of Executive Order No. 10925 of March 6, 1961, as amended, and of the rules, regulations, and relevant orders of the President's Committee on Equal Employment Opportunity created thereby.

"(5) The Contractor will furnish all information and reports required by Executive Order No. 10925 of March 6, 1961, as amended, and by the rules, regulations, and orders of the said Committee, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Committee for purposes of investigation to ascertain compliance with such rules, regulations and orders.

"(6) In the event of the Contractor's noncompliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Governments contracts in accordance with procedures authorized in Executive Order No. 10925 of March 6, 1961, as amended, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order or by rule, regulation, or order of the President's Committee on Equal Employment Opportunity, or as otherwise provided by law.

"(7) The Contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the President's Committee on Equal Employment Opportunity issued pursuant to section 303 of Executive Order No. 10925 of March 6, 1961, as amended, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provide, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States."

By: _____ By: _____
Legal Name of Bidder/Company Signatory's Name & Title

By: _____ Date: _____
Signature

St. Johns River State College
Rem/Add to the FloArts Building Project – Palatka Campus
Bid Number: BID-SJR-06-2024

Hold Harmless and Indemnification Agreement

**THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO
ADMINISTER OATHS.**

1. This agreement is submitted with Bid and is submitted to St. Johns River State College.
2. This sworn statement is submitted by _____ (entity name) whose business address is _____ and (if applicable its Federal Employer Identification Number - FEIN) is _____.
3. My name is _____ and my relationship to the entity named above is _____.

The indemnitor assumes an unqualified obligation to hold SJR State College harmless for all liability associated with the subject matter of the agreement, regardless of which party was actually at fault (even if the damage, injury, or claim is due to the sole negligence of SJR State College).

To the fullest extent permitted by law, Consultant, Contractor, lessee, or vendor will indemnify and hold SJR State College harmless from all claims arising from or in connection with (i) the conduct or management of the Premises or of any business therein, or any work or thing whatsoever done, or any condition created in or about the Premises during the Term; (ii) any act, omission, or negligence of consultant, Contractor, lessee, or vendor or any of consultant's, Contractor's, lessee's, or vendor's subtenants or licensees or the partners, directors, officers, agents, employees, invitees, or Contractors; (iii) any accident, injury, or damage whatsoever occurring in or at the Premises. Consultant, Contractor, lessee, or vendor hereby expressly indemnifies SJR State College for the consequences of any negligent act or omission of SJR State College and its Board of Trustees, officers, employees, agents, and volunteers, unless such act or omission constitutes gross negligence or intentional misconduct.

Signature: _____

Date: _____

State of _____ County of _____

Personally appeared before me, the undersigned authority, _____ who
after being first duly sworn by me affixed his/her signature in the space provided above on this _____ day of
_____ 20____.

Notary Public Signature

Notary Public Seal

Legal Issues

The bidder must indicate if there are any:

- A. Suits or proceedings pending, or to the knowledge of the bidder, threatened in any court or before any regulatory commission or other administrative governmental agency against or affecting the bidder or the instructors to be used in providing the Services, which, if adversely determined, will have a material adverse effect on the ability of the bidder or any of its instructors to perform their obligations as stated in their response.

If there are no issues in these areas, please respond that there are no pending or threatened suits or defaults.
Pending Litigation: (please attach additional documentation if needed)

- B. The bidder is not in default under any instrument or agreement to which it is a party or by which it or any of its properties or assets may be bound, or in violation of any applicable laws, which default, or violation may reasonably be expected to have a material adverse effect on the financial condition of the bidder.

If there are no issues in these areas, please respond that there are no pending or threatened suits or defaults.

St. Johns River State College
Rem/Add to the FloArts Building Project – Palatka Campus
Bid Number: BID-SJR-06-2024

Signature

Title

Printed Name

Date

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

SECTION 00 43 36 – SUBCONTRACTORS LIST

DIVISION OF WORK	PROPOSED SUBCONTRACTOR	PRINCIPAL/OFFICER	CORP. ADDRESS	LICENSE NO.
DEMOLITION				
SITEWORK				
CONCRETE				
MASONRY				
STRUCTURAL STEEL				
CEMENT PLASTER				
GLAZING				
ROOFING				
FLOORING				
HVAC				
PLUMBING				
ELECTRICAL				
PAINTING				
DRYWALL				

SIGNED: _____
(BIDDER)

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

SECTION 00 45 19 – NON-COLLUSION AFFIDAVIT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. St. Johns River State College Non-Collusion Affidavit is attached. This form must be copied, completed, notarized and submitted with the Contract Documents.

PART 2 – PRODUCTS *(Not Applicable)*

PART 3 – EXECUTION *(Not Applicable)*

END OF SECTION 00 45 19

NON-COLLUSION AFFIDAVIT

STATE OF _____

COUNTY OF _____

I state that I _____ of _____ ,
(Name and Title) (Name of Firm)

am authorized to make this affidavit on behalf of my firm and its owner, directors and officers. I am the person responsible in my firm for the price(s) and amount(s) of this Response, and the preparation of the Response. I state that:

1. The price(s) and amount(s) of this Response have been arrived at independently and without consultation, communication or agreement with any other Provider, potential provider, Proposal, or potential Proposal.
2. Neither the price(s) nor the amount(s) of this Response, and neither the approximate price(s) nor approximate amounts(s) of this Response, have been disclosed to any other firm or person who is a Provider, potential Provider, Proposal, or potential Proposal, and they will not be disclosed before Proposal opening.
3. No attempt has been made or will be made to induce any firm or persons to refrain from submitting a Response for this contract, or to submit a price(s) higher than the prices in this Response, or to submit any intentionally high or noncompetitive price(s) or other form of complementary Response.
4. The Response of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive Response.
5. _____ , its affiliates, subsidiaries, officers, director, and
(Name of Firm)
employees are not currently under investigation, by any governmental agency and have not in the last three years been convicted or found liable for any act prohibited by State or Federal Law in any jurisdiction, involving conspiracy or collusion with respect to Proposal, on any public contract, except as follows:

I state that I and the named firm understand and acknowledge that the above representations are material and important, and will be relied on by the State of Florida for which this Response is submitted. I understand and my firm understands that any misstatement in this affidavit is, and shall be treated as, fraudulent concealment from the State of Florida of the true facts relating to the submission of responses for this contract.

Dated this _____ day of _____, 20____.

Name of Organization: _____

Signed by: _____

Printed Name: _____

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

Being duly sworn deposes and says that the information herein is true and sufficiently complete so as not to

be misleading. Subscribed and sworn before me this _____ day of _____, 20____.

Notary Public: _____

My Commission Expires: _____

END OF SECTION 00 45 19

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

SECTION 00 52 00 – A101-2017

DRAFT AIA® Document A101™ – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

« »
« »
« »
« »

and the Contractor:
(Name, legal status, address and other information)

« »
« »
« »
« »

for the following Project:
(Name, location and detailed description)

« »
« »
« »

The Architect:
(Name, legal status, address and other information)

« »
« »
« »
« »

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

The parties should complete A101™-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☐ Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

[« »] Not later than « » (« ») calendar days from the date of commencement of the Work.

[« »] By the following date: « »

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » (\$ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

« »

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the « » day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the « » day of the « » month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than « » (« ») days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« »

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

<< >>

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

<< >>

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

<< >>

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

<< >>

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

<< >> % << >>

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

<< >>

<< >>

<< >>

<< >>

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2017

☐ Litigation in a court of competent jurisdiction

☐ Other *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.)

« »

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:

(Name, address, email address, and other information)

« »

« »

« »

« »

« »

« »

§ 8.3 The Contractor’s representative:

(Name, address, email address, and other information)

« »

« »

« »

« »

« »

« »

§ 8.4 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days’ prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

« »

§ 8.7 Other provisions:

« »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

(Insert the date of the E203-2013 incorporated into this Agreement.)

« »

- .5 Drawings

Number	Title	Date

- .6 Specifications

Section	Title	Date	Pages

- .7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

- .8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[« »] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

<< >>

[<< >>] The Sustainability Plan:

Title	Date	Pages

[<< >>] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

<< >>

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

<< >><< >>

(Printed name and title)

CONTRACTOR (Signature)

<< >><< >>

(Printed name and title)

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

SECTION 00 52 10 – A201-2017

DRAFT AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

<< >>
<< >>

THE OWNER:

(Name, legal status and address)

<< >>< >>
<< >>

THE ARCHITECT:

(Name, legal status and address)

<< >>< >>
<< >>

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For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, *Guide for Supplementary Conditions*.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

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

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or

relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as

the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

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

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

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

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

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

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and

similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will

specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in

number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

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

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

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

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

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
 - .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
 - .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
 - .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
 - .5 damage to the Owner or a Separate Contractor;
 - .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- or

.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;

- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed

by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the

procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

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

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect

timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract

Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work

properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

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

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party

provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

SECTION 00 54 22 – UNIT PRICES SCHEDULES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. The section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

1. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

1. Unit prices include all necessary material, plus cost for delivery, protection from the elements, installation, insurance, applicable taxes, overhead, and profit.
2. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
3. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
4. List of Unit Prices: If applicable, a Schedule for Unit Prices will be prepared if needed by the Architect.

END OF SECTION 00 54 22

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

SECTION 00 61 00 – BID BOND FORM

BID BOND FORM

AIA Document A310, Bid Bond, February, 2010, is the form to be used.

AIA Document A310 may be purchased from the Florida Association of the American Institute of Architects, (AIA Florida), 104 East Jefferson Street, Tallahassee, Florida, telephone: 904-222-7590, fax: 904-224-8048, or may be examined at the Architect's office.

END OF SECTION 00 61 00

SECTION 00 62 00 – BONDS AND CERTIFICATES

PART 1 – GENERAL

1.1 PERFORMANCE BOND AND LABOR & MATERIAL PAYMENT BOND

A. AIA Document A312 Performance and Payment Bond, 2010 Edition is the form of to be used for this Work.

B. AIA Document A312 may be purchased from the Florida Association of the American Institute of Architects, (AIA Florida), 104 East Jefferson Street, Tallahassee, Florida, Tel: 904-222-7590, Fax: 904-224-8048, or may be examined at the Architect's office.

1.2 BONDS SPECIFIED ELSEWHERE

A. See ALL Divisions for other bonds, warranties, etc., that may be required.

1.3 CERTIFICATE OF INSURANCE

A. Contractor shall provide all relevant certificates of insurance.

END OF SECTION 00 62 00

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS OF THE CONTRACT

INTRODUCTORY PARAGRAPH

The following supplements, modify, change, delete from or add to the General Conditions of the Contract for Construction, AIA Document A201, 2007. Where a portion of the General Conditions is modified or deleted by these supplements, the unaltered portions of the General Conditions shall remain in effect.

ARTICLE 1 GENERAL PROVISIONS

1.1.3 THE WORK

Add the following sentence to the end of Paragraph 1.1.3

The term “furnish” includes purchase and delivery to Project Site. The term “install” includes receiving, unloading and storing at Project Site, installing in place, and placing in operation or finishing complete for intended use. The term “provide” includes furnishing and installing.

1.1.9 MISCELLANEOUS DEFINITIONS

1.1.9.1 The term “provide” as used in the Project Manual means to furnish and install, complete and ready for intended use.

1.1.9.2 The term “product” as used in the Project Manual includes materials, fabrications, systems and equipment.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following subparagraphs to Paragraph 1.2

1.2.4 Should the Drawings and Specifications conflict at any point, the work is to be done according to the Specifications insofar as the quality of materials and workmanship is concerned; but the Drawings shall govern insofar as the form or extent of the work is concerned. Should details and schedules shown on drawings conflict on any point, the schedules prevail. Large-scale details prevail over small-scale plans and elevations, and figure dimensions over scaled dimensions. AIA General Conditions, Addenda and Change Orders supersede the portions of the Documents.

1.2.5 The Drawings are intended to show the general arrangements, design and extent of the Work, and are partly diagrammatic; they are not intended to be called for rough-in measurements, or to serve as Shop Drawings. In general, the better quality or greater quantity of Work or materials shall be furnished unless otherwise indicated in Writing by the Architect.

1.2.6 Where a typical or representative detail is shown on the Drawings, this detail shall constitute the standard in workmanship and materials throughout corresponding parts of the Work; adaptation, however, shall be subject to the approval of the Architect.

1.6 TRANSMISSION OF DATA IN DIGITAL FORMAT

Add the following subparagraph 1.6.1 to Paragraph 1.6

1.6.1 Contractor's Use of Instruments of Service in Electronic Form

- .1 The Architect may, with the concurrence of the Owner, furnish to the Contractor versions of Instruments of Service in electronic form. The Contract Documents executed or identified in accordance with Subparagraph 1.5.1 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations involving computers.
- .2 The Contractor shall not transfer or reuse Instruments of Service in electronic or machine-readable form without prior written consent of the Architect.

ARTICLE 2 OWNER

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

Paragraph 2.2.2: At the end of this paragraph, add the following new text:

As it relates to sanitary sewer and water utility services, the Owner shall pay any applicable capital facilities fees or front footage fees, tap fees, water meters, or other required equipment items related to services provided by the utility entity.

Paragraph 2.2.5, delete the text in this paragraph and replace with the following text:

Upon award of the Contract, the Architect will furnish to the Contractor without charge, five (5) sets of Contract Drawings, Specifications and Addenda. The Contractor may obtain additional sets of the above from the Architect, at the cost of printing and handling.

ARTICLE 3 CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

Add the following Clause after Subparagraph 3.2.1

3.2.1.1 Contractor shall ascertain the location of all existing utilities prior to beginning new and alteration work.

Verify locations of utility lines shown on Drawings; locate and mark each utility prior to start of construction. Any damage caused to any utility as a result of Work on this Project shall be promptly repaired or replaced at the sole expense of the Contractor and no additional money will be paid by the Owner.

Add the following Subparagraph 3.2.5 to paragraph 3.2

The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for the Architect to evaluate and respond to the Contractor's requests for information, where such information was available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, or other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

Add the following Subparagraph 3.2.6

Claims for additional compensation or extensions of time because of the failure of the Contractor to field verify proposed and existing Work will not be allowed.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Add the following after Subparagraph 3.3.1

- .1 The Contractor shall review, verify, and be in agreement with any specified construction or installation procedure and installation prior to performing the Work, including manufacturers recommended and referenced standards, and shall report to the Architect at once if the specified procedure and instruction (1) does not appear to follow reasonable construction practice, (2) may invalidate any specific warranty or general Contractor's warranty, or (3) may be objectionable to the Contractor for some reason.

3.3.1.2 In conjunction with reporting an objection, the Contractor shall propose, in writing, alternative procedures to which the Contractor will agree and warrant.

3.4 LABOR AND MATERIALS

Delete Subparagraph 3.4.2 and add the following:

3.4.2 After the Contract has been executed, the Owner and Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specifications). By making requests for substitutions, the Contractor:

- .1 represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified.
- .2 represents that the Contractor will provide the same warranty for the substitutions that the Contractor would for that specified.
- .3 certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's re-design costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and
- .4 will coordinate installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

Add the following Subparagraph 3.4.4 to Paragraph 3.4

3.4.4 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect to evaluate the Contractor's proposed substitutions and to make agreed-upon changes in the Drawings and Specifications made necessary by the Owner's acceptance of such substitutions.

Add the following to Subparagraph 3.4.3

Should the Architect or Owner find any person(s) employed on the project to be incompetent, unfit, or otherwise objectionable for his duties, the Contractor shall immediately cause the employee to be dismissed and said employee shall not be re-employed on this project without the written consent of the Architect and the Owner.

After Paragraph 3.4.4, add the following new paragraph 3.4.5:

3.4.5 The Owner will require of the Contractor that, to the fullest extent possible, preference in the employment of all skilled and unskilled labor, other than the Contractor's key personnel, be given to residents of

Putnam, St. Johns and Clay counties where such labor is available and qualified to do the type of work required.

3.5 WARRANTY

After paragraph 3.5, add the following new Subparagraph 3.5.1:

3.5.1 Specific and special warranties specified are in addition to and not in lieu of the Contractor's general warranty.

3.6 TAXES

Add the following to Paragraph 3.6

3.6.1 Contractor shall pay unemployment and Social Security taxes and other taxes imposed by Local, City, State, or Federal government and certify to Owner that this has been done before final payment is made to Contractor.

3.6.2 SJR State reserves the right to implement a sales tax savings program by selecting certain items for Direct Purchase. See Article 16.6 of these Supplementary Conditions.

3.7 PERMITS, FEES AND NOTICES

Delete Subparagraph 3.7.1 and substitute the following:

3.7.1 The Owner shall secure and pay for the building permit and the Contractor shall secure and pay for all other permits, governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract, and which are legally required when bids are received or negotiations concluded.

Add the following Clause 3.7.1.1 to Subparagraph 3.7.1

3.7.1.1 Contractor shall provide copies of Change Orders to the Building Official and DOE.

3.9 SUPERINTENDENT

Add the following Subparagraph 3.9.4 to Paragraph 3.9

3.9.4 The Contractor shall employ a superintendent or an assistant to the superintendent who will perform as coordinator for the mechanical and electrical work. The coordinator shall be knowledgeable in mechanical and electrical systems and capable of reading, interpreting and coordinating Drawings, Specifications, and Shop Drawings pertaining to such systems. The coordinator shall assist the Subcontractors in arranging space conditions to eliminate interference between the mechanical and electrical systems and other work and shall supervise the preparation of coordination drawings documenting the spatial arrangements for such systems within restricted spaces. The coordinator shall assist in planning and expediting the proper sequence of delivery of mechanical and electrical equipment to the site.

3.12 SHOP DRAWINGS< PRODUCT DATA AND SAMPLES

Add the following Subparagraph 3.12.11 to Paragraph 3.12

3.12.11 The Architect's review of the Contractor's submittals will be limited to examination of an initial submittal and two (2) re-submittals. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for evaluation of such additional re-submittals.

3.13 USE OF SITE

Add the following Subparagraph 3.12.3 to Paragraph 3.13

3.13.2 The Contractor shall confine his equipment, storage of materials, and operations of his workmen to limits directed by the Architect. Materials shall not be brought onto the site until reasonably required for the progress of the Work. Storage space will be confined to a designated area of the site. When the site is not in a condition to receive a material shipment, the Contractor shall have materials properly stored elsewhere at no additional cost to the Owner. No payment for materials shall be made unless material is stored on site.

3.13.3 Material shall be arranged and maintained in an orderly manner with use of walks, drives, roads and entrances unencumbered. Store, place and handle material and equipment delivered to project site so as to preclude inclusion of foreign substances or causing discoloration. Pile neatly and completely and barricade to protect public from injury. Protect material as required to prevent damage from ground or weather. Should it be necessary to move material at any time, or move sheds or storage platforms, Contractor shall move them as and when required at no additional cost to the Owner. The Owner assumes no responsibility for stored materials in building or on site. The Contractor shall assume full responsibility for damage due to storing of materials. Repairing of areas used for the placing of sheds, offices, and storage of materials shall be done by the Contractor.

3.14 CUTTING AND PATCHING

After paragraph and the following new paragraph 3.14.3:

Existing structures and facilities, including but not limited to buildings, utilities, topography, streets, curbs, sidewalks, landscape materials and other improvements that are damaged or removed due to Contractor's work, shall be patched, repaired, or replaced by the Contractor to the satisfaction of the Architect and authorities having jurisdiction. In the event that local authorities having jurisdiction require that such repairing and patching be done with their own labor and materials, the Contractor shall abide by such regulations and pay for such work.

ARTICLE 4 ARCHITECT

4.2 ADMINISTRATION OF THE CONTRACT

Paragraph 4.2.3, at the end of this paragraph, add the following new text:

If on-site inspections and observations disclose defects and deficiencies or work not being carried **out in accordance with the Contract Documents, the Architect shall request the Contractor to correct such deficiencies.** If the Contractor fails to take corrective action within a reasonable time, the Architect will notify the Owner in writing with a copy of such notice to the Contractor, calling the Owner's attention to the Contractor's failures to carry out the provisions of the Contract.

At the end of Paragraph 4.2.13, add the following new text to the end of the last sentence:

And, if and when approved by the Owner.

Add the following Clause after Subparagraph 4.2.4:

4.2.4.1 Any direct communication between the Owner and Contractor which may affect the administration or performance of the Contract shall be made or confirmed in writing, with copies to the Architect.

ARTICLE 5 SUBCONTRACTORS

5.2 THE AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

In the first sentence of Subparagraph 5.2.1 change the phrase "...as soon as practicable..." to read "...within 10 days..."

ARTICLE 6 CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

6.2.6 Claims, disputes and other matters in question between the Contractor and a separate contractor shall be subject to the provisions of Paragraph 4.3, provided the separate contractor has reciprocal obligations. If such separate contractor sues the Owner on account of damages alleged to have been sustained, the Owner shall have the option of defending such proceeding or of notifying the Contractor who shall defend such proceeding and shall pay all costs in connection therewith; and if any judgment against the Owner arises therefrom, the Contractor shall pay or satisfy it, together with the Owner's reasonable costs, including attorney's fees and court costs.

Add the following Subparagraphs to Paragraph 6.2

6.2.7 Project meetings will be held at times designated by the Architect after conference with the Contractor. Contractor and designated Subcontractors must attend these meetings. If the principal of the firm does not attend meetings, the individual representing the firm must be a responsible representative of the company who can bind the company to a decision at the meeting.

ARTICLE 7 CHANGES IN THE WORK

7.1 GENERAL

Add the following to Paragraph 7.1.3

"The cost of all changes in the Work shall be substantiated by complete itemized statements showing quantities and unit prices for all material, labor (including all fringe benefits), equipment and other items of cost. The cost of labor (including applicable fringe benefits) and materials shall be actual costs to the Contractor. The Contractor shall submit receipts or other evidence, as the Architect may direct, showing his actual costs and his rights to the payment claims."

Add the following Paragraph 7.1.4 and Clauses to Paragraph 7.1

7.1.4 In the maximum percentage of profit and overhead which may be added to actual costs of changes in the Work shall be as follows:

- .1 For Work done by his own organization, the Contractor may add ten percent (10%) of his actual costs.
- .2 For Work done by Subcontractors, the respective Subcontractor may add ten percent (10%) of their costs and the Contractor and add ten percent (10%) of the above Subcontractor's total
- .3 Overhead shall include the following: Supervision, wages or timekeepers, watchmen and clerks, hand tools, incidentals, general office expense, and all other expenses not included in "cost".
- .4 Authorizations for changes in the Work shall be made in writing to the Architect and the Owner, and no claim for the revision of the Contract Sum shall be valid unless so authorized.

7.3 CONSTRUCTION CHANGE DIRECTIVES

Paragraph 7.3.7 Delete the first sentence and replace with the following new first sentence:

"If the Contractor does not respond promptly, i.e. within 14 calendar days, or disagrees with the method for adjustment in the Contract Sum, the method and adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an allowance for overhead and profit in accordance with the Contract Specifications. Should the response take longer than 14 calendar days, a written explanation of why more time is required must be submitted to the architect."

Paragraph 7.3.7, at the end of this paragraph add the following text

Cost shall not include any of the following:

- .6 Salaries or other compensation of the Contractor's personnel at the Contractor's office unless direct additional expenses have been incurred exclusively because of the change.
- .7 Expenses of the Contractor's offices, including the field office.
- .8 Any part of the Contractor's capital expenses, including interest in the Contractor's capital.
- .9 Costs due to the negligence of the Contractor, or any Subcontractor.
- .10 Overhead, general expense, and the cost of any item not specifically or reasonably inferable as included in the items described in 7.3.6.1 through 7.3.6.5.

ARTICLE 8 TIME

Add the following Subparagraphs to Paragraph 8.2

- 8.2.4 The Contractor shall furnish sufficient forces, construction plant and equipment, and shall work such hours, including night shifts and overtime operations, as may be necessary to ensure prosecution of the work in accordance with the approved progress schedule. If the Contractor falls behind the progress schedule, he shall take such steps as may be necessary or as may be directed by the Architect to improve his progress by increasing the number of shifts, overtime operations, days of work, and the amount of construction plant, as may be required, at no additional cost to the Owner.
- 8.2.5 Failure of the Contractor to comply with the requirements under this provision shall be grounds for determination that the Contractor is not prosecuting the work with such diligence as will ensure

completion within the time specified and such failure constitutes a substantial violation of the conditions of the Agreement.

8.2.6 Upon such determination, the Owner may terminate the Contractor's right to proceed with the work, or any separate part thereof, in accordance with Paragraph 14.2.

8.2.7 Failure to complete the project within the time fixed in the Agreement will result in substantial injury to the Owner, and damages arising from such failure cannot be calculated with any degree of certainty; therefore, if the project is not substantially completed within the time fixed in the Agreement, or within such further time, if any, as shall be allowed for substantial completion, the Contractor shall pay to the Owner liquidated damages for such delay for each and every calendar day elapsing between the date fixed for substantial completion and the date such substantial completion shall have been fully accomplished in accordance with the following:

SCHEDULE OF LIQUIDATED DAMAGES:

One Thousand Dollars (\$1,000.00) per calendar day.

8.2.8 Provision for assessment of liquidated damages for delay in no manner affects the Owner's right to terminate the Contract as provided in Article 14 of the General Conditions or elsewhere in the Contract Documents. The Owner's exercise of the right to terminate shall not release the Contractor from his obligation to pay said liquidated damages in the amounts set out in the Agreement.

8.2.9 The Owner may deduct from the balance retained by the Owner under the provisions of Paragraph 9.4.3 any liquidated damages which may have occurred of such portion thereof as the said balance will cover.

ARTICLE 9 PAYMENTS AND COMPLETION

Add the following after Subparagraph 9.1.1

9.1.2 In conformance with the requirements of Section 725.06, Florida Statutes, the specific considerations for the Contractor's promises are:

9.1.2.1 One dollar (\$1.00) in hand paid by the Owner, the Architect and the Architect's employees to the Contractor, receipt whereof is hereby acknowledged and adequacy of which the Contractor accepts as completely fulfilling the obligations of the Owner, the Architect and the Architect's employees under the requirements of Section 725.06, Florida Statutes, and;

9.1.1.2 The entry of the Owner and the Contractor into the construction contract because, but not for the Contractor's promises as contained in the Contract Documents, the Owner would not have entered into the construction contract with the Contractor.

9.3 APPLICATION FOR PAYMENT

Add the following Clause to Subparagraph 9.3.1:

9.3.1.3 The Owner allows for a reduction in retainage to 2.5% once the project reaches 50% complete. This reduction in retainage is subject to the project conditions as determined by the Architect and if the reduction is warranted.

In Subparagraph 9.3.3, change the first sentence to read:

"The Contractor warrants that title to all work and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon receipt of payment by the Contractor."

In the second sentence of Subparagraph 9.3.3, delete the words, "to the best of the Contractor's knowledge and belief."

9.4 CERTIFICATES FOR PAYMENT

Add the following to Subparagraph 9.4

9.4.3 Five percent (5%) of each payment will be retained until the Contract, including Change Orders, is substantially complete. Payments of the amounts retained will be due ten (10) days after final acceptance by the Owner and issuance of certificates by the State as described in Paragraph 9.10.1

9.6 PROGRESS PAYMENTS

In the first line of Subparagraph 9.6.3, change the words "The Architect will, upon request..." to read, "The Architect may, on request and at his discretion..."

9.8 SUBSTANTIAL COMPLETION

Add the following Clause 9.8.3.1 to Subparagraph 9.8.3

9.8.3.1 Except with the consent of the Owner, the Architect will perform no more than two (2) inspections to determine whether the Work, or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for any additional inspections

9.8.5 Delete the second sentence and substitute the following:

"Upon such acceptance and consent of surety, if any, the Owner shall make payment sufficient to increase the total payments to ninety-five percent (95%) of the Contract Sum, less such amounts as the Architect shall determine for incomplete work and unsettled claims."

9.10 FINAL COMPLETION AND FINAL PAYMENT

Add the following Clauses to Subparagraph 9.10.1:

- .2 Except with the consent of the Owner, the Architect will perform no more than two (2) inspections to determine whether the Work, or a designated portion thereof has attained Final Completion in accordance with the Contract Documents. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for any additional inspections.

Add the following Subparagraph to Paragraph 9.10

9.10.6 Final payment shall be made to the Contractor as provided by the Agreement between the Owner and Contractor. Application for final payment shall be in the same form as application for progress payments as described in Paragraph 9.3.1 and shall be accompanied by the following additional items:

- .1 Completed and notarized waivers and releases of lien in a form acceptable to the Architect and Owner (refer to attached Waiver of Lien Certificate).
- .2 Certificates of Inspection and Occupancy as required by law
- .3 Such other data and substantiating information as may be required elsewhere in these Contract Documents including, but not limited to, all required guarantees, warranties, operating and maintenance manuals, As-Built drawings, or as may be required by the Owner or Architect and as described in DIVISION 1, SECTION 1770, CLOSEOUT PROCEDURE

ARTICLE 10 PROTECTION OF TREES AND PROPERTY

Add the following after Article 10.5:

10.6 FLORIDA TRENCH SAFETY ACT

- 10.6.1 The Occupational Safety and Health Administration excavation safety standards, 29CFR 1926.650 Subpart B trench safety standards are in effect during the period of construction of the Project. In compliance with current State of Florida statutes, the Contractor or subcontractor performing trench excavation work on the Project shall comply with the applicable trench safety standards

ARTICLE 11 INSURANCE AND BONDS

Article 11 of the AIA General Conditions as written is deleted in its entirety and is superseded as follows:

11.1 Definitions:

- 11.1.1 Contractor: As used in this Article 11, is the Contractor and any and all of his Subcontractors, employees, agents and representatives

- 11.2 Builder's Risk Insurance: Contractor shall purchase, maintain, and pay for the costs of Builder's Risk Insurance (fire, extended coverage, vandalism, theft, and malicious mischief) on all construction materials and the buildings or structures in the course of construction. Said Builder's Risk insurance shall insure to the benefit of Owner and Owner's interests. Contractor shall be responsible for the loss of, or damage to, any and all of the Contractor's personal property, such as tools, equipment, mobile office, etc.

- 11.2.1 Extended Coverage: The usual form currently available and covering perils of windstorm, hail, explosive, riot and civil commotion, damage from aircraft and vehicles and smoke damage

- 11.3 Liability Insurance: The Contractor will purchase and maintain during the entire time of this Agreement comprehensive general liability and comprehensive automobile liability insurance as shall protect him for property damages which may arise from operations under this Agreement whether such operations be by himself or by anyone directly or indirectly employed by him, and the amounts of such insurance shall be the minimum limits as follows:

- 11.3.1 Comprehensive General Liability including Personal Injury, Products Completed, Operations Coverage, Independent Contractor's Protective, and Contractual Liability

Bodily Injury and Property Damage:

\$1,000,000	Each Occurrence
\$5,000	Medical Payments (Any one person)
\$1,000,000	Personal and Adv. Injury
\$2,000,000	General Aggregate
\$2,000,000	Products – Comp/OP Aggregate

General Aggregate Limit applies per Product; Products – Comp/OP Aggregate applies per Project; Waiver of Subrogation in favor of Owner

Products and Completed Operations to be maintained for one (1) year after final payment

Property Damage Liability Insurance will provide X, C and U coverage when such contracts are affected. Owner shall be named as an additional insured on all liability insurance.

11.3.2 Comprehensive Automobile Liability:

Combined Single Limit Each Accident	\$1,000,000 -or-
Bodily Injury per Person	\$1,000,000
Bodily Injury per Accident	\$2,000,000
Property Damage per Accident	\$1,000,000

Owner shall be named additional insured, Waiver of Subrogation in favor of Owner

11.3 Worker's Compensation Insurance: Contractor shall take out and maintain, during the life of this Agreement, Worker's Compensation Insurance in compliance with Chapter 440, Florida Statutes, for all of his employees connected with the work of this project and further, the Contractor shall require his Subcontractors similarly to provide Worker's Compensation Insurance. In case any class of employee engaged in hazardous work under this Contract at the site of the project is not protected under the Worker's Compensation Statute, the Contractor shall provide adequate insurance satisfactory to the Owner for the protection of his employees not otherwise protected.

Required Limits:

1. Worker's Compensation – Statutory Benefits

2. Employer's Liability
- \$1,000,000 each employee

\$1,000,000 each employee

\$1,000,000 policy limit
- Bodily Injury by Accident

Bodily Injury by Disease

Bodily Injury by Disease

Waiver of Subrogation in favor of Owner

11.4 Anything in the Contract Documents to the contrary notwithstanding and in addition to the insurance required to be maintained by the Contractor as hereinabove set forth, Contractor agrees to indemnify, hold harmless and defend Owner and Architect against any and all claims, loss, damage to or destruction of property including, without limitation, property and employees of Owner, occurring

wholly or in part, as the result of work done or omitted to be done by, or contracted to be done but not done by, Contractor or his Subcontractors or the employees or agents or invites either arising from injury to or death of persons or damage to or destruction of property due or claimed to be due, in whole or in part, to any negligence or fault of Owner or its employees, agents, or invites, except claims, loss, damage, costs or expense resulting from risks as are hereinabove required to be insured by Owner.

- 11.5 Contractor shall submit to Owner before commencement of work, evidence of the above required insurance, which shall contain certification by the insurance companies that such insurance shall not be cancelled or materially changes until at least ten (10) days prior to written notification being given to the Owner. The Form of Certificate shall be the standard "Accord" form, Certificate of Insurance. The Contractor shall furnish the Owner copies of any endorsements that are subsequently issued amending coverage or limits
- 11.6 Anything in Paragraphs 4.18.1, 4.18.2, and 4.18.3 of the General Conditions to the contrary of the indemnification obligations hereby set forth shall not be applicable as between the Owner and Contractor, and any and all references to Owner therein deleted

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

Delete Paragraph 12.2.2 in its entirety and add the following:

12.2.2 If, after the approval of final payments and prior to expiration of one (1) year thereafter, or such longer period of time as may be prescribed by law or the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, it shall be repaired by the Contractor. In case of an emergency, brought about by defective work of the Contractor, the Owner may proceed immediately to make the necessary and charge the cost of same to the Contractor without giving any notice to the Contractor.

ARTICLE 13 MISCELLANEOUS PROVISIONS

13.6 INTEREST

Delete Paragraph 13.6.1

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

14.2 TERMINATION BY THE OWNER

Delete Paragraph 14.2.1 in its entirety and add the following:

- 14.2.1 If the Contractor is adjudged a bankrupt, or makes a general assignment for the benefit for the benefit of creditors, or if a receiver is appointed on account of the Contractor's insolvency, or if the Contractor persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or fails to make prompt payment to Subcontractors for materials or labor, or persistently disregards laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction, or if the Contractor:
1. Fails to correct, replace and/or re-execute faulty or defective work and/or materials furnished under this Agreement; or

2. Fails to complete or diligently proceed with the Work required by this Agreement, within the time constraints of the construction schedule maintained by the Architect; or
3. Fails to correct or repair any damage to Work caused by him or his failure to protect his Work or the Work of others; or
4. Fails to provide safe and sufficient facilities, orderly premises and the cleanup of the Work required under this Agreement; or
5. Is unable to proceed with the Work because of any action by one or more employees of the Trade Contractor or by a person or labor organization supporting or attempting to represent any employees of the Trade Contractor; or otherwise is guilty of a substantial violation of the provision of the Contract Documents, and fails within 72 hours after receipt of written notice to commence and continue correction of such default, neglect or violation with diligence and promptness, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may without prejudice to any other remedy the Owner may have, terminate the employment of the Contractor and take possession of the site and all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever methods the Owner deems expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished.

ARTICLE 15 CLAIMS AND DISPUTES

Add the following to Paragraph 15.1.4

Unless otherwise provided in the Contract Documents, cost shall be limited to the following: cost of material at the trade discount cost, including sales tax and cost of delivery; cost of labor, including Social Security, unemployment insurance, and fringe benefits required by agreement or custom; Worker's Compensation Insurance, bond premium not to exceed one percent (1%); rental value of equipment and machinery at trade discount cost plus sales tax and the additional cost of supervision directly attributable to the change only if the change (or total time extension of all changes) results in an extension of the contract time for more than thirty (30) days. The bond premium of all credit amounts shall be added to the total credit allowed the Owner. No bond cost shall be allowed for a Subcontractor's bond cost.

Add the following Clauses to Subparagraph 15.1.5

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

15.1.5.4 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent delays due to the fault of the Contractor.

ARTICLE 16 – ADDITIONAL CONDITIONS (ADDED ARTICLE)

16.1 MINIMUM WAGE (NOT REQUIRED)

16.2 APPRENTICES AND TRAINEES

16.2.1 The Contractor shall conform to all requirements of Section 466.101 of the Florida Statutes with respect to apprentice and trainee employment

16.3 EQUAL OPPORTUNITY

16.3.1 The Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, or age. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated fairly during employment without regard to their race, religion, color, sex, national origin, or age. Such action shall include, but not be limited to the following:

16.3.2 Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination in accordance with local, state and federal guidelines.

16.4 PREFERENCE TO HOME INDUSTRIES

16.4.1 The Contractor agrees that, pursuant to Section §255.04, Florida Statutes, preferences will be given in the purchase of material and in the letting of contracts for the construction of this project to the residents of the State whenever such material can be purchased or services can be employed at no greater expense than that which could be obtained if such purchase was made or contract let to a person or firm doing business beyond the limits of the State, provided that quality of materials, qualifications, character, responsibility and fitness be equal.

16.5 CODE REQUIREMENTS

16.5.1 All work under this Contract shall be completed with the Florida Building Code, 2014 Edition, and any/all subsequent addenda, as well as all local, County, State, and Federal laws, codes or requirements.

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WAIVER OF LIEN AND CERTIFICATION

St. Johns River State College
Palatka, Florida

KNOW ALL MEN BY THESE PRESENTS, that _____

For and in consideration of _____ Dollars, and other good and valuable considerations, lawful money of the United States of America, to me in hand paid, the receipt whereof is hereby acknowledged, does hereby waive, release, remise and relinquish any and all right to claim any lien or liens for work done or material furnished, or any kind of class of lien whatsoever on the following described property:

DATED this _____ day of _____, 20____.

at _____.

BY: _____

TITLE: _____

Sworn to and subscribed to me this _____ day of _____, 20____.

NOTARY PUBLIC
MY COMMISSION EXPIRES:

NOTARY SEAL

(Date)

END OF SECTION 00 73 00

SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

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

1.3 ARCHITECT SUPPLEMENTAL INSTRUCTIONS

1. Architect will issue Architect Supplemental Instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."
2. In the event a change in Contract Sum or Contract Time is required by the Contractor, he shall inform the Architect in writing within one (1) week of receipt of Supplemental Instruction or Clarification. A subsequent Proposal Request and Change Order will be issued prior to the Contractor proceeding with the work unless a specific cost and/or time change has been agreed to and authorization to proceed is included in the Supplemental Instruction or is subsequently issued.
3. The Architect will sign and date the Supplemental Instruction or Clarification as authorization for the Contractor to proceed with changes.
4. The contractor will sign and date the Supplemental Instruction to indicate agreement with the terms therein and return it to the Architect.

1.4 PROPOSAL REQUESTS

1. Owner-Initiated Proposal Requests: Architect 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. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 2. Within twenty (20) days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

3. 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.
 4. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 5. Include costs of labor and supervision directly attributable to the change.
 6. 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 request for additional time must show that the critical path and project completion schedule are impacted by the change.
 7. Proposal Requests are not valid until Architect and Owner approve in writing. Upon approval the Proposal Request will be incorporated into a Contingency Adjustment Authorization.
 8. Quotation Form: Use AIA G709.
2. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time. *The request for additional time must show that the critical path and project completion schedule are impacted by the change.
 6. Comply with requirements in specification section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 7. Proposal Requests are not valid until Architect and Owner approve in writing. Upon approval the Proposal Request will be incorporated into a Contingency Adjustment Authorization.
 8. Proposal Request Form: Use AIA G709.

1.5 ADMINISTRATIVE CHANGE ORDERS

1. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CONSTRUCTION CHANGE DIRECTIVE

1. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714 – "Construction Change Directive" instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. The Construction Change Directive contains a complete description of changes in the Work. It also designates the method to be followed to determine change in the Contract Sum or the Contract Time.
2. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.7 CHANGE ORDER PROCEDURES

1. On Owner's approval of a Work Changes Proposal Request, Architect will prepare and issue a Change Order for signatures of Owner and Contractor on AIA Document G701 – "Change Order."
2. Change Order will constitute authorization to proceed with additions and deletions as defined by Proposal Request.
3. Change Order will provide an accounting of the adjustment in the Contract Sum and/or Contract Time.
4. Content of Change Order will be based on either:
 5. Architect's Proposal Request and Contractor's responsive Proposal as mutually agreed between Owner and Contractor.
 6. 2. Contractor's Proposal for a change as recommended by Architect.
 7. 3. Owner authorized Construction Change Directive as mutually agreed between Owner and Contractor and recommended by Architect.
 8. 4. Executed Architect's Supplemental Instructions.
9. The owner will sign and date the Change Order as authorization for the Contractor to proceed with the changes.
10. The contractor will sign and date the Change Order to indicate agreement with the terms therein.

1.8 CORRELATION WITH CONTRACTOR'S SUBMITTALS

11. Aerioidically revise Schedule of Values and Request for Payment forms to record each change as a separate item of work, and to record the adjusted Contract Sum. Submit along with Applications for Payment.

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12. Periodically revise the Construction Schedule to reflect each change in Contract Time:

1. Revise schedules to show changes for other items of work affected by the changes.
2. Submit revised Schedule to Architect and Owner; submit revised schedules to subcontractors of other work affected by the changes.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXECUTION OF CONSTRUCTION CHANGE DIRECTIVES AND PROPOSAL REQUESTS

3.2 Contractor shall, upon receipt of either document, proceed in a timely fashion to execute the documents and incorporate required items into the project when so indicated. Execute documents within two (2) weeks.

3.3 Contractor shall inform all affected trades immediately upon receipt of above-mentioned documents and receive written indication of either no change in Contract Price, or a fully itemized breakdown of costs to be incurred. Price breakdowns shall be documented as indicated.

END OF SECTION

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
 1. Schedule of values
 2. Applications of payment

1.3 DEFINITIONS

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

1.4 SCHEDULE OF VALUES

1. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
2. Cost-loaded Critical Path Method Schedule may serve to satisfy requirements for the schedule of values.
3. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 1. Application for Payment forms with continuation sheets.
 2. Submittal schedule.
 3. Items required to be indicated as separate activities in Contractor's construction schedule.
4. Submit the schedule of values to Architect at earliest possible date, but no later than ten days after the Notice to Proceed.
5. Format and Content
 1. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one-line item for each Specification Section.
 - a. Identification: Include the following Project identification on the schedule of values:

2. Project name and location.
 3. Name of Architect.
 4. Architect's project number.
 5. Contractor's name and address.
 6. Date of submittal.
 - a. Arrange schedule of values consistent with format of AIA Document G703 or Contractor's form as approved by the Architect.
 - b. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - 1) Related Specification Section or Division.
 - 2) Description of the Work.
 - 3) Change Orders (numbers) that affect value.
 - 4) Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 7. Labor.
 8. Materials.
 9. Equipment.
 - a. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents.
 - 1) Provide multiple line items as a basis for acceptance of the Schedule of Values for principal subcontract amounts in excess of five percent of the Contract Sum.
 - 2) Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
 - b. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 - c. 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.
 - 1) 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.
 6. 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.
7. APPLICATION FOR PAYMENT
8. Each Application for Payment following the initial 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.
 9. 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.

10. Payment Application Times: Submit Application for Payment to Architect by the 25th day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
 1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
11. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
12. Application Preparation: Complete every entry on the form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before the last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
 5. When the Architect finds the Application properly completed and correct, he will transmit Certificate for Payment to Owner. Incorrect or incomplete Certificates will not be reviewed until they have been corrected and resubmitted by the Contractor.
13. When the Architect finds the Application properly completed and correct, he will transmit Certificate for Payment to Owner. Incorrect or incomplete Certificates will not be reviewed until they have been corrected and resubmitted by the Contractor.
14. Transmittal: Submit five (5) signed and notarized original copies of each Application for Payment to the 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.
15. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 4. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.
16. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 1. List of subcontractors.
 2. Schedule of values.

3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Submittal schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Report on preconstruction conference.
10. Certificates of insurance and insurance policies.
11. Performance and payment bonds.
12. Data needed to acquire Owner's insurance.
13. Sustainable design action plans.
 - a. Recycle collection and processing plan
 - b. Materials Disposal Plan
 - c. Materials tracking system
14. Schedule of unit prices.
17. Sustainability
18. Sustainable design submittal for project materials cost data shall be submitted by the third payment requisition submittal.
19. Application for Payment at Substantial Completion: After the Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 1. Include documentation supporting the claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
20. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final liquidated damages settlement statement.
 10. Four (4) signed and notarized original copies and noted as Final 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.
 11. Final schedule of values.
 12. Power of attorney from Surety for release of final payment, signed and sealed and dated same as Consent of Surety.
 13. Certificate of Contract Completion:

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14. Page one completed by the Construction Manager, submit original plus three copies.
15. Page two completed by the Architect, submit original plus three copies.
16. Construction Manager's certification letter for the Guarantee of Construction for one year from substantial completion.
17. Copy of the approval and verification of transmittal by the Construction Manager to the Architect of manuals, shop drawings, as-builts (one set of sepia and two sets prints), brochures, warranties and list of subcontractors with telephone numbers and addresses.
18. Verification that the owner's personnel have been trained in the operation of their new equipment (HVAC, controls, fire alarm, etc.) with list of attendees at each training session.
19. Fully executed warranties in the name of the owner.
20. Architect's Certificate of Specification of Asbestos Containing Materials.
21. Construction Manager's Certificate of Asbestos Use.
22. Copy of Certificate of Occupancy.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 1. General coordination procedures.
 2. Coordination drawings.
 3. Requests for Information (RFIs).
 4. Project meetings.

1.3 DEFINITIONS

1. RFI: Request from Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

1. 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. Key Personnel Names: Within fifteen (15) days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at the Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 1. Post copies of list in temporary field office. Keep the list current at all times.

1.5 PROJECT USE SITE PLAN

1.6 The Contractor shall prepare a proposed project use of the site plan.

1.7 B. Contractor shall confine operations at the site to areas within the areas indicated and as approved on the use of the site plan, and as permitted by law, ordinances, and permits. Site shall not be unreasonably encumbered with materials, products, or construction equipment.

1.8 C. The Contractor in reviewing his use of the site shall include access to proposed building for construction purposed, storage of materials and products, parking, where possible, for employees, temporary facilities including offices, storage, and workshop sheds or portable trailers, and unloading space.

1.9 D. Where a temporary fence is to be provided, the Contractor shall show any additional area needed in the Contractor's use of the site beyond that which may be indicated in the Drawings. Where additional fencing is required, such fencing shall be included at no additional cost to the Owner.

1.10 GENERAL COORDINATION PROCEDURES

1. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
2. 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.
3. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Permitting/Inspection Services provided by NEFEC - Larry Paterson (Building Official) Attached are permitting procedures and permit fee schedules. Permit fees listed in red are the minimum and maximum of each construction cost group.
 2. Preparation of Contractor's construction schedule.
 3. Preparation of the schedule of values.
 4. Installation and removal of temporary facilities and controls.
 5. Delivery and processing of submittals.

6. Progress meetings.
 7. Preinstallation conferences.
 8. Project closeout activities.
 9. Startup and adjustment of systems.
4. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
1. Salvage materials and equipment involved in the performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.11 COORDINATION DRAWINGS

1. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe the relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - f. Indicate required installation sequences.
 - g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
2. Coordination Drawing Organization: Organize coordination drawings as follows:
 1. Floor Plans and Reflected Ceiling Plans: Show Architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
 2. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on drawings. Indicate areas of conflict between light fixtures and other components.

3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
 - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
 8. Fire-Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
 9. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If the Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will inform Contractor, who shall make changes as directed and resubmit.
 10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in specification section "Submittal Procedures."
3. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
 1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
 2. File Submittal Format: Submit or post coordination drawing files using Portable Data File (PDF) format.
 3. Architect will furnish Contractor one set of digital data files of drawings for use in preparing coordination digital data files.
 - a. Architects make no representations as to the accuracy or completeness of digital data files as they relate to drawings.
 - b. Contractor shall execute a waiver agreement in the form acceptable to Owner and Architect.

1.12 REQUESTS FOR INFORMATION (RFIs)

1. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
2. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
3. RFI Forms: AIA Document G716 or Contractor's form if acceptable and approved by the Architect.
 1. Attachments shall be electronic files in Adobe Acrobat PDF format.
4. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven (7) working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.

3. Architect's action on RFIs that may result in a change to the Contract Time, or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
5. RFI Tracking Log:
 1. Prepare, maintain, and submit a tracking log of RFIs organized by a tracking number. Submit log with not less than the following:
 - a. Project name.
 - b. Name and address of Contractor.
 - c. Name and address of Architect.
 - d. Provide sequential tracking numbers including RFIs that were returned without action or withdrawn.
 - e. RFI description.
 - f. Date the RFI was submitted.
 - g. Date Architect's response was received.
 - h. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
 - i. Provide identification of related Proposal Requests, Contractor Initiated Proposals and Construction Change Directives as appropriate.

1.13 TRACKING LOGS - COs, CCDs, PRs and ASIs

1. Prepare, maintain, and submit individual tracking logs for Change Orders (COs), Construction Change Directives (CCDs), Proposal Requests (PRs) and Architects Supplemental Instructions (ASIs), organized by a tracking number. Submit log with not less than the following:
 1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. Provide sequential tracking numbers.
 5. Item description.
 6. Date the item was submitted for review.
 7. Date Architect's response was received.
 8. Date the item was revised if applicable.
 9. The tracking number shall remain part of the log even if the item was deemed to be denied or unneeded.
 10. Provide documentation of the links and progressions of related CDs, CCDs, PRs and ASIs as appropriate.
 11. The PR log shall list all items which may become a CD at a later date but have not yet been approved.
 12. The CCA log shall also contain contingency logs for the Owner's and Contractor's which include initial amounts, approved revisions and remaining balances in each contingency.
 13. Update the logs and distribute the response to affected parties.

1.14 PROJECT MEETINGS

1. General: Contractor shall 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 the 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: Contractor is responsible for conducting meetings and will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three (3) days of the meeting.
2. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 10 days after Notice to proceed.
 1. Conduct the conference to review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of Owner, Commissioning Authority, Contractor, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Critical work sequencing and long-lead items.
 - c. Designation of key personnel and their duties.
 - d. Lines of communications.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for Architect Supplemental Instruction.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Preparation of record documents.
 - m. Use of the premises and existing building.
 - n. Work restrictions.
 - o. Working hours.
 - p. Responsibility for temporary facilities and controls.
 - q. Procedures for moisture and mold control.
 - r. Procedures for disruptions and shutdowns.
 - s. Construction waste management and recycling.
 - t. Parking availability.
 - u. Office, work, and storage areas.
 - v. Equipment deliveries and priorities.
 - w. First aid.
 - x. Security.
 - y. Progress cleaning.
 - z. Sustainable design requirements

4. Minutes: Contractor is responsible for conducting meetings and will record and distribute meeting minutes.
3. Sustainable Design Coordination Conference: Schedule and conduct a sustainable design coordination conference before starting construction, at a time convenient to Owner, Contractor and Architect.
 1. Attendees: Authorized representatives of Owner, Commissioning Authority, Contractor Architect, and their consultants; Contractor and its superintendent and sustainable design coordinator; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect meeting sustainable design requirements, including the following:
 - a. Sustainable design Project checklist.
 - b. General requirements for sustainable design-related procurement and documentation.
 - c. Project closeout requirements and sustainable design certification procedures.
 - d. Role of sustainable design coordinator.
 - e. Construction waste management.
 - f. Construction operations and sustainable design requirements and restrictions.
 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
4. Preinstallation Conferences: Conduct and schedule a preinstallation conference at Project site prior to thirty (30) days before each type of construction activity indicated.
 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, Contractor, and Owner's Commissioning Authority of scheduled meeting dates.
 2. List of Required Preinstallation Meetings: See specification section 013300.1 Submittal Register.
 3. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents
 - 1) Drawing Revisions.
 - 2) Related RFIs.
 - 3) Related Change Orders.
 - 4) Value Architecting.
 - 5) Options.
 - b. General Conditions
 - 1) Submittals.
 - 2) Manufacturer's written instructions.
 - 3) Testing and inspecting requirements.
 - 4) Coordination with other work.
 - 5) Weather limitations.
 - 6) Deliveries.
 - 7) Time schedules.

- 8) Required performance results.
 - 9) Compatibility requirements.
 - 10) Regulations of authorities having jurisdiction.
 - c. Products
 - 1) Primary items indicated in specifications.
 - 2) Accessory items listing in specifications.
 - d. Execution
 - 1) Protection of adjacent work.
 - 2) Protection of construction and personnel.
 - 3) Possible conflicts.
 - 4) Temporary facilities and controls.
 - 5) Space and access limitations.
 - 6) Review of mockups
 - 7) Installation procedures.
 - 8) Acceptability of substrates.
 - 9) Installation of primary items indicated in specifications.
 - 10) Installation of accessory items listing in specifications.
- 4. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
- 5. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
- 6. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to the performance of the Work and reconvene the conference at earliest feasible date.
- 5. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 60 days prior to the scheduled date of Substantial Completion.
 - 1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 - 2. Attendees: Authorized representatives of Owner, Commissioning Authority, Contractor, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Requirements for preparing operations and maintenance data.
 - e. Requirements for delivery of material samples, attic stock, and spare parts.
 - f. Requirements for demonstration and training.
 - g. Preparation of Contractor's punch list.
 - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - i. Submittal procedures.
 - j. Coordination of separate contracts.
 - k. Installation of Owner's furniture, fixtures, and equipment.
 - l. Responsibility for removing temporary facilities and controls.
 - m. Requirements for completing sustainable design documentation.

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

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Bid Number: BID-SJR-06-2024

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 013100

SECTION 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 1. Preliminary Construction Schedule.
 2. Contractor's Construction Schedule.
 3. Submittals Schedule.
 4. Daily construction reports.
 5. Bi-Weekly Construction reports.
 6. Field condition reports.
 7. Special reports.

1.3 DEFINITIONS

1. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 1. Critical activities are activities on the critical path. They must start and finish at the planned early start and finish times.
 2. Predecessor activity is an activity that must be completed before a given activity can be started.
2. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.
3. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
4. Event: The starting or ending point of an activity.
5. Float: The measure of leeway in starting and completing an activity.
 1. Float time belongs to Owner.
 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.

3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
6. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
7. Major Area: A story of construction, a separate building, or a similar significant construction element.
8. Milestone: A key or critical point in time for reference or measurement.
9. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.4 SUBMITTALS

1. Qualification Data: For firms and persons specified in the "Quality Assurance" Article and in-house scheduling personnel 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.
2. Submittals Schedule: Submit three (3) copies of schedule. Arrange the following information in a tabular format:
 3. Scheduled date for first submittal.
 4. Submittal number.
 5. Resubmittal number
 6. Specification Section number and title.
 7. 5. Submittal category (action or informational).
 8. Name of subcontractor.
 9. Description of the Work covered.
 10. 8. Scheduled date for Architect's final release or approval.
11. Preliminary Construction Schedule: Submit three (3) printed copies; one single sheet of reproducible media, and two prints.
12. Preliminary Network Diagram: Submit three (3) printed copies; one single sheet of reproducible media, and two prints; large enough to show entire network for entire construction period.

13. Contractor's Construction Schedule: Submit three (3) printed copies of the initial schedule, one a reproducible print and two blue- or black-line prints, large enough to show entire schedule for entire construction period.
14. CPM Reports: Concurrent with CPM schedule, submit three (3) printed copies of each of the following computer-generated reports. The format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float.
 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 3. Total Float Report: List of all activities sorted in ascending order of total float.
 4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.
15. Daily Construction Reports: Submit two (2) copies at weekly intervals.
16. Field Condition Reports: Submit two (2) copies at time of discovery of differing conditions.
17. Special Reports: Submit two (2) copies at time of unusual event.

1.5 QUALITY ASSURANCE

1. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting.

1.6 COORDINATION

1. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
2. 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 in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

1. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 2. Initial Submittal: Submit concurrently with preliminary bar-chart 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. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

1. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
2. 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.
3. 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 twenty (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 1 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 five (5) days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of the date established for Substantial Completion and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
4. 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. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." The delivery dates indicated stipulate the earliest possible delivery date.

2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." The delivery dates indicated stipulate the earliest possible delivery date.
3. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Partial occupancy before Substantial Completion.
 - b. Use of premises restrictions.
 - c. Environmental control.
4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Startup and placement into final use and operation.
5. 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 completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion.
 - f. Final Completion.
5. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, interim milestones indicated below, Substantial Completion, and Final Completion.
 1. Pre-construction Conference.
6. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
 1. Refer to Division 1 Section "Payment Procedures" for cost reporting and payment procedures.
7. 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.

2.3 PRELIMINARY CONSTRUCTION SCHEDULE

1. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven (7) days of date established for the Notice to Proceed.

2. Preparation: Indicate each significant construction activity separately. Identify the first workday of each week with a continuous vertical line. Outline significant construction activities for the first sixty (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 (CPM SCHEDULE)

1. General: Prepare network diagrams using AON (activity-on-node) format.
2. Preliminary Network Diagram: Submit diagram within ten (10) days of date established for Notice of Award. Outline significant construction activities for the first sixty (60) days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
3. CPM Schedule: Prepare Contractor's Construction Schedule using a CPM network analysis diagram.
 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than thirty (30) days after date established for the Notice of Award.
 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 4. Use "one workday" as the unit of time.
4. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Purchase of materials.
 - c. Delivery.
 - d. Fabrication.
 - e. Installation.
 - f. Tests and inspections.
 - g. Startup and placement into final use and operation.
 2. Processing: Process data to produce output data or a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 3. Format: Mark the critical path. Locate the critical path near the center of network; locate paths with most float near the edges.
 - a. Sub-networks on separate sheets are permissible for activities clearly off the critical path.

5. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:
 1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Principal events of activity.
 4. Immediate preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the Schedule of Values).
6. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.
 4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.
 7. Changes in the Contract Time.

2.5 SPECIAL REPORTS

1. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of reports to parties affected by the occurrence.
2. Reporting Unusual Events: When an event of an unusual and significant nature occurs at the 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.
3. Safety - Provide reports on safety meetings being conducted on a monthly basis.
4. Incidents/Injuries - Provide any safety violations, incidents, or injuries that occur on the projects site immediately following such an event.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

1. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
 1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.

2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
2. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one (1) day before each regularly scheduled progress meeting.
 1. Revise the 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 an 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.
3. Distribution: Distribute copies of approved schedule to Architect and 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 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes administrative and procedural requirements for the following:
 1. Preconstruction documentation.
 2. Periodic construction documentation.
 3. Final completion construction documentation.
 4. Aerial videos.

1.3 INFORMATIONAL SUBMITTALS

1. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each documentation. Indicate elevation or story of construction. Include the same information as corresponding photographic documentation.

1.4 QUALITY ASSURANCE

1. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three (3) years.

1.5 USAGE RIGHTS

1. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

1. Video Recordings: Submit a video recording of existing conditions prior to commencement of construction.
 1. Digital Video Camera: Minimum sensor resolution of 8 megapixels.
 2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of each image, accompanied by key plan file.

3. Submit video recordings in digital video disc format acceptable to Architect.
4. Identification: With each submittal, provide the following information:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date video recording was recorded.

2.2 AERIAL MEDIA

1. Aerial Video Recordings: Submit aerial video recording of the project with each payment requisition.
 1. Digital Video Camera: Minimum sensor resolution of 8 megapixels.
 2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of each image, accompanied by key plan file.
 3. Submit video recordings in digital video disc format acceptable to Architect.
 4. Identification: With each submittal, provide the following information:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date video recording was recorded.

PART 3 - EXECUTION

3.1 CONSTRUCTION VIDEO RECORDINGS

1. Confirm date and time at beginning and end of recording.
2. Begin each video recording with the name of Project, Contractor's name, videographer's name, and project location.
3. Preconstruction Video Recording: Before starting construction, record video recording of Project site, surrounding properties and existing building conditions from different vantage points, as directed by Architect. The minimum recording time shall be 10 minutes.
 1. Flag construction limits before recording construction video recordings.
 2. Show existing conditions before starting the Work.
 3. Show existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing or excavation support and protection systems.

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3.2 AERIAL VIDEO

1. Periodic Construction Aerial Video Recordings: Record video recording monthly with the cutoff date associated with each application for payment. Select vantage points to show status of construction and progress since the last video recordings were recorded. Minimum recording time shall be 10 minutes(s).

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
2. Partial submittals without prior approval or incomplete submittals will be returned without review.
 1. Prior approval from the Architect shall be obtained for partial submittals prepared for a specific product submittal.
3. Submittals will be deemed complete if all items required in the submittal sections of the subject specification section have been assembled into a single submittal package.
4. Submittals will not be accepted for review until the Schedule of Submittals, per article 1.4 has been submitted to the Architect.

1.3 DEFINITIONS

1. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
2. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
3. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
4. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

1. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal: Submit concurrently with startup construction schedule. Include all submittals during the first 60 days of construction and include all critical path related submittals that occur beyond 60 days. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal: Submit the final schedule with all submittals including known and anticipated submittals concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals concurrently with each construction schedule update.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

1. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by the Architect for Contractor's use in preparing submittals.
 1. The Architect will furnish the requested digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
 - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Software Program: The Contract Drawings are available in Revit 2018.
 - c. Construction Manager shall execute a data licensing agreement in the form of AIA Document C106, Digital Data Licensing Agreement.
 - d. The following digital data files will be furnished for each appropriate discipline:
 - 1) Floor plans.
 - 2) Reflected ceiling plans.
 2. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
 - a. File Submittal Format: Submit or post coordination drawing files using Portable Data File (PDF) format.

2. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
3. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow ten (10) days for Architect's initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow ten (10) days for Architect's review of each resubmittal.
 4. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
4. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Construction Manager's review and approval markings and action taken by Architect.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.

- 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A). The submittal number shall follow Construction Manager's standard system.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Submit two (2) copies for reference only.
4. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return without reviewing submittals received from sources other than Construction Manager.
 - a. Transmittal Form for Paper Submittals: Use form approved by the Architect.
 - b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
 - 1) Project name.
 - 2) Date.
 - 3) Destination (To:).
 - 4) Source (From:).
 - 5) Name and address of Architect.
 - 6) Name of Construction Manager.
 - 7) Name of firm or entity that prepared submittal.
 - 8) Names of subcontractors, manufacturer, and supplier.
 - 9) Category and type of submittal.
 - 10) Submittal purpose and description.
 - 11) Specification Section number and title.
 - 12) Specification number.
 - 13) Drawing number and detail references, as appropriate.
 - 14) Indication of full or partial submittal.
 - 15) Transmittal number, numbered consecutively by Specification Section.
 - 16) Submittal and transmittal distribution record.
 - 17) Remarks.
 - 18) Signature of transmitter.
5. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A). File name shall follow contractor's standard system.
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.

- b. Date.
 - c. Name and address of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Names of subcontractors, manufacturer, and supplier.
 - h. Category and type of submittal.
 - i. Submittal purpose and description.
 - j. Specification Section number and title.
 - k. Specification number.
 - l. Drawing number and detail references, as appropriate.
 - m. Location(s) where product is to be installed, as appropriate.
 - n. Related physical samples submitted directly.
 - o. Indication of full or partial submittal.
 - p. Transmittal number, numbered consecutively by Specification Section.
 - q. Submittal and transmittal distribution record.
 - r. Other necessary identification.
 - s. Remarks.
6. Deviations and Additional Information: 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 in the Contract Documents, including minor variations and limitations. Include the same identification information as related submittal.
7. Options: Identify options requiring selection by the Architect.
8. Resubmittals: Make resubmittals in the same form and number of copies as initial submittal.
 1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision and resubmittal number.
 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
9. 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.
10. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

1. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
2. Certificates and Certifications Submittals: Provide a statement that includes the signature of the 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.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
2. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard published data is 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 catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in a PDF electronic file format.
3. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 2. PDF electronic file: Submit format to be 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
 3. Submit Shop Drawings in a PDF electronic file format.

4. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 3. For projects with electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 4. 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 the 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.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit two full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. The Architect will return one submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
5. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.
5. Submit product schedule in the following format:
 - a. PDF electronic file.
6. Contractor's Construction Schedule: Comply with requirements specified in specification section "Construction Progress Documentation."
7. Application for Payment and Schedule of Values: Comply with requirements specified in specification section "Payment Procedures."
8. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in specification section "Quality Requirements."
9. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in specification section "Closeout Procedures."
10. Maintenance Data: Comply with requirements specified in specification section "Operation and Maintenance Data."
11. Qualification Data: Prepare written information that demonstrates capabilities and experience of the firm or person. Include lists of completed projects with project names and addresses, contact information of Architects and owners, and other information specified.
12. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
13. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
14. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
15. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
16. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
17. Material Test Reports: Submit reports written by a qualified testing agency, on the testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

18. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
19. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 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.
20. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
21. Compatibility Test Reports: Submit reports written by a qualified testing agency, on the 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.
22. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
23. Design Data: Prepare and submit 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.

2.2 DELEGATED-DESIGN SERVICES

1. 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 the criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to the Architect.
2. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three (3) paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
3. Project Closeout and Maintenance Material Submittals: See requirements in specification section "Closeout Procedures."

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

1. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
2. Project Closeout and Maintenance Material Submittals: See requirements in specification section "Closeout Procedures."
3. 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

1. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:
 1. No Exceptions.
 2. Exceptions.
 3. Resubmit.
 4. Partial Resubmittal.
 5. Other
2. Informational Submittals: Architect will review each submittal and will not return it or will return it if it does not comply with requirements. The Architect will forward each submittal to appropriate party.
3. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
4. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
5. Submittals not required by the Contract Documents may be returned by the Architect without action.

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END OF SECTION 013300

SECTION 013516 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes special procedures for alteration work.

1.3 DEFINITIONS

1. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.
2. Consolidate: To strengthen loose or deteriorated materials in place.
3. Design Reference Sample: A sample that represents the Architect's pre-bid selection of work to be matched; it may be existing work or work specially produced for the Project.
4. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
5. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish as approved by Architect.
6. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
7. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
8. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
9. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

10. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

11. Retain: To keep existing items that are not to be removed or dismantled.

12. Strip: To remove existing finish down to base material unless otherwise indicated.

13. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 COORDINATION

1. Alteration Work Sub-schedule: A construction schedule coordinating the sequencing and scheduling of alteration work for entire Project, including each activity to be performed, and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration work.
 1. Schedule construction operations in sequence required to obtain best Work results.
 2. Coordinate sequence of alteration work activities to accommodate the following:
 - a. Other known work in progress.
 - b. Tests and inspections.
 3. Detail sequence of alteration work, with start and end dates.
 4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
 5. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use in existing structure. Do not use such equipment without certification from Contractor's professional Architect that the structure can support the imposed loadings without damage.
2. Pedestrian and Vehicular Circulation: Coordinate alteration work with circulation patterns within Project building(s) and site. Some work is near circulation patterns and adjacent to restricted areas. Circulation patterns cannot be closed off entirely and in places can be only temporarily redirected around small areas of work. Access to restricted areas may not be obstructed. Plan and execute the Work accordingly.

1.5 PROJECT MEETINGS FOR ALTERATION WORK

1. Preliminary Conference for Alteration Work: Before starting alteration work, conduct conference at Project site.
 1. Attendees: In addition to representatives of the Owner, Contractor and Architect, testing service representative shall be represented at the meeting.
 2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
 - a. Alteration Work Sub-schedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Fire-prevention plan.
 - c. Governing regulations.
 - d. Areas where existing construction is to remain and the required protection.

- e. Hauling routes.
 - f. Sequence of alteration work operations.
 - g. Storage, protection, and accounting for salvaged and specially fabricated items.
 - h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
 - i. Qualifications of personnel assigned to alteration work and assigned duties.
 - j. Requirements for extent and quality of work, tolerances, and required clearances.
 - k. Embedded work such as flashings and lintels, special details, collection of waste, protection of occupants and the public, and condition of other construction that affects the Work or will affect the work.
 - 3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from the conference.
2. Coordination Meetings: Conduct coordination meetings specifically for alteration work at bi-weekly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
- 1. Attendees: In addition to representatives of Owner, Contractor and Architect, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of alteration work activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to alteration work.
 - 2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.
 - a. Alteration Work Sub-schedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
 - b. Schedule Updating: Revise Contractor's Alteration Work Sub-schedule after each coordination meeting where revisions to schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each entity present, including review items listed in the "Preliminary Conference for Alteration Work" Paragraph in this article and the following:
 - 1) Interface requirements of alteration work with other Project Work.
 - 2) Status of submittals for alteration work.
 - 3) Access to alteration work locations.
 - 4) Effectiveness of fire-prevention plan.
 - 5) Quality and work standards of alteration work.
 - 6) Change Orders for alteration work.
 - 3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.6 INFORMATIONAL SUBMITTALS

1. Alteration Work Sub-schedule:
 1. Submit alteration work sub-schedule within thirty (30) days of date established for commencement of alteration work.
2. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration work operations.
3. Alteration Work Program: Submit thirty (30) days before work begins.
4. Fire-Prevention Plan: Submit thirty (30) days before work begins.

1.7 QUALITY ASSURANCE

1. Specialist Qualifications: An experienced firm regularly engaged in specialty work similar in nature, materials, design, and extent to alteration work as specified in each Section and that has completed a minimum of five (5) recent projects with a record of successful in-service performance that demonstrates the firm's qualifications to perform this work.
 1. Field Supervisor Qualifications: Full-time supervisors experienced in specialty work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on-site when specialty work begins and during its progress. Supervisors shall not be changed during the Project except for causes beyond the control of the specialist firm.
 - a. Construct new mockups of required work whenever a supervisor is replaced.
2. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.
3. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.
 1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
 2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.
4. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.
5. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.8 STORAGE AND HANDLING OF SALVAGED MATERIALS

1. Salvaged Materials:
 1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
 2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport and storage.
2. Salvaged Materials for Reinstallation:
 1. Repair and clean items for reuse as indicated.
 2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.
3. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by the Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.
4. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.
 1. Identify each item for reinstallation with a non-permanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
 2. Secure stored materials to protect from theft.
 3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F or more above the dew point.
5. Storage Space:
 1. The owner will arrange for limited on-site location(s) for free storage of salvaged material. This storage space does not include security for stored material.
 2. Arrange for off-site locations for storage and protection of salvaged material that cannot be stored and protected on-site.

1.9 FIELD CONDITIONS

1. Survey of Existing Conditions: Record existing conditions that affect the Work by use of preconstruction photographs and preconstruction videotapes.
 1. Comply with requirements specified in Specification Section "Photographic Documentation."
2. Discrepancies: Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

3. Owner's Removals: Before beginning alteration work, verify in correspondence with Owner that the following items have been removed:
 1. See drawings.
4. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PROTECTION

1. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.
 1. Use only proven protection methods, appropriate to each area and surface being protected.
 2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
 3. Erect temporary barriers to form and maintain fire-egress routes.
 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
 5. Contain dust and debris generated by alteration work and prevent it from reaching the public or adjacent surfaces.
 6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
 7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
 8. Provide supplemental sound-control treatment to isolate demolition work from other areas of the building.
2. Temporary Protection of Materials to Remain:
 1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
 2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.
3. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
4. Utility and Communications Services:
 1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
 2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.

3. Maintain existing services unless otherwise indicated; keep in service and protect against damage during operations. Provide temporary services during interruptions to existing utilities.
5. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify the Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.
 1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
6. Existing Roofing: Prior to the start of work in an area, install roofing protection.

3.2 PROTECTION FROM FIRE

1. General: Follow fire-prevention plan and the following:
 1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties titled "Owner's Responsibility for Fire Protection."
 2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
 - a. If combustible material cannot be removed, provide fire blankets to cover such materials.
2. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
 1. Obtain Owner's approval for operations involving use of welding or other high-heat equipment. Use of open-flame equipment is not permitted. Notify Owner at least 72 hours before each occurrence, indicating location of such work.
 2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
 3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
 5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
 - a. Train each fire watch in the proper operation of fire-control equipment and alarms.
 - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.

- c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
 - d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.
 - e. Maintain fire-watch personnel at each area of Project site until two hours after conclusion of daily work.
3. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.
4. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
 1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

1. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.
2. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to the manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.
3. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
4. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.
5. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL ALTERATION WORK

1. Have specialty work performed only by qualified specialists.
2. Ensure that supervisory personnel are present when work begins and during its progress.

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3. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs or video recordings. Comply with requirements in specification section "Photographic Documentation."
4. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.
5. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.
 1. Do not proceed with the work in question until directed by the Architect.

END OF SECTION 013516

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes administrative and procedural requirements for quality assurance and quality control.
2. 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, Commissioning Authority, Contractor or authorities having jurisdiction are not limited by provisions of this section.
 4. Specific test and inspection requirements are not specified in this section.

1.3 DEFINITIONS

1. 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.
2. 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.
3. 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. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
4. 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.
5. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
6. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
7. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
8. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
9. 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. The 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).
10. 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.
11. 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. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
 1. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on the project site, consisting of multiple products, assemblies and subassemblies.

1.4 CONFLICTING REQUIREMENTS

1. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
2. 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.

1.5 ACTION SUBMITTALS

1. Shop Drawings: For mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 1. Indicate manufacturer and model number of individual components.
 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

1. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
2. Qualification Data: For Contractor's quality-control personnel.
3. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
 1. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.
4. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

1. Quality-Control Plan, General: Submit quality-control plan within ten (10) days of Notice to Proceed, and not less than five (5) days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

2. 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 the Project.
 1. Project quality-control manager may also serve as Project superintendent.
3. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
4. 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.
5. 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.
6. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 QUALITY ASSURANCE

1. Provide where required by Specifications.
2. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
3. 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 the required units.
4. 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 the required units.

5. 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.
6. Professional Architect Qualifications: A professional Architect who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing Architecting services of the kind indicated. Architecting services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
7. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy the qualification requirements indicated and shall be engaged for the activities indicated.
 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
8. Testing Agency Qualifications: 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.
9. 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.
10. 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.
11. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 2. Notify Architect seven (7) working days in advance of dates and times when mockups will be constructed.
 3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction of the Project.
 4. Demonstrate the proposed range of aesthetic effects and workmanship.
 5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven (7) days for initial review and each re-review of each mockup.
 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 7. Demolish and remove mockups when directed unless otherwise indicated.

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12. Integrated Exterior Mockups: Construct integrated exterior mockup in accordance with approved shop drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

1. 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 with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in specification section "Execution."
2. Protect construction exposed by or for quality-control service activities.
3. Repair and protection are the Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014100 - REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 CODE REQUIREMENTS

1. Perform all work on this Project in strict accordance with, but not limited to, applicable requirements and portions of the latest adopted editions of the currently adopted codes, revisions, amendments, supplements, and their references.
 1. Florida Building Code:
 - a. Florida Building Code
 - b. Florida Building Code - Fuel Gas
 - c. Florida Building Code - Mechanical
 - d. Florida Building Code - Plumbing
 - e. National Electrical Code - FBC Chapter 27
 - f. FBC Referenced Codes and Standards - Chapter 35
 2. Florida Fire Prevention Code, Ch. 69A-60, Florida Administrative Code, which includes:
 - a. NFPA 1
 - b. Referenced Mandatory Codes and Standards listed in 69A-60.005, FAC
 - c. Referenced Mandatory Codes and Standards listed in NFPA 101
 3. U.S. Access Board, Americans with Disabilities Act Architectural Guidelines, July 23, 2004, accessibility requirements for children.
 4. American Society of Civil Engineers - Minimum Design Loads for Buildings and Other Structures - ASCE 7
 5. Florida Department of Education, State Requirements for Education Facilities (SREF)
 6. State Fire Marshal's rule 69A-58 FAC

1.3 CODE STANDARDS

1. All work shall conform to applicable portions of the adopted, or the latest edition of the standards listed, which shall include, but is not limited to, the following:
 1. Aluminum Association (AA)
 2. American Concrete Institute (ACI)
 3. American Institute of Steel Construction (AISC)
 4. American National Standards Institute (ANSI)
 5. American Society for Testing and Materials (ASTM)
 6. American Society of Mechanical Engineers (ASME)
 7. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
 8. American Welding Society (AWS)

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9. Architectural Woodworking Institute (AWI)
10. Architectural Aluminum Manufacturer's Association (AAMA)
11. Commercial Standards (CS)
12. Federal Specifications and Standards (FSS)
13. National Occupations Safety and Health Administration (OSHA)
14. National Institute for Standards and Technology (NIST)
15. Architectural Sheet Metal Manual (SMACNA)
16. Underwriter's Laboratories (UL)
17. U.S. of America Standards Institute (ASI)
18. U.S. Department of Commerce Product Standards (USDCPS)

1.4 CODE DISCREPANCIES

1. In case of discrepancy between the codes, standards, and specifications listed, the most strict or most stringent requirement shall govern.

1.5 COMPLIANCE WITH CODES

1. A permit issued will be construed as permission to proceed with construction, and not as authority to violate, cancel, alter, or set aside any of the provisions of any Codes.
2. Nor shall issuance of a permit prevent the Owner from thereafter requiring a correction of errors in plans, construction, or violations of any Codes.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

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

1.3 INDUSTRY STANDARDS

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

1.4 ABBREVIATIONS AND ACRONYMS

1. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
2. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 1. AABC - Associated Air Balance Council; www.aabc.com
 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 3. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 4. ACI - American Concrete Institute; (Formerly: ACI International); www.abma.com.
 5. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 6. AF&PA - American Forest & Paper Association; www.afandpa.org.
 7. AGA - American Gas Association; www.aga.org.
 8. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 9. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 10. AI - Asphalt Institute; www.asphaltinstitute.org.
 11. AIA - American Institute of Architects (The); www.aia.org.
 12. AISC - American Institute of Steel Construction; www.aisc.org.
 13. AISI - American Iron and Steel Institute; www.steel.org.
 14. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
 15. ANSI - American National Standards Institute; www.ansi.org.
 16. APA - The Architectural Wood Association; www.apawood.org.
 17. APA - Architectural Precast Association; www.archprecast.org.
 18. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
 19. ARI - American Refrigeration Institute; (See AHRI).
 20. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.

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21. ASCE - American Society of Civil Architects; www.asce.org.
22. ASCE/SEI - American Society of Civil Architects/Structural Architecting Institute; (See ASCE).
23. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Architects; www.ashrae.org.
24. ASME - ASME International; (American Society of Mechanical Architects); www.asme.org.
25. ASSE - American Society of Safety Architects (The); www.asse.org.
26. ASTM - ASTM International; www.astm.org.
27. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
28. AWI - Architectural Woodwork Institute; www.awinet.org.
29. AWP - American Wood Protection Association; www.awpa.com.
30. AWS - American Welding Society; www.aws.org.
31. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
32. BIA - Brick Industry Association (The); www.gobrick.com.
33. CEA - Consumer Electronics Association; www.ce.org.
34. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
35. CFSEI - Cold-Formed Steel Architects Institute; www.cfsei.org.
36. CGA - Compressed Gas Association; www.cganet.com.
37. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
38. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
39. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
40. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
41. CPA - Composite Panel Association; www.pbmdf.com.
42. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
43. CRRC - Cool Roof Rating Council; www.coolroofs.org.
44. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
45. CSI - Construction Specifications Institute (The); www.csinet.org.
46. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
47. CWC - Composite Wood Council; (See CPA).
48. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
49. DHI - Door and Hardware Institute; www.dhi.org.
50. ECA - Electronic Components Association; (See ECIA).
51. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
52. EIMA - EIFS Industry Members Association; www.eima.com.
53. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
54. FCI - Fluid Controls Institute; www.fluidcontrolsintstitute.org.
55. FM Approvals - FM Approvals LLC; www.fmglobal.com.
56. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
57. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarooft.com.
58. FSA - Fluid Sealing Association; www.fluidsealing.com.
59. FSC - Forest Stewardship Council U.S.; www.fscus.org.
60. GA - Gypsum Association; www.gypsum.org.
61. GANA - Glass Association of North America; www.glasswebsite.com.
62. GS - Green Seal; www.greenseal.org.
63. HI - Hydraulic Institute; www.pumps.org.
64. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
65. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
66. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
67. IAS - International Accreditation Service; www.iasonline.org.

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68. IAS - International Approval Services; (See CSA).
69. ICBO - International Conference of Building Officials; (See ICC).
70. ICC - International Code Council; www.iccsafe.org.
71. ICEA - Insulated Cable Architects Association, Inc.; www.icea.net.
72. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
73. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
74. IEC - International Electrotechnical Commission; www.iec.ch.
75. IEEE - Institute of Electrical and Electronics Architects, Inc. (The); www.ieee.org.
76. IES - Illuminating Architecting Society; (Formerly: Illuminating Architecting Society of North America); www.ies.org.
77. IESNA - Illuminating Architecting Society of North America; (See IES).
78. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
79. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
80. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
81. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
82. ISO - International Organization for Standardization; www.iso.org.
83. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
84. ITU - International Telecommunication Union; www.itu.int/home.
85. LMA - Laminating Materials Association; (See CPA).
86. LPI - Lightning Protection Institute; www.lightning.org.
87. MBMA - Metal Building Manufacturers Association; www.mbma.com.
88. MCA - Metal Construction Association; www.metalconstruction.org.
89. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
90. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
91. MHIA - Material Handling Industry of America; www.mhia.org.
92. MIA - Marble Institute of America; www.marble-institute.com.
93. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
94. MPI - Master Painters Institute; www.paintinfo.com.
95. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
96. NACE - NACE International; (National Association of Corrosion Architects International); www.nace.org.
97. NADCA - National Air Duct Cleaners Association; www.nadca.com.
98. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
99. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
100. NCMA - National Concrete Masonry Association; www.ncma.org.
101. NECA - National Electrical Contractors Association; www.necanet.org.
102. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
103. NEMA - National Electrical Manufacturers Association; www.nema.org.
104. NETA - InterNational Electrical Testing Association; www.netaworld.org.
105. NFHS - National Federation of State High School Associations; www.nfhs.org.
106. NFPA - National Fire Protection Association; www.nfpa.org.
107. NFPA - NFPA International; (See NFPA).
108. NFRC - National Fenestration Rating Council; www.nfrc.org.
109. NHLA - National Hardwood Lumber Association; www.nhla.com.
110. NLGA - National Lumber Grades Authority; www.nlga.org.
111. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
112. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
113. NRCA - National Roofing Contractors Association; www.nrca.net.

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114. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
115. NSF - NSF International; www.nsf.org.
116. NSPE - National Society of Professional Architects; www.nspe.org.
117. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
118. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
119. NWFA - National Wood Flooring Association; www.nwfa.org.
120. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
121. PDI - Plumbing & Drainage Institute; www.pdionline.org.
122. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
123. RFCI - Resilient Floor Covering Institute; www.rfci.com.
124. SAE - SAE International; www.sae.org.
125. SCTE - Society of Cable Telecommunications Architects; www.scte.org.
126. SDI - Steel Deck Institute; www.sdi.org.
127. SEI/ASCE - Structural Architecting Institute/American Society of Civil Architects; (See ASCE).
128. SIA - Security Industry Association; www.siaonline.org.
129. SJI - Steel Joist Institute; www.steeljoist.org.
130. SMA - Screen Manufacturers Association; www.smainfo.org.
131. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
132. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
133. SPIB - Southern Pine Inspection Bureau; www.spib.org.
134. SPRI - Single Ply Roofing Industry; www.spri.org.
135. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
136. SSINA - Specialty Steel Industry of North America; www.ssina.com.
137. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
138. STI - Steel Tank Institute; www.steeltank.com.
139. SWI - Steel Window Institute; www.steelwindows.com.
140. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
141. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
142. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
143. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
144. TMS - The Masonry Society; www.masonrysociety.org.
145. TPI - Truss Plate Institute; www.tpinst.org.
146. TRI - Tile Roofing Institute; www.tilerroofing.org.
147. UL - Underwriters Laboratories Inc.; www.ul.com.
148. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
149. USGBC - U.S. Green Building Council; www.usgbc.org.
150. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
151. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
152. WDMA - Window & Door Manufacturers Association; www.wdma.com.
153. WI - Woodwork Institute; www.wicnet.org.
154. WWPA - Western Wood Products Association; www.wwpa.org.

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

1. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.

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2. ICC - International Code Council; www.iccsafe.org.
 3. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
 4. FBC - Florida Building Code
4. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
1. COE - Army Corps of Architects; www.usace.army.mil.
 2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
 3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
 4. DOD - Department of Defense; www.quicksearch.dla.mil.
 5. DOE - Department of Energy; www.energy.gov.
 6. EPA - Environmental Protection Agency; www.epa.gov.
 7. GSA - General Services Administration; www.gsa.gov.
 8. OSHA - Occupational Safety & Health Administration; www.osha.gov.
 9. SD - Department of State; www.state.gov.
 10. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 11. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
 12. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
 13. USPS - United States Postal Service; www.usps.com.
5. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
 2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
 3. DSCC - Defense Supply Center Columbus; (See FS).
 4. FED-STD - Federal Standard; (See FS).
 5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 6. MILSPEC - Military Specification and Standards; (See DOD).
 7. USAB - United States Access Board; www.access-board.gov.
 8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 014200

SECTION 014500 - TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SECTION INCLUDES

1. Provide labor, materials, services, and equipment necessary to furnish and install work as indicated and as specified herein, which includes, but is not limited to:
 1. Selection and payment.
 2. Quality Assurance.
 3. Laboratory reports.
 4. Limits on testing laboratory authority.
 5. Testing.
 6. Preconstruction Testing.

1.3 REFERENCES

1. ANSI/ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Architecting Design and Construction.
2. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.4 SELECTION AND PAYMENT

1. Contractor will employ and pay for services of an independent testing laboratory to perform specified inspection and testing.
2. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.
3. Retest Responsibility: Where results of required inspection, test, or similar service are unsatisfactory (do not indicated compliance of related work with requirements of Contract Documents), retests are responsibility of the Contractor. Retesting of work revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original work.
 1. Arrange with laboratory and pay for additional samples and tests required by Contractor beyond specified requirements and pay compensation for Architect's additional services made necessary by failed tests and inspections.

1.5 ACTION SUBMITTALS

1. Schedule of Tests and Inspections: Prepare and submit 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.
2. Testing service will submit two (2) copies of test reports directly to the Architect from the testing service, with one copy to the Contractor.

1.6 QUALITY ASSURANCE

1. Laboratory, authorized to operate in the State of Florida.
2. Laboratory maintains a full-time registered Architect on staff to review services.
3. Testing Equipment, calibrated at reasonable intervals with devices of accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.
4. Laboratory: Conform to applicable requirements of ASTM C1077 and ASTM E329. Meet "Recommended Requirements for Independent Laboratory Qualifications", published by American Council of Independent Laboratories.
5. Personnel: Minimum of two (2) years' experience performing testing that meets requirements of these Specifications. Agent of laboratory performing field sampling and field testing of concrete shall be certified by the American Concrete Institute (ACI) as a Concrete Field-Testing Technician Grade 1, by an equivalent recognized national authority for an equivalent level of competence or shall be a licensed Professional Architect.

1.7 LABORATORY REPORTS

1. Testing service is required to immediately notify Architect of discrepancies observed in the Work performed and to be performed in accordance with the Contract Documents.
2. After each inspection and test, submit 2 copies of the laboratory report to Owner, Architect, and Contractor.
3. Provide where required by Specification 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.
4. 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.

1.8 LIMITS ON TESTING LABORATORY AUTHORITY

1. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Laboratory may not approve or accept any portion of the Work.
3. Laboratory may not assume any duties of Contractor.
4. Laboratory has no authority to stop the Work.

1.9 TESTING

1. Contractor Responsibilities:
 1. Notify testing agencies at least twenty-four (24) hours in advance of time when Work that requires testing or inspecting will be performed.
 2. Deliver to laboratory at designated location, adequate samples of materials used, which require testing, along with proposed mix designs.
 3. Cooperate with laboratory personnel and provide access to the Work and to manufacturer's facilities.
 4. Provide incidental labor and facilities to provide access to Work to be tested, to obtain, and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
 5. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 6. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 7. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

8. Employ and pay for the services of Testing Laboratory to perform additional inspections, sampling and testing required:
 9. For the Contractor's convenience.
 - 10.b. When initial tests indicate work does not comply with Contract Documents.
 - 11.c. Make arrangements with Laboratory and pay for additional samples and tests required for Contractor's convenience.
 12. Do not place or install any material which does not meet specified requirements. Do not place or install any material over or on a substrate that has not met test requirements.
2. Testing Agency Responsibilities: Cooperate with Architect Commissioning Authority and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 1. Notify Architect, Commissioning Authority and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Cooperate with Architect, Architect and Contractor; provide qualified personnel after due notice.
 3. Perform specified inspections, sampling and testing of materials and methods of construction.
 4. Comply with specified standards.
 5. b. Ascertain compliance of materials with requirements of Contract Documents.
 6. Utilize properly calibrated equipment, calibrated within past twelve (12) months by devices of accuracy conforming to National Bureau of Standards or within accepted values of natural physical constants.
 7. Perform additional test(s) as required by Architect or Owner.
 8. Submittals: Submit qualifications of technicians, inspectors, Architects and the organization to perform services for this Project. Include copies of certificates and license numbers to confirm compliance.
 9. Keep time and cost separate for additional testing and inspection as outlined herein. Notify the Architect of additional testing and inspection required.
 10. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 11. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 12. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 13. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 14. Do not perform any duties of Contractor.
3. 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.
 2. b. Testing requirements indicated in specific specification sections shall take precedence over testing requirements indicate in this section which relate to the same specific specification section.

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

1.10 PRECONSTRUCTION TESTING

1. 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, and mockups; do not reuse products on Project.
 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, through Contractor.

1.11 SPECIAL TESTS AND INSPECTIONS

1. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
2. Special Tests and Inspections: Conducted by a qualified testing agency or special inspector as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.
7. Special Testing or Inspections required:
 - a. Test No. 1
 - b. Inspection No. 1.

1.12 SOIL COMPACTION TESTING

1. The Contractor for the work of specification section - Earth Moving, shall coordinate with soil testing and inspection service for quality control testing during earthwork operations and shall follow testing required in the Earthwork section and if none is indicated provide the following:
 1. Field density test reports.
 2. One optimum moisture-maximum density curve for each type of soil encountered or utilized.
 3. The Contractor shall cooperate and coordinate with Soils Architect to be on the site for observation and testing during times when the following operations are being performed.
 - a. Proof rolling
 - b. Compaction of areas of subgrades and fill. During compaction operations, the Soils Architect shall also carefully monitor existing foundations to detect possible foundation movements. If movement is detected, Work shall be stopped, and the Architect immediately notified.
 4. Testing service must inspect and approve subgrades and fill layers before further construction work is performed thereon.
 - a. Testing service will secure representative samples of the existing soils or fill material and determine the Standard Density and required moisture content to be maintained by the Moisture-Density Relation Test ASTM D-1557.
 - b. Perform field density tests in accordance with ASTM D-1556 (sand cone method) or by approved nuclear density testing method, as applicable.
 - c. Perform Limerock Bearing Ratio (LBR) tests in accordance with applicable FDOT Standards for Testing, Latest Edition, and FDOT FM 5-517.
2. Quality Control Testing During Construction: Testing service must inspect and approve subgrades and fill layers before further construction work is performed thereon. Tests of subgrades and fill layers will be taken as follows:
 1. Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Architect, except that a minimum of one test shall be performed for each 15,000 square feet of building area.
 2. Building Slab Subgrade: Make at least one field density test of subgrade for every 2,000 square feet of building slab, but in no case less than 3 tests. In each compacted fill layer, make one field density test for every 2,000 square feet of overlaying building slab area, but in no case less than 3 tests.
 3. Foundation and Retaining Wall Backfill: Take at least 2 field density tests, at locations and elevations as directed.

4. Paved Areas: Make at least one field density test of the subgrade for every 2,000 square feet, or portion thereof, of paved area, but in no case less than 3 tests shall be made for each day's final compaction operations. On each compacted fill layer, make at least one field density test for every 2,000 square feet, or portion thereof, of overlaying paved area, but in no case less than 3 tests shall be made for each day's final compaction operations. When stabilized subgrade is indicated on the Drawings, make at least one Limerock Bearing Ratio test of the subgrade for every 2,000 square feet, or portion thereof, but in no case less than 3 test shall be made for each day's final stabilizing operations.
5. Stabilized Shoulders: Make at least one field density test for every 200 lineal feet, or portion thereof, of stabilized shoulders staggered every 100 feet on either side of the roadway, but in no case less than 3 tests shall be made for each day's final compaction operations. Make at least one Limerock Bearing Ratio test for every 200 lineal feet, or portion thereof, of stabilized shoulders staggered every 100 feet on either side of the roadway, but in no case less than 3 tests shall be made for each day's final stabilizing operations.
6. Potable Water, Sanitary Sewer and Storm Drain Pipe Trench Backfill: Make at least one field density test on each 12" layer (lift) of trench backfill from the top of the pipe to the bottom of the subgrade or finished ground, as appropriate.
 - a. As a minimum, provide at least one test for each 12" layer, for every 200 lineal feet or portion thereof of pipe trench.
 - b. In addition, provide at least one test for each 12" layer, for every section of sanitary/storm pipe trench between structures.
 - c. In addition, provide at least one test for each 12" layer, for every pipe trench crossing an existing or proposed road perpendicular to the centerline of the road.
3. If, in the opinion of the Architect, based on reports of testing service and inspection, subgrade or fills which have been placed are below specified density, additional compaction work and testing shall be provided by the Contractor for the Section of Work involved at no additional expense, until subgrades or fills meet or exceed specified density.

1.13 ASPHALTIC CONCRETE PAVEMENT TESTING

1. The Contractor for the work of specification section - "Concrete Paving" shall coordinate with a separate testing laboratory to perform field quality control and shall follow testing required in the Asphaltic Concrete section and if none is indicated provide the following.
2. Test uncompacted asphalt concrete mix and report the following:
 1. Sampling: AASHTO T168 (ASTM D979) and F.D.O.T. Specifications.
 2. Asphalt Cement Content: AASHTO T164 (ASTM D2172) and F.D.O.T. Specifications.
 3. Perform at least one initial test for paving, unless otherwise specified or directed.
3. Test in-place, compacted pavement for density and thickness, as specified. Perform one test for each 2,000 square feet but not less than one test per day, unless otherwise specified or directed.

4. The Contractor shall pay for and perform additional Work and testing as may be required if any of the previous tests indicate insufficient values or if directed by the Architect. Continue Work and testing until specified values have been attained.
5. Asphalt concrete material not complying with specified requirements will not be acceptable. The Contractor shall repair or remove and replace defective paving as directed by the Architect, at no additional cost to the Owner.
6. Record the locations where samples are taken to correlate with subsequent testing.

1.14 CONCRETE TESTING

1. The Contractor for the Work of specification section - "Cast In Place Concrete," shall coordinate with a separate testing laboratory to perform field quality control testing during concrete work under Division 3 and shall follow testing required in the Cast-In-Place Concrete section and if none is indicated provide the following:
2. Quality Control Testing During Construction: Perform sampling and testing for field quality control during the placement of concrete, as follows:
 1. Sampling Fresh Concrete: ASTM C172, except modified for slump to comply with ASTM C94.
 2. Slump: ASTM C143, one test for each concrete load at point of discharge, and one for each set of compressive strength test specimens.
 3. Air Content: ASTM C231, pressure method; one for every other concrete load at point of discharge or when the indication of change requires.
 4. Compression Test Specimens: ASTM C31, one set of 6 standard cylinders for each compressive strength test, unless otherwise directed.
 - a. Cast and store 3 cylinders for laboratory cured test specimens and 3 field-cured test specimens as specified in ASTM C31.
 5. Concrete Temperature: Test hourly when air temperature is 40 degrees F. and below and when 80 degrees F. and above; and each time a set of compressive test specimens is made.
 6. Compressive Strength Tests: ASTM C39, one set for each 50 cu. yds. or fraction thereof, of each mix design placed in a day or for each 5,000 sq. ft. of surface area placed; 2 specimens (one field cured and one lab cured) tested at 7 days, 2 specimens (one field cured and one lab cured) tested at 28 days, and 2 specimens (one field cured and one lab cured) retained in reserve for later testing if required.
 - a. When the frequency of testing will provide less than 5 strength tests for a given mix design, conduct testing strength tests for a given mix design, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
 - b. When the strength of field cured cylinders is less than 85 percent of companion laboratory cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

3. Report test results in writing to the Architect, Architect, Contractor, and ready-mix supplier on the same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of Contractor, name of concrete supplier and truck number, name of concrete testing service, concrete type and class, location of concrete batch in the structure, design compressive strength at 28 days, concrete mix proportions and materials, type and amount of fibrous reinforcement, compressive breaking strength, and type of break for both 7 day tests and 28 day tests.
4. Additional Tests: The testing service will make additional tests of in-place concrete, as directed by the Architect, when test results indicate the specified concrete strengths and other characteristics have not been attained in the structure. The testing service shall conduct tests to determine the strength and other characteristics of the in-place concrete by compression tests on cored cylinders complying with ASTM C42 or by load testing specified in ACI 318 or other acceptable nondestructive testing methods, as directed. The Contractor shall pay for such tests conducted and any other additional testing as may be required, when unacceptable concrete is verified.
5. Evaluation of Quality Control Tests: Do not use concrete delivered to the final point of placement which has slump or total air content outside the specified values.
 1. Compressive strength tests for laboratory-cured cylinders will be considered satisfactory if the averages of all sets of three consecutive compressive strength tests results equal or exceed the 28-day design compressive strength of the type or class of concrete; and no individual strength test falls below the required compressive strength by more than 500 psi.
 2. Strength tests of specimens cured under field conditions may be required by the Architect to check the adequacy of curing and protecting of the concrete placed. Specimens shall be molded by the field quality control laboratory at the same time and from the same samples as the laboratory cured specimens.
 - a. Provide improved means and procedures for protecting concrete when the 28-day compressive strength of field cured cylinders is less than 85 percent of companion laboratory cured cylinders.
 - b. When laboratory cured cylinder strengths are appreciably higher than the minimum required compressive strength, field cured cylinder strengths need not exceed the minimum required compressive strength by more than 500 psi even though the 85 percent criterion is not met.
 - c. If individual tests of laboratory cured specimen produce strengths more than 500 psi below the required minimum compressive strength or if tests of field cured cylinders indicate deficiencies in protection and curing, provide additional measures to assure that the load-bearing capacity of the structure is not jeopardized. If the likelihood of low-strength concrete is confirmed and computations indicate the load-bearing capacity may have been significantly reduced, tests of cores drilled from the area in question may be required.
 3. If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such tests will be considered deficient in strength.
6. Deficient concrete shall be removed and replaced by the Contractor without additional cost to the Owner.

1.15 CONCRETE MATERIALS AND MIX DESIGN

1. Concrete Materials and Mix Design: The Contractor shall provide the following in conformance with the requirements of specification section "Cast In Place Concrete" and shall follow testing required in the Cast In Place Concrete section and if none is indicated provide the following:
 1. Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C94.
 2. Product Data: Submit 2 copies of manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures, bonding agents, water stops, joint systems, chemical floor hardeners, and dry shake finish materials.
 3. Laboratory Test Reports: Submit 2 copies of laboratory test reports for concrete materials and mix design tests. The Architect's review will be for general information only. Production of concrete to comply with specified requirements is the Contractor's responsibility.
 4. Mix Design: Submit 6 copies of concrete mix designs for each type of mix required by the Concrete Schedule indicating the amount of each ingredient (by weight) in one cubic yard of concrete, the calculated water/cement ratio, and the slump.
2. Tests for Concrete Materials
 1. For normal weight concrete, test aggregates by the methods of sampling and testing of ASTM C33.
 2. For lightweight concrete, test aggregates by the methods of sampling and testing of ASTM C330.
 3. For Portland cement, sample the cement and determine the properties by the methods of test of ASTM C33.
 4. Submit written reports for each material sampled and tested, prior to the start of Work. Provide the project identification name and number, date of report, name of Contractor, name of concrete testing service, source of concrete aggregates, material manufacturer and brand name for manufactured materials, values specified in the referenced specification for each material, and test results. Indicate whether or not material is acceptable for intended use.
3. Submit signed statement from ready-mix plant that concrete furnished for the Project will exactly conform to the approved design mixes.

1.16 WELDING QUALITY CONTROL

1. Welding operators shall be qualified under the provisions of the AWS Structural Welding Code, on test pieces in positions and with clearances equivalent to those actually to be encountered in construction and shall follow testing required in the applicable section and if none is indicated provide the following;
2. Welds requiring inspection shall be so indicated in the drawings.
 1. Welds indicted as requiring visual inspection shall be visually inspected by an independent inspector, acceptable to the Architect, prequalified to make the weld being inspected. Welders and inspectors shall be prequalified by the American Welding Society Qualification Test.
3. The Contractor performing the welding requiring inspection shall coordinate with an independent testing service, acceptable to the Architect to perform weld testing.

4. Submit written reports for each weld tested. Provide project identification and number, date of report, name of Welding Contractor, name of testing service, location of weld, type of weld, and test results. Indicate whether or not weld is acceptable for intended use.
5. If by inspection welds fail to meet minimum acceptable criteria, the welds shall be cut out and replaced.
6. Welders shall make only those types of welds for which they are specifically certified.

1.17 BOLTED STRUCTURAL CONNECTIONS QUALITY CONTROL

1. The Contractor for the work in specification section - "Structural Steel Framing" shall coordinate with a separate testing laboratory, to perform field quality control inspection of slip-critical and snug-tight bolted connections and shall follow testing required in the applicable section and if none is indicated provide the following;
2. Inspection of slip-critical connections shall be visual. The inspector shall be present at the beginning of steel erection to ensure that the erector is conforming to the Contract Documents and AISC Specifications. The inspector shall verify that the erector is marking the bolts and nuts prior to the turn-of-nut procedure. Ten percent of all slip-critical bolted connections shall be observed as they are installed. Any connections which, in the opinion of the inspector, do not meet the tightening requirements of the Contract Documents shall be corrected by the erector.
 1. Inspection of snug-tight connections shall be made by use of a spud wrench. Ten percent of all snug-tight bolted connections selected randomly over the entire limits of the building structure shall be tested to verify tightness. If more than 20 percent of the bolts tested do not meet the General Requirements of the Contract Documents, the erector shall be required to retighten all snug-tight bolted connections on the Project.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

1. General: Upon completion of inspection, testing, sample-taking, and similar services performed on Work, repair damaged Work and restore substrates and finishes to eliminate deficiencies including defects in visual qualities of exposed finishes. Except as otherwise indicated, comply with requirements of Contract Documents. Protect Work exposed by or for service activities and protect repaired Work. Repair and protection are Contractor's responsibility, regardless of assignment of responsibility for inspection, testing, or similar service.

END OF SECTION 014500

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

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

1.3 USE CHARGES

1. General: Installation and removal of and use charges for all temporary utility facilities and services shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.
2. Water Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
3. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

1. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
2. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
3. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
4. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.

1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
5. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
 1. Locations of dust-control partitions at each phase of work.
 2. HVAC system isolation schematic drawing.
 3. Location of proposed air-filtration system discharge.
 4. Waste handling procedures.
 5. Other dust-control measures.

1.5 QUALITY ASSURANCE

1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
2. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
3. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

1.6 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

2. Portable Chain-Link Fencing: Minimum 2-inch 0.148-inch thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide galvanized-steel bases for supporting posts.
3. Screening: Provide UV protected 2 ply windscreens in green color at chain link fencing.
4. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.
5. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.
6. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

1. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
2. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, Contractor, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep the office clean and orderly. Furnish and equip offices as follows:
 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
 3. Drinking water and private toilet.
 4. Coffee machine and supplies.
 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 6. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
3. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 1. Store combustible materials apart from building.

2.3 EQUIPMENT

1. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

2. HVAC Equipment: Unless Owner authorizes use of a permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction and marked for intended location and application.
 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in specification section "Closeout Procedures."
3. Heating: Provide temporary heating required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
4. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

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

3.2 TEMPORARY UTILITY INSTALLATION

1. General: Install temporary service or connect to existing service.
 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
2. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to the Owner. Provide connections and extensions of services as required for construction operations. At Substantial Completion, restore these facilities to condition existing before initial use and provide test as required by Building Official.
 1. Provide meter, Owner to pay service charges.

3. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for the use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
4. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
5. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
6. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
 1. Prior to commencing work, isolate the HVAC system in the area where work is to be performed according to coordination drawings.
 - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
 - b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
7. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 1. Provide dehumidification systems when required to reduce substrate moisture levels to the level required to allow installation or application of finishes.
8. Electric Power Service: Connect to Owner's existing electric power service as directed by the owner. Provide connections and extensions of services as required for construction operations. Maintain equipment in a condition acceptable to Owner.
9.
 1. No meter, Owner to pay service charges.
10. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 1. Install and operate temporary lighting that fulfills security and protection requirements without operating the entire system.

11. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.
 1. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.
 - f. Architects' offices.
 - g. Owner's office.
 - h. Principal subcontractors' field and home offices.
 2. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
12. Electronic Communication Service: Provide a desktop computer in the primary field office adequate for use by Architect and Owner to access Project electronic documents and maintain electronic communications. Equip computer with not less than the following:
 1. Processor: Intel Pentium D or Intel CoreDuo, 3.0 GHz processing speed.
 2. Memory: 4 gigabytes.
 3. Disk Storage: 300 gigabyte hard-disk drive and combination DVD-RW/CD-RW drive.
 4. Display: 22-inchLCD monitor with 256-Mb dedicated video RAM.
 5. Full-size keyboard and mouse.
 6. Network Connectivity: 10/100BaseT Ethernet.
 7. Operating System: Microsoft Windows XP Professional or Microsoft Windows Vista Business.
 8. Productivity Software:
 - a. Microsoft Office Professional, XP or higher, including Word, Excel, and Outlook.
 - b. Adobe Reader 7.0 or higher.
 - c. WinZip 7.0 or higher.
 9. Printer: "All-in-one" unit equipped with printer server, combining color printing, photocopying, scanning, and faxing, or separate units for each of these three functions.
 10. Internet Security: Integrated software, providing software firewall, virus, spyware, phishing, and spam protection in a combined application.

3.3 SUPPORT FACILITIES INSTALLATION

1. General: Comply with the following:
 1. Provide construction for temporary offices, shops, and sheds located within construction areas that are noncombustible according to ASTM E 136. Comply with NFPA 241.
 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

2. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas on Drawings.
 1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.
3. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in the same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to specification section "Earth Moving."
4. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 1. Maintain access for fire-fighting equipment and access to fire hydrants.
5. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
6. Any grounds within the designated construction zone, staging area, administrative area, etc. will be maintained by the CM in a neat and reasonable appearance, including the removal of all debris, management of stored materials, mowing of grass, control of erosion, etc.
7. Drainage: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
8. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 1. Identification Signs: Provide Project identification signs as indicated.
 2. Temporary Signs: Provide other signs as indicated and as required to inform the public and individuals seeking entrance to Project.
 3. Provide temporary, directional signs for construction personnel and visitors.
 4. Maintain and touchup signs so they are legible at all times.
9. Waste Disposal Facilities: Comply with requirements specified in specification section "Construction Waste Management and Disposal."
10. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in specification section "Execution."
11. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

1. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
2. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
3. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
4. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
5. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
6. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
7. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 2. Maintain security by limiting the number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
8. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

9. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
10. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
11. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
12. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by fumes and noise.
 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
 2. Construct dustproof partitions with two layers of 6-milpolyethylene sheet on each side. Cover floor with two layers of 6-milpolyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant-treated plywood.
 - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.
 3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 4. Insulate partitions to control noise transmission to occupied areas.
 5. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
 6. Protect air-handling equipment.
 7. Provide walk-off mats at each entrance through temporary partition.
13. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 1. Prohibit smoking in construction areas.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 MOISTURE AND MOLD CONTROL

1. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

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

3.6 OPERATION, TERMINATION, AND REMOVAL

1. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
2. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

3. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
4. Termination and Removal: Remove each temporary facility when the need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are property of Contractor. The owner reserves right to take possession of Project identification signs.
 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Specification Section "Closeout Procedures."

END OF SECTION 015000

SECTION 015010 - PROJECT CONSTRUCTION SIGN

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. This Section includes the following:
 1. Requirements for Project Construction Sign.
2. General Requirements: Comply with the following:
 1. Schedule for Sign: Erect Project sign at the beginning of construction and it shall remain in-place until Certificate of Occupancy has been issued.
 2. Location of Project Sign: Unless otherwise directed by Owner, Project sign shall be erected at a location that is visible to the public, which typically is adjacent to the entrance drive of the Project site and approved by the Architect.
 - a. Bottom face of the Project sign shall be a minimum of 4 ft. above grade.
 3. Other Site Signs: Unless required by local, state, or Federal Code or safety standards, no other signs will be permitted at the Project site.

1.3 ACTION SUBMITTALS

1. Signage Information: Architect will provide information for the Project sign electronically.
 1. The Architect will review with the designated Owner's Representative that the indicated information is correct.
 2. Sign fabricator shall be responsible for ensuring that the correct information is indicated on the Project sign.

1.4 QUALITY ASSURANCE

1. Code Requirement: Project sign shall comply with all applicable Codes, including wind load recommendations and requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

1. Construct Project sign of the following:
 1. Plywood Sign Faces: 2, 4 ft. x 8 ft. x 3/4-inch thick, exterior grade plywood.
 - a. Plywood faces shall be constructed into a "V" format on a 90-degree angle.

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- b. Design to be provided by the Architect and Owner approved.
- 2. Posts: Not less than 2 posts per 4 ft. x 8 ft. sign face.
 - a. Size of Posts: As required per Florida Building Code wind load requirements.
 - b. Material: Posts may be fabricated of exterior grade, treated lumber or galvanized steel.
- 3. Fasteners: Use fasteners that are zinc-coated to inhibit rust.
 - a. Number of Fasteners: As required by structural requirements.

2.2 FABRICATION

- 1. Project sign shall be fabricated off-site and match the example and brought to the Project site ready for erection in location as directed by Architect.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 015010

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

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

1.3 DEFINITIONS

1. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
2. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," 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 additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

1. Comparable Product Requests: Submit a request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within fifteen (15) workdays of receipt of request, or seven calendar days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in specification section "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
2. Basis-of-Design Product Specification Submittal: Comply with requirements in specification section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

1. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 1. The Contractor is responsible for providing products and construction methods compatible with products and construction methods of applicable subcontractors.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

1. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
2. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
3. Storage:
 1. Store products to allow for inspection and measurement of quantity or counting of units.
 2. Store materials in a manner that will not endanger Project structure.
 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

4. Protect foam plastic from exposure to sunlight, except to the extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

1. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
2. 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. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

1. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
2. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.
 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.
 3. Products:
 - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered unless otherwise indicated.
 - b. Non-restricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
 4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered unless otherwise indicated.
 - b. Non-restricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
3. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. The Architect's decision will be final on whether a proposed product matches.
 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Specification Section "Substitution Procedures" for proposal of product.
 4. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. The Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

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PART 3 - EXECUTION (Not Applicable)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

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

1.3 DEFINITIONS

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

1.4 INFORMATIONAL SUBMITTALS

1. Qualification Data: For land surveyor.
2. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
3. Certified Surveys: Submit two (2) copies signed by land surveyor.
4. Final Property Survey: Submit ten (10) copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

1. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in the jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

1. General: Comply with requirements specified in other sections.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

1. 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.
2. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on drawings.
3. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in specification section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

1. 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 the Architect promptly.
2. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 2. Establish limits on use of Project site.
 3. Establish dimensions within tolerances indicated. Do not scale drawings to obtain required dimensions.
 4. Inform installers of lines and levels to which they must comply.
 5. Check the location, level and plumb, of every major element as the Work progresses.
 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
3. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
4. 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.
5. 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 the Architect.

3.4 FIELD ARCHITECTING

1. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 1. Do not change or relocate existing benchmarks or control points without prior written approval of the Architect. 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.
2. 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.
3. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-Architecting services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
4. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

1. 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.
2. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
3. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
4. 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.
5. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
6. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
7. Templates: Obtain and distribute to the parties' involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

8. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
9. 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.
10. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 STARTING AND ADJUSTING

1. Coordinate startup and adjusting of equipment and operating components with requirements in specification section "General Commissioning Requirements."
2. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
3. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
4. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
5. Manufacturer's Field Service: Comply with qualification requirements in specification section "Quality Requirements."

3.7 PROTECTION OF INSTALLED CONSTRUCTION

1. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
2. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017310 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. This Section includes procedural requirements for cutting and patching.

1.3 DEFINITIONS

1. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
2. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 INFORMATIONAL SUBMITTALS

1. Cutting and Patching Plan: Submit a plan describing procedures at least 10 workdays prior to the time cutting and patching will be performed. Include the following information:
 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

1.5 QUALITY ASSURANCE.

1. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Fire-detection and -alarm systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
 - h. Firestopping
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
2. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

1.6 WARRANTY

1. 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.
2. Extend a one-year labor and materials warranty against defects in failure of patch work due to material defects or workmanship.

PART 2 - PRODUCTS

2.1 MATERIALS

1. General: Comply with requirements specified in other Sections of these Specifications.
2. 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

1. 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, mechanical and electrical systems, 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.
2. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

1. Temporary Support: Provide temporary support of Work to be cut.
2. 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.
3. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
4. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid or minimize interruption of services to occupied areas. Schedule any such interruptions of service with the Owner.

3.3 EXECUTION

5. Comply with requirements in specification section "Selective Demolition."
6. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in specification section "Project Management and Coordination."
7. C. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
8. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
9. 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.
10. F. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on drawings.
11. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

12. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
13. Temporary Support: Provide temporary support of work to be cut.
14. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
15. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

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16. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.
 1. patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color.

END OF SECTION 017310

SECTION 017413 - GENERAL CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section Includes:
 1. Provide labor, material, services and equipment necessary to furnish and install work as indicated and as specified herein, which includes, but is not limited to:
 - a. Progress cleaning.
 - b. Final cleaning.

1.3 DISPOSAL REQUIREMENTS

1. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 - PRODUCTS

2.1 MATERIALS

1. Use only those cleaning materials which will not create hazards to health or property, and which will not damage surfaces.
2. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
3. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

1. Execute daily cleaning to keep the work, the site, and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.

2. Provide on-site containers for the collection of waste materials, debris, and rubbish. Construction Manager must utilize services of local waste collection agencies or companies.
3. Remove waste materials, debris and rubbish from the site periodically, and dispose of at legal disposal areas away from the site. Pay all fees for disposal.

3.2 PROGRESS CLEANING

1. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
2. Site: Maintain Project site free of waste materials and debris. Maintain turf inside the Project Site at no more than 5".
3. 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.
4. Installed Work: Keep installed work clean. Do not use installed work to clean tools, paint brushes/ rollers, buckets or other construction equipment. 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.
5. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
6. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
7. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in specification section "Construction Waste Management and Disposal."
8. 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.

9. 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.
10. 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.

3.3 DUST CONTROL

1. Perform work operations and cleaning in a manner to prevent excessive dust generation.
2. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
3. Schedule operations so that dust and other contaminants resulting from the cleaning process will not fall on wet or newly coated surfaces.
4. Install filter media in all newly installed supply and return ducts.

3.4 FINAL CLEANING

1. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition. Polish glossy surfaces to a clear shine.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Sweep concrete floors broom clean in unoccupied spaces.
 - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

- i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - n. Clean ducts, blowers, and coils if units display contamination with particulate matter on inspection. Units shall not be operated without filters during construction.
 - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
 - 2) Clean permanent filters and replace disposable filters if units were operated during construction.
 - 3) Clean surfaces and blades of grilles, diffusers, registers, lenses, louvers, etc.
 - o. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - p. Enclosed spaces, such as above ceilings and voids in wall assemblies, are to be free from debris.
 - q. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds. Clean roof area and adjacent surfaces of any dirt or debris from construction activities.
 - r. Parking areas are to be cleaned of any grease or oil stains.
 - s. Leave Project clean and ready for occupancy.
2. Prior to final completion, or Owner occupancy, Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify that the entire work is clean. Inspect areas adjacent to the work area for any windblown debris and clean as necessary.

END OF SECTION 017413

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes administrative and procedural requirements for the following:
 1. Salvaging nonhazardous demolition and construction waste.
 2. Recycling nonhazardous demolition and construction waste.
 3. Disposing of nonhazardous demolition and construction waste.
 4. Disposing of nonhazardous construction waste.

1.3 DEFINITIONS

1. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
2. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
3. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
4. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
5. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
6. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.
7. LEED: Leadership in Energy and Environmental Design Rating System as established by U.S. Green Building Council.

1.4 PERFORMANCE REQUIREMENTS

1. General: Achieve end-of-Project rates for salvage/recycling of 50 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials.

1.5 ACTION SUBMITTALS

1. Waste Management Plan: Submit plan within 20 days of date established for Notice to Proceed.

1.6 INFORMATIONAL SUBMITTALS

1. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use Form CWM-7 for construction waste and Form CWM-8 for demolition waste. Include the following information:
 1. Material category.
 2. Generation point of waste.
 3. Total quantity of waste in tons.
 4. Quantity of waste salvaged, both estimated and actual in tons.
 5. Quantity of waste recycled, both estimated and actual in tons.
 6. Total quantity of waste recovered (salvaged plus recycled) in tons
 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
2. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
3. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether the organization is tax exempt.
4. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
5. Landfill Disposal Records: Indicate receipt and acceptance of waste by landfills licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
6. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

7. Green Globe Submittal: Green Globe letter template, signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met. Refer to Schedule at the end of this section.

1.7 QUALITY ASSURANCE

1. Waste Management Coordinator Qualifications: The Waste Management coordination shall be a full-time member of the Contractor's on-site field team. The Waste Management Coordinator may have other on-site project responsibilities.
2. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
3. Waste Management Conference: Conduct conference at Project site to comply with requirements in specification section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 1. Review and discuss waste management plan including responsibilities of waste management coordinator.
 2. Review requirements for documenting quantities of each type of waste and its disposition.
 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 5. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

1. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. The plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume but use same units of measure throughout waste management plan.
2. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing, and construction waste generated by the Work for construction waste and for demolition waste. Include estimated quantities and assumptions for estimates.
3. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator for construction waste and for demolition waste. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 2. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

3. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
4. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
4. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
 1. Total quantity of waste.
 2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
 3. Total cost of disposal (with no waste management).
 4. Revenue from recycled materials.
 5. Savings in hauling and tipping fees by donating materials.
 6. Savings in hauling and tipping fees that are avoided.
 7. Handling and transportation costs. Include cost of collection containers for each type of waste.
 8. Net additional cost or net savings from waste management plan

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

1. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 1. Comply with operation, termination, and removal requirements in specification section "Temporary Facilities and Controls."
2. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
3. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
4. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

2. Comply with specification section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

1. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
 1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 3. Store items in a secure area until installation.
 4. Protect items from damage during transport and storage.
 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
2. Salvaged Items for Sale Not permitted on Project site.
3. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:
 1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport and storage.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

1. General: Recycle paper and beverage containers used by on-site workers.
2. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall [accrue to Owner] [accrue to Contractor] [be shared equally by Owner and Contractor].
3. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
4. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include a list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

1. Asphalt Paving: Grind asphalt to maximum 1-1/2-inch size.
 1. Crush asphaltic concrete paving and screen to comply with requirements in specification section "Earth Moving" for use as general fill.
2. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.
3. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 1. Pulverize concrete to maximum 1-1/2-inch size.
 2. Crush concrete and screen to comply with requirements in specification section "Earth."
4. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
 1. Pulverize masonry to maximum 1-inch size.
 - a. Crush masonry and screen to comply with requirements in specification section "Earth Moving" for use as general fill.
 - b. Crush masonry and screen to comply with requirements in specification section "Plants" for use as mineral mulch.
 2. Clean and stack undamaged, whole masonry units on wood pallets.
5. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, Architected wood products, panel products, and treated wood materials.
6. Metals: Separate metals by type.
 1. Structural Steel: Stack members according to size, type of member, and length.
 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
7. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.
8. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
9. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
10. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.

11. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
 1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
12. Carpet Tile: Remove debris, trash, and adhesive.
 1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
13. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
14. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

1. Packaging:
 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 2. Polystyrene Packaging: Separate and bag materials.
 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
2. Wood Materials:
 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
 - a. Comply with requirements in specification section "Plants" for use of clean sawdust as organic mulch.
3. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.
 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.
 - a. Comply with requirements in specification section "Plants" for use of clean ground gypsum board as inorganic soil amendment.

3.6 DISPOSAL OF WASTE

1. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
2. Burning: Do not burn waste materials.

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3. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.
4. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION 017419

SECTION 017500 - STARTING AND ADJUSTING SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.2 SECTION INCLUDES

1. Provide labor, materials, services, and equipment necessary to furnish and install work as indicated and as specified herein, which includes, but is not limited to:
 1. Starting systems.
 2. Demonstration and instructions.
 3. Testing, adjusting, and balancing.

1.3 STARTING SYSTEMS

1. Coordinate schedule for start-up of various equipment and systems.
2. Notify Architect and Owner seven days prior to startup of each item.
3. Verify each piece of equipment or system for proper lubrication, drive rotation, belt tension, control sequence, or other conditions that may cause damage.
4. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
5. Verify wiring and support components for equipment are complete and tested.
6. Execute startup under supervision of responsible Contractors' personnel in accordance with manufacturers' instructions.
7. When specified in individual specification sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to startup, and to supervise placing equipment or system in operation.
8. Submit a written report, verifying the proper installation of the equipment or system and that it functions correctly.

1.4 TESTING, ADJUSTING, AND BALANCING

1. The Contractor will employ and pay for services of an independent firm to perform testing, adjusting and balancing.
2. The independent firm shall perform the services as specified.
3. The independent firm shall submit reports to the Architect indicating observations, results of tests and compliance or non-compliance with specified requirements and with the requirements of the contract documents.
4. The independent firm shall coordinate scheduling of Testing, Adjusting, and Balancing activities with the Contractor.
 1. Testing, Adjusting and Balancing must be completed prior to scheduling equipment and system Functional Performance Testing.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

- 3.1 The contractor shall coordinate equipment and system start-up with the Architect.**

END OF SECTION 017500

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 1. Substantial Completion Procedures.
 2. Final Completion Procedures.
 3. Operation and Maintenance Manuals and Warranties.
 4. Final Cleaning.
 5. Repair of the Work.

1.3 ACTION SUBMITTALS

1. Product Data: For cleaning agents.
2. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
3. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 MAINTENANCE MATERIAL SUBMITTALS

1. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

1. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
2. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
 5. Submit test/adjust/balance records.
 6. Submit sustainable design submittals not previously submitted.
 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
3. Procedures Prior to Substantial Completion: Complete the following a minimum of ten (10) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 1. Advise Owner of pending insurance changeover requirements.
 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
 6. Advise Owner of changeover in heat and other utilities.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements, including touchup painting.
 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 4. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, the 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. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.
 5. When Architect concurs that the work is substantially complete, he will:

6. Prepare a Certificate of Substantial Completion on AIA Form G704, accompanied by Contractor's list of items to be completed or corrected, as verified and amended by the Architect.
7. 2. Submit the Certificate to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

1.6 FINAL COMPLETION PROCEDURES

1. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 1. Submit a final Application for Payment according to specification section "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
 5. Submit two sets of As-Built drawings.
2. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, the Architect will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Architect will prepare a final Certificate for Payment after inspection or will notify the Contractor of construction that must be completed or corrected before certificate will be issued.
 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

1. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 1. Organize a list of spaces in sequential order, by floor and room numbers.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
 4. Submit list of incomplete items in the following format:
 - a. PDF electronic file. Architect will return annotated file.
 - b. Excel spread sheet.

1.8 SUBMITTAL OF PROJECT OPERATION AND MAINTENANCE MANUALS AND WARRANTIES

1. Time of Submittal: Submit written Operation and Maintenance Manuals and Warranties fifteen (15) days prior to Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

1. Cleaning Agents: Use cleaning materials and agents recommended by the 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.
 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

1. Final Cleaning: Comply with final cleaning requirements in specification section "General Cleaning."
2. Pest Control: Comply with pest control requirements in specification section "Temporary Facilities and Controls." Prepare written report.
3. Construction Waste Disposal: Comply with waste disposal requirements in "Construction Waste Management and Disposal" specification section.

3.2 REPAIR OF THE WORK

1. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
2. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.

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- a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 1. Operation manuals for systems, subsystems, and equipment.
 2. Product maintenance manuals.
 3. Systems and equipment maintenance manuals.

1.3 DEFINITIONS

1. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
2. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

1. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this section.
2. Submit two (2) copies of the preliminary draft of proposed formats and outlines of contents for manuals at least 30 days before commencing demonstration and training.
3. The Architect will comment on whether the content of operations and maintenance submittals are acceptable.
4. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
5. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least fifteen (15) working days before commencing demonstration and training. Architect will return a copy with comments.

1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within fifteen (15) working days of receipt of Architect's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION MANUALS

1. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
2. Descriptions: Include the following:
3. Operating Procedures: Include the following, as applicable:
 1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.

2.2 PRODUCT MAINTENANCE MANUALS

1. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
2. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
3. Product Information: Include the following, as applicable:
 1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
4. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
5. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
6. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

2.3 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

1. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
2. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
3. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 1. Standard maintenance instructions and bulletins.
 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 3. Identification and nomenclature of parts and components.
 4. List of items recommended to be stocked as spare parts.
4. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
5. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
6. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
7. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

1. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
2. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
3. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 1. Do not use original project record documents as part of operation and maintenance manuals.
 2. Comply with requirements of newly prepared record Drawings in specification section "Project Record Documents."
4. Comply with specification section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 017830 - WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Compile specified warranties and bonds.
2. Compile specified service and maintenance contracts.
3. Review submittals to verify compliance with Contract Documents.
4. Submit to Architect for review and transmittal to Owner.

1.3 GENERAL WARRANTY

1. The Contractor shall warrant the project against defects in materials or workmanship and agrees to repair or replace components that fail and repair or replace defective workmanship within a specified warranty period of one (1) year after substantial completion unless indicated differently in a specific specification section.

1.4 SUBMITTAL REQUIREMENTS

1. Assemble warranties, bonds and service and maintenance contracts, executed by each of respective manufacturers, suppliers and subcontractors in accordance with Division 1 requirements.
2. Number of original signed copies required: Three (3) each.
3. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item:
 1. Product or work item.
 2. Firm, with name of principal, address and telephone number.
 3. Scope.
 4. Date of beginning of warranty, bond or service and maintenance contract. In no case shall the date begin prior to acceptance by the Architect of that portion of the work.
 5. Duration of warranty, bond or service maintenance contract.
 6. Provide information for Owner's personnel:
 - a. Proper procedure in case of failure.

- b. Instances which might affect the validity of warranty or bond.
- c. Construction Manager, name of responsible principal, address and telephone number.
- d. Manufacturer: Contact person and telephone number.FORM

1.5 FORM OF SUBMITTALS

1. Prepare in duplicate packets.
2. Format:
 1. Size: 8-1/2" x 11" punch sheets for standard 3-ring binder:
 - a. Fold larger sheets to fit into binders.
 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS."
List:
 - a. Title of Project.
 - b. Location of Project.
 - c. Name of Construction Manager.
3. Binders: Commercial quality, 3-ring, with durable and cleanable plastic covers, all of same color.

1.6 TIME OF SUBMITTALS

1. For equipment or component parts of equipment put into service during progress of construction:
 1. Warranties shall start at the Date of Substantial Completion for each phase of work complete for the items related to that particular phase. The final warranties for the project will list the individual dates for the start date of each warranty per phase.
2. Submit documents as indicated with Closeout Documents.
3. For items of work where acceptance is delayed materially beyond Date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

1.7 SUBMITTALS REQUIRED

1. Submit warranties, bonds, service and maintenance contracts as specified in respective Sections of Specifications.
2. Submit additional manufacturer's standard warranties where available at no additional cost, but not specifically indicated in respective Specification Sections.

END OF SECTION 017830

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section includes administrative and procedural requirements for project record documents, including the following:
 1. Record Drawings.
 2. Record Specifications.
 3. Record Product Data.
 4. Miscellaneous record submittals.

1.3 ACTION SUBMITTAL

1. At Substantial Completion, deliver Record Documents to Architect for review prior to sending to the Owner.
2. Accompany submittal with transmittal letter in duplicate, containing:
 1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 4. Title and number of each Record Document.
 5. Signature of Construction Manager or his authorized representative.
3. Should Architect determine the Record Documents are not complete, Construction Manager shall rework Documents to properly record all contractual items. Record Documents shall then be resubmitted for additional review. The Construction Manager is solely responsible for recording all data on the Project Record Documents.

1.4 CLOSEOUT SUBMITTALS

1. Record Drawings: Comply with the following:
 1. Number of Digital Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal: Submit record digital data files and one set(s) of plots.
 - b. Final Submittal: Submit record digital data files and three set(s) of record digital data file plots.
 2. Number of Paper Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal: Submit one set(s) of prints.
 - b. Final Submittal: Submit three set(s) of prints.

- c. Final Submittals: Submit PDF.
2. Record Specifications: Submit of Project's Specifications, including addenda and contract modifications.
3. Record Product Data: Submit of each submittal.
 1. Where record Product Data is required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
4. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit of each submittal.

1.5 MAINTENANCE OF DOCUMENTS AND SAMPLES

1. Store documents and samples in the Construction Manager's field office apart from documents used for construction.
2. Provide files and racks for storage of documents.
3. File documents and samples in accordance with CSI/CSC format.
4. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
5. Make documents and samples available at all times for inspection by Architect. Review and verify monthly, prior to submittal of Construction Manager's Application for Payment.
 1. Owner and Architect shall review record documents prior to approval of monthly Application for Payment.
6. Update documents to record changes as the work progresses. Completed portions of work should be recorded in a clear, legible and finished manner.
7. As a minimum, update documents prior to each Application for Payment. Architect shall review documents prior to approval of Application for Payment. Failure of the Construction Manager to maintain record documents as stated shall result in the non-approval of the Application for Payment, or at minimum, a reduction to the payment due.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

1. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
2. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Architect for resolution.
 4. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Specification Section "Submittal Procedures" for requirements related to use of Architect's digital data files.
 - b. The Architect will provide data file layer information. Record markups in separate layers.
3. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
3. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

1. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 3. Note related Change Orders and record Drawings where applicable.
2. Format: Submit record Specifications as an annotated PDF electronic file.

2.3 RECORD PRODUCT DATA

1. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to the Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
2. Format: Submit record Product Data as an annotated PDF electronic file.
 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

1. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until the end of Project.
2. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's and Contractor reference during normal working hours.

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. The provisions of the General Conditions, Supplementary Conditions, Drawings, Specifications and the Sections included under Division 1, General Requirements and References are included as a part of this Section as though bound herein.

1.2 SUMMARY

1. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 1. Demonstration of operation of systems, subsystems, and equipment.
 2. Training in operation and maintenance of systems, subsystems, and equipment.

1.3 INFORMATIONAL SUBMITTALS

1. Instruction Program: Submit outline of instructional program for demonstration and training and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training presentation.

1.4 QUALITY ASSURANCE

1. Instructor Qualifications: A factory-authorized service representative, experienced in operation and maintenance procedures and training.
2. Pre-Instruction Conference: Conduct conference at Project site to comply with review methods and procedures related to demonstration and training including, but not limited to, the following:
 1. Inspect and discuss locations and other facilities required for instruction.
 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 3. Review required content of instruction.

1.5 COORDINATION

1. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
2. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

3. Coordinate content of training presentation with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

1. Program Structure: Develop an instruction program that includes a training presentation for each system and for equipment not part of a system, as required by individual Specification Sections.
2. Training Presentation: Develop a learning objective and teaching outline for each presentation. Include a description of specific skills and knowledge that participant is expected to master. For each presentation, include instruction for the following as applicable to the system, equipment, or component:
 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Operating standards.
 - c. Regulatory requirements.
 - d. Equipment function.
 - e. Operating characteristics.
 - f. Limiting conditions.
 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Identification systems.
 - e. Maintenance service agreements and similar continuing commitments.
 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Shutdown instructions for each type of emergency.
 - c. Operating instructions for conditions outside of normal operating limits.
 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Normal shutdown instructions.
 - h. Operating procedures for system, subsystem, or equipment failure.
 - i. Seasonal and weekend operating instructions.
 - j. Required sequences for electric or electronic systems.
 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.

- d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for routine and preventative maintenance.
 - f. Instruction on use of special tools.

PART 3 - EXECUTION

3.1 PREPARATION

- 1. Assemble educational materials necessary for instruction, including documentation and training material and assemble into a training manual.
- 2. Set up instructional equipment at the instructional location.
- 3. Provide a list of attendees.

3.2 INSTRUCTION

- 1. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish Contractor with names and positions of participants.
- 2. Scheduling: Provide instruction at mutually agreed on times. Schedule training with Owner, through Architect, with at least seven days' advance notice.
- 3. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- 4. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.3 DEMONSTRATION AND TRAINING VIDEOTAPES

- 5. General: Engage a qualified commercial photographer to record demonstration and training videotapes. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
- 6. Videotape Format: Provide HD digital full color DVD and USB flash drive.

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7. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and training. Display continuous running time.

END OF SECTION 017900

SECTION 01 9100 COMMISSIONING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Description
- B. Commissioning Process
- C. Related Work

1.2 DESCRIPTION

- A. Commissioning. Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent and the Owner's operational needs. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing, adjusting and balancing, performance testing, and training.
- B. Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:
 - 1. Verify applicable equipment and systems are installed according to the Owner's project requirements, manufacturer's recommendations, and industry accepted minimum standards.
 - 2. Verify applicable equipment and systems receive adequate operational checkout by installing contractors.
 - 3. Observe and document proper performance of equipment and systems.
- C. The commissioning process does not take away from or reduce the responsibility of the system designers or installing contractors to provide a finished and fully functioning product.
- D. Abbreviations. The following are common abbreviations that may be used in the specifications and the Commissioning Plan.

A/E	Architects and Engineers	GC	General Contractor
BOD	Basis of Design	IST	Integrated Systems Test
Cx	Commissioning	LEED	Leadership in Energy and Environmental Design
CIL	Construction Issues Log	MFR	Manufacturer
CxA	Commissioning Authority	MC	Mechanical Contractor
CxS	Commissioning Specialist	O&M	Operation and Maintenance
CM	Construction Manager	OPR	Owner's Project Requirements
TCC	Temperature Controls Contractor	PC	Plumbing Contractor
DB/C	Design Build Contractor	PFC	Pre-Functional Checklist
EC	Electrical Contractor	Subs	Subcontractors to General
FOR	Field Observation Report		

FPT Functional Performance Test TAB Test, Adjust & Balance
Contractor

1.3 COMMISSIONING PROCESS

- A. Commissioning Plan. The Commissioning Plan (Cx Plan), which is an appendix to this specification, provides definition for the execution of the commissioning process. The Commissioning Authority (CxA) shall update the Cx Plan when appropriate during the Cx process.
- B. Commissioning Process. Refer to the Cx Plan for an overview of the typical commissioning tasks during construction and the general order in which they occur.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

- A. All standard testing equipment required to perform startup, initial checkout, and functional performance testing shall be provided by the Division Contractor. If required, two-way radios, ladders and/or man-lifts shall be provided by the General Contractor or applicable subcontractor.
- B. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the related specifications. All equipment shall be calibrated according to the manufacturer's recommended intervals and when dropped or damaged shall be replaced. Calibration tags shall be affixed or certificates readily available.

PART 3 - EXECUTION

3.1 COORDINATION

- A. Refer to the Commissioning Plan in the appendix of this section for further detail on the Commissioning Process.

3.2 EXECUTION

- A. The Commissioning Process requires efficient and effective communication among all trades, the design team, the contractors, the vendors, the Owner, and the Commissioning Authority. To facilitate the transition from one activity to the next and to prove system readiness for functional testing; the Commissioning Authority requires documentation showing compliance with the project requirements as well as providing evidence of conformance with manufacturer's recommendations. The following shall be documented and submitted for review and acceptance by the Commissioning Authority in a timely manner for each commissioned piece of equipment or system:
 - 1. Completed pre-functional checklists.

2. Startup reports filled out by a factory authorized representative as required by the project technical specifications.
 3. Field quality control test reports as required by the project technical specifications.
 4. Building automation system "point to point" reports.
 5. Testing, adjusting, and balancing reports as required by the project technical specifications.
 6. Building automation system graphics.
 7. Contractor completed Functional Performance Test documenting that, at a minimum "one of", for each functional test has been completed without deficiency.
- B. These documents will be reviewed and accepted by the Commissioning Authority, with concerns and deficiencies tracked in the Construction Issues Log. Commissioning Authority review of these documents is independent of any Architect/Engineer of Record review and approval as required elsewhere in the project technical specifications.
- C. Functional Performance Test procedures document conformance with the Owner's project requirements, establish a baseline for equipment and system performance, and are critical tools for troubleshooting by O&M staff during occupancy.
1. The Commissioning Authority will develop the Functional Performance Tests based on the Owner's project requirements, the design construction documents, and approved submittals.
 2. The Commissioning Authority will develop DRAFT copies for the Commissioning Team to review and provide comments.
 3. The Commissioning Authority will incorporate comments from the team as required and issue FINAL copies that the contractors will implement as required in this section, Paragraph 3.2A.7.
 4. The Commissioning Authority will witness and document final Functional Performance Testing per the Commissioning Plan.
 5. If Functional Performance Tests fail or deficiencies are found that do not allow the Commissioning Authority to complete the testing, the deficiency will be documented in the Commissioning Actions Log per the Commissioning Plan.

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- D. In the event functional testing cannot be completed due to Contractor negligence in completing and submitting documentation listed in Paragraph 3.2A or due to Contractor misrepresentation a system is ready for testing, a retesting charge will be submitted by the Commissioning Authority. Retesting charges to satisfactorily complete the Functional Performance Testing shall include labor and reimbursable expenses. These will be assessed to the Owner, wholly transferrable to the General Contractor Construction Manager at the discretion of the Owner.

END OF SECTION

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Demolition and removal of selected portions of building or structure.
 2. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

1. Unless otherwise indicated, demolition waste becomes property of Contractor.
2. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 PREINSTALLATION MEETINGS

1. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

1. Schedule of selective demolition activities, with starting and ending dates for each activity.

1.5 FIELD CONDITIONS

1. Conditions existing at time of inspection for bidding purpose will be maintained by Property Manager as far as practical.
2. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
3. Storage or sale of removed items or materials on-site is not permitted.
4. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 1. Maintain fire-protection facilities in service during selective demolition operations.
5. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Verify that utilities have been disconnected and capped before starting selective demolition operations.
2. Perform a survey of condition of building to determine whether removing any element might result in interruption of building utilities.
3. Inventory and record the condition of items to be removed and salvaged.

3.2 PREPARATION

1. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

1. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
2. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 1. Arrange to shut off utilities with utility companies.
 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.

- e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
- f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.

3.4 PROTECTION

1. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
2. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION

1. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 5. Dispose of demolished items and materials promptly.
2. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
3. Removed and Salvaged Items:
 1. Clean salvaged items.
 2. Store items in a secure area until delivery to Owner.
 3. Protect items from damage during transport and storage.
4. Removed and Reinstalled Items:
 1. Clean and repair items to functional condition adequate for intended reuse.
 2. Protect items from damage during transport and storage.
 3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

5. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.6 CLEANING

1. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
2. Burning: Do not burn demolished materials.
3. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 03 3000 CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The General Requirements, Division 1 are hereby made a part of this section as if fully repeated herein.
- B. Provide all concrete work shown and specified including form work, reinforcing steel, placing and curing.
- C. All concrete for the project shall conform to requirements of ACI 301, except as modified by the Contract Documents.

1.2 CODES AND STANDARDS

- A. Concrete work shall conform to the following by American Concrete Institute (ACI) unless modified herein or on the drawings.
 - 1. ACI 301: Specifications for Structural Concrete for Buildings.
 - 2. ACI 302: Guide for Concrete Floor and Slab Construction.
 - 3. ACI 304: Guide for Measuring, Mixing, Transporting, and Placing Concrete.
 - 4. ACI 308: Standard Practice for Curing Concrete.
 - 5. ACI 309: Guide for Consolidation of Concrete.
 - 6. SP-66: ACI Detailing Manual
 - 7. ACI 318: Buildings Code Requirements for Structural Concrete.
 - 8. ACI 347: Guide to Formwork for Concrete
 - 9. ACI 117: Standard tolerances for Concrete Construction and Materials.
 - 10. CRSI: Manual of Standard Practice

1.3 QUALITY CONTROL

- A. Concrete Testing Service: The Contractor shall employ and pay an independent testing laboratory to perform concrete testing. Laboratory shall meet the requirements of ASTM C 1077 "Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for use in Construction and criteria for Laboratory Evaluation."

1.4 SUBMITTALS

- A. Shop Drawings: Submit for fabrication and placement of concrete reinforcement. Comply with SP-66 and CRSI "Manual of Standard Practice" showing bar schedules and arrangement of reinforcement.
- B. Mix Design Tests Reports: Submit testing facility reports for each proposed mix at least 10 days prior to start or work.
- C. Concrete Tests Reports: Submit laboratory test report for each concrete test specified herein. Test results shall be reported in writing to the Architect-Engineer and Contractor on the same day that the tests are made. Reports of compressive strength tests shall contain the project title and A.E. File number, date of concrete placement, name of Contractor, name of concrete supplier and truck number, name of concrete testing

service, location of concrete batch in the structure, design compressive strength and type of break for both 7-day tests and 28-day tests.

- D. Post-Tensioned Slab on Grade: Submit signed and sealed drawings that include layout plans, required construction details, material specifications and required execution requirements for approval.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Concrete Materials:

1. Portland Cement: ASTM C 150, Type I/II
2. Water: Clean and potable complying with ASTM C94
3. Air-Entraining Admixture: ASTM C 260
4. Water Reducing Admixture: ASTM C 494, Type A
5. Retarding Admixture: ASTM C 494, Type B
6. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
7. High-Range, Water-Reducing Admixture: ASTM C 494, Type F
8. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G
9. Plastizing and Retarding Admixture: ASTM C 1017, Type II
10. Chloride Ions: Do not use calcium chloride in concrete unless otherwise authorized in writing by the Architect-Engineer. Do not use admixtures containing chloride ions in excess of amount found in municipal potable water.

B. Aggregates:

1. Regular Weight Concrete: ASTM C 33.
2. Lightweight Concrete: ASTM C 330.
3. Grout: ASTM C 404.

C. Concrete Reinforcing:

1. Reinforcing Bars: ASTM A 615, Grade 60, deformed
2. Plain-Steel Wire: ASTM A 82, as drawn
3. Plain-Steel Welded Wire Fabric: ASTM A 1064, fabricated from as-drawn steel wire into flat sheets.
4. Deformed-Steel Welded Wire Fabric: ASTM A 1064, flat sheet

- E. Anchor Bolts: Conform to ASTM F1554 Grade 36 unless otherwise indicated on drawings. Nuts shall conform to ASTM A563, hex nuts.

- F. Vapor Retarder: Multi-ply reinforced polyethylene sheet, ASTM E 1745, Class A, B or C not less than 10 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive tape. Permeance shall not be more than recommended by flooring material manufacturer. Installation should be in accordance with ASTM E 1643.

- G. adhesive or pressure-sensitive tape. Installation should be in accordance with ASTM E 1643.

- H. Curing Materials:
 - a. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.
 - b. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. When dry.
 - c. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
 - d. Water: Potable.
 - e. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
 - f. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- I. Preformed Joint Material: ASTM D 1752 Type I, II or III or ASTM D 1751. Provide Sealtight by W. R. Meadows or approved equal.
- J. Non-Shrink Non-metallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications. Grout shall have a minimum 28-day compressive strength of 5,000 psi.
- K. Form Materials:
 - 1. Forms for Exposed Finish Concrete:
 - a. Unless otherwise shown or specified, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.
 - b. Use overlaid plywood complying with U.S. Product Standard PS-1 "B-B High Density Overlaid Concrete Form", Class I.
 - 2. Forms for unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
 - 3. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces to be cured with water or curing compound.

2.2 CONCRETE MIXES

- A. Comply with ACI 301 requirements for concrete mixes.
- B. All concrete shall have a 28 day compressive strength as shown on the drawings. All concrete mixes shall be proportioned by the field experience method or the laboratory trial method in accordance with ACI 318.
 - 1. All concrete except slab on grade

- a. The maximum water/cement ratio shall be 0.55
- b. All concrete, unless otherwise indicated, shall be air-entrained with an air content of 6% with a tolerance of $\pm 1\frac{1}{2}\%$.
- c. Slump: Grout for filling masonry cells and cavities shall have a slump of 9-1/2 inches $\pm 1\frac{1}{2}$ inch. Concrete shall have a slump of 4-1/2 inches $\pm 1\frac{1}{2}$ inch.
- d. Lightweight concrete shall have a dry weight of not less than 107 pcf and not more than 113 pcf as determined by ASTM C 567.

2.3 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and furnish batch ticket information.
 1. When air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94. Mix concrete materials in appropriate drum-type batch machine mixer.
 1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Vapor Retarder: Install, protect, and repair vapor-retarder sheets according to ASTM E 1643; place sheets in position with longest dimension parallel with direction of pour.
 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended adhesive or joint tape.
 2. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Formwork: Construct so that concrete members and structures are of correct size, shape, alignment, elevation and position. Chamfer exposed edges and corners of formed concrete 3/4 inch unless otherwise indicated. Conform to ACI 347. Design of formwork is the responsibility of the Contractor.
- C. Reinforcement: Locate and support with metal chairs, runners, bolsters spacers and hangers, in compliance with CRSI "Manual of Standard Practice." For support of reinforcing steel in slabs or beams exposed to view underneath, furnish plastic accessories or accessories having plastic-coated feet.

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- D. Install welded wire fabric in as long lengths as practicable, lapping at least one mesh plus 6 inches.
- E. Joints: Provide construction, isolation and control joints as indicated or required. Locate construction joints so as to not impair the strength and appearance of the structure, at locations indicated or approved by the Architect/Engineer.
- F. Concrete Placement: Conform to ACI 304. Place concrete in a continuous operation with planned joints or sections. Do not begin placement until work of other trades affecting concrete is completed.
- G. Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping, so that concrete is worked around reinforcement and other embedded items and into all parts of forms. Conform to ACI 309.
- H. Tolerances: Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- I. Cold Weather Placing:
 - 1. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified. When air temperature has fallen to or is expected to fall below 40 degrees F., uniformly heat all water and aggregates before mixing as required to obtain a concrete mixture temperature of not less than 50 degrees F., and not more than 80 degrees F. at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
- J. Hot Weather Placing: When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
 - 1. Wet forms thoroughly before placing concrete.
 - 2. Do not use retarding admixtures unless otherwise accepted in mix designs.
- K. Shoring shall remain in place until concrete has obtained 2/3 of the design strength, as determined by laboratory tests.

3.2 FINISH FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ½ inch.
 - 1. Apply to concrete surfaces not exposed to public view.

- B. Smooth-formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch.
 - 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following rubbed finish, defined in ACI 301, to smooth-formed finished as-cast concrete where indicated:
 - 1. Smooth-rubbed finish.
 - 2. Gout-cleaned finish.
 - 3. Cork-floated finish.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.3 FINISHING FLOORS AND SLABS

- A. General: Comply with recommendations in ACI 302.1 for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes.
 - 1. Apply scratch finish to surfaces indicated and to surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, Portland cement terrazzo, and other bonded cementitious floor finishes.
 - 2. Tolerance: 1/4 inch in 10 feet when tested with a 10 foot straightedge.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces indicated, to surfaces to receive trowel finish, equipment slabs, non-traffic exterior slabs, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
 - 2. Tolerance: 1/4 inch in 10 feet when tested with a 10 foot straightedge.
- D. Troweled Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.
 - 2. **Ground Floor Slab**, Elevated Floors and Shored Slabs prior to shoring removal: Finish and measure surface so gap at any point between concrete surface and an unleveled freestanding 10-foot long straightedge, resting on two high spots and

placed anywhere on the surface, does not exceed ¼ inch.

3. Ground Floor Slab: Finish surfaces to the following tolerances, measured within 24 hours according to ASTM E 1155 for a randomly trafficked floor surface:
 - a. Specified overall values of flatness, F_F 25; and levelness, F_L 20; with minimum local values of flatness, F_F 17; and levelness, F_L 15.
- E. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristlebroom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
- G. Slip-Resistive Aggregate Finish: Before final floating, apply slip-resistive aggregate finish where indicated and to concrete stair treads, platforms, and ramps. Apply according to manufacturer's written instructions and as follows:
 1. Uniformly spread 25 lb/100 sq. ft. of dampened slip-resistive aggregate over surface in one or two applications. Tamp aggregate flush with surface, but do not force below surface.
 2. After broadcasting and tamping, apply float finish.
 3. After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose slip-resistive aggregate.

3.4 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before finishing.
- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water
 - b. Continuous water-fog spray

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- c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subject to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.5 CONCRETE TESTING

- A. Compressive strength Tests: Conform to ASTM C31 and ASTM C39. One set of four cylinders for each 100 c.u. yds., or fraction thereof, of each strength concrete placed in any one day. Test one specimen at seven days; test two specimens at 28 days and hold one in reserve.
- B. Slump Tests: Conform to ASTM C143. Perform one test for each load point of discharge and one for each set of compressive strength test specimens.

END OF SECTION

SECTION 05 1000 STRUCTURAL STEEL

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The work includes all structural steel shown, scheduled or otherwise required to complete the work, and all necessary connectors and accessories.
- B. References herein to structural components such as trusses, pipe, columns, and girders shall be disregarded when such items are not included in the work.

1.2 QUALITY ASSURANCE

- A. The following codes and publications, of the latest edition, govern this work unless indicated or specified otherwise. References in these codes and publications to inspection shall be deleted. The Architect-Engineer's job administration is defined in the General Conditions of the Construction Contract.
 - 1. Code of Standard Practice for Steel Buildings and Bridges – 2016 Edition: A publication of AISC.
 - 2. Specification for the Design, Fabrication and Erection of Structural Steel for Buildings: A publication of AISC.
 - 3. AWS D1.1 "Structural Welding Code": A publication of American Welding Society.
 - 4. AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts."
 - 5. Surface Preparation Specifications of the Steel Structures Painting Council: References appear as the specification number proceeded by the initials "SSPC."
 - 6. American Society for Testing and Materials: ASTM.
- B. Certification of Welders: Welding of all structural steel shall be limited to welding operators whose competency has been tested in accordance with the Structural Welding Code of American Welding Society.
- C. Testing: The Contractor shall employ and pay an independent testing laboratory to ensure that all fasteners and welds are installed in accordance with the specifications.
- D. Marking: Shop mark each piece of steel, plainly in a protected location in accordance with reference numbers on the shop drawings.

1.3 SUBMITTALS

- A. Shop Drawings: Furnish for approval. Fabrication before approval of shop drawings will be at the Contractor's risk.
- B. Substitutions: Make requests for substitutions of sections and modifications to details by obvious notations on shop drawings. Do not proceed with the substitution until the Architect-Engineer has granted specific approval. No spliced members will be

accepted unless splices are clearly shown on the shop drawings and approved by the Architect-Engineer.

- C. Mill Reports: When requested by the Architect-Engineer, furnish two copies, specifying chemical and physical properties of steel to be used on this project.

PART 2 – PRODUCTS

2.1 GENERAL

A. Structural Steel:

- 1. Wide Flanges: ASTM A992 (Grade 50)
- 2. Channels, Angles, Plates, S, M, H and Other miscellaneous steel: ASTM A36.

B. Pipes and Columns:

- 1. Pipe Columns: In accordance with ASTM A 53, Type E or S, Grade B, or API Standard 5L, Grade B.
- 2. Cold Formed Steel Tubing: In accordance with ASTM A500, Grade C or ASTM A1085..

C. Fasteners:

- 1. High Strength Bolt Steel: ASTM A 325.
- 2. Anchor Bolts: ASTM F1554, Grade 36.

2.2 STEEL FLOOR DECK

- A. General: Floor deck shall be composite steel floor deck panels furnished in accordance with the standard conventions developed by the Steel Deck Institute, unless modified herein.
- B. Specific Requirements: Shall meet the 2023 Florida Building Code.
- C. Finishes: Floor deck shall be zinc coated conforming to ASTM A 653, Class G90.

2.3 STEEL ROOF DECK

- A. General: Steel roof deck panels shall be furnished in accordance with the standard conventions developed by the Steel Deck Institute, unless modified herein.
- B. Specific Requirements: 2023 Florida Building Code.

2.4 PRIMER

- A. Pittsburgh's Multiprime, Tnemec's No. 99 Red, Glidden's Glid-Guard 4570 or Sherwin-Williams' Kem Kromik.

2.5 GROUT

- A. Non-Shrink Non-metallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications. Grout shall have a minimum 28-day compressive strength of 5,000 psi.

2.6 GALVANIZING

- A. Conform to ASTM Standards A 123, A 386, and A 153, as applicable. Galvanizing repair paint conforming to ASTM A 780.

PART 3 – EXECUTION

3.1 STRUCTURAL STEEL, FABRICATION

- A. General: Comply with the applicable portions of the publications referenced in PART 1.
- B. Shop Connections: Furnish the type connections shown or noted; where not shown or noted, use either high strength bolting or welding. Where welding is used, apply heat symmetrically.
- C. Nuts: Where machine bolts are shown, provide approved, self-locking type nuts, or upset the threads to prevent back-off.

3.2 STRUCTURAL STEEL, ERECTION

- A. General: Comply with the applicable portions of the referenced publications.
- B. Beams, Girders, Purlins, Columns, Trusses: Use steel wedges for leveling on masonry and concrete; remove the wedges after grouting and grout the resulting holes. Anchor to steel supports as shown.
- C. Field Connections: Furnish the type connections shown or noted. Where not shown or noted, use either high strength bolting or welding. Where welding is used, symmetrical application of welding heat shall be used at all connection and symmetrical application with reference to the overall dimensions of the building to minimize distortion or misalignment.
- D. Bearing Plates: Set in grout to elevations required or as shown on drawings.
- E. Temporary Bracing: Furnish as necessary until permanent bracing is installed.

3.3 STRUCTURAL STEEL, COATINGS

- A. Shop Cleaning and Priming:

1. Surfaces to be encased in concrete or sprayed for fireproofing: Shop clean in accordance with SSPC Specification No. 3 and ship to the job site bare.
 2. All other surfaces: Clean in accordance with SSPC Specification No. 3. Prime surfaces and work the paint well into all angles and crevices. Apply uniformly and free from surface irregularities and bare spots.
- B. Job Site Treatment (After Erection):
1. Surfaces encased in concrete: Clean in accordance with SSPC Specification No. 3 no sooner than 48 hours before forming.
 2. Field Touchup: Touchup all prime coated surfaces with same material as the prime coat. Field paint all unprimed bolts and accessories. Clean all welds and adjacent surfaces and touchup with one coat of primer. Clean and touchup all rusted areas with one coat of primer. Clean and touchup all rusted areas resulting from long exposure during storage or long exposure after erection. The prime coat over which succeeding coats are applied shall be sound and well bonded.
- C. Final Painting: See Division 9 specifications.
- D. Galvanizing:
1. General: Conform to ASTM Standards A 123, A 386, and A 153 as applicable wherever surfaces are indicated or specified to be galvanized. Galvanize after fabrication unless otherwise indicated or specified.
 2. Repair: Repair all galvanized coatings that become damaged in handling, transporting, welding, or bolting. Make the repairs by application of a galvanizing repair paint conforming to ASTM A 780. Clean all areas that are to be repaired; remove slag from welds. Apply repair paint to cold surfaces.

3.4 OPEN WEB JOISTS AND JOIST GIRDERS

- A. General: The steel joists shall be designed, fabricated and erected in accordance with the stipulations adopted by The American Institute of Steel Construction and The Steel Joist Institute. The following series joist types are covered by these stipulations: K, LH and DLH.
- B. Manufacture: Steel joists shall be manufactured in a shop having membership in, and periodic inspection by, The Steel Joist Institute (SJI). Submit design verification tests on chord and web members, joints and connections.
- C. Bottom Chord Extension Members: Furnish standard extension members where indicated or required for support of finished ceiling.
- D. Bridging: Shall comply with SJI specifications and as shown on the drawings.
- E. End Anchorage: Provide end anchorage to secure joists to adjacent construction.
- F. Headers: Provide header units to support tail joists at openings in floor and roof not framed with steel shapes.

- G. Shop Paint: Conform to standard specifications except black asphalt is not permitted in areas where joists are exposed to view or to be field painted.

3.5 STEEL FLOOR AND ROOF DECK

- A. General: Steel floor and roof deck panels shall be fabricated and installed in accordance with the provisions of the standard conventions developed by The Steel Deck Institute unless modified herein.
- B. Shop Drawings: Shop drawings prepared by the deck manufacturer shall be submitted for review prior to fabrication and shall include manufacturer's literature with type of deck plainly marked. Where shop drawings of the supporting members are required, the deck shop drawings shall be prepared from approved shop drawings of the supporting members.
- C. Erection:
 - 1. The erection of the steel deck panels shall be in accordance with the manufacturer's recommendations and printed erection specifications. The manufacturer's representative shall be present during erection.
 - 2. The steel deck panels shall be placed on the supporting steel framework and adjusted to final position before being permanently fastened. Each panel shall be brought to proper bearing on the supporting members. If the supporting members are not in proper level, correction shall be made before erection of the deck panels proceeds. Deck shall span 3 or more supports except where framing does not permit.
 - 3. All welding shall be executed in the best AWS practice and welders shall be certified by AWS standards.
 - 4. All abrasions to finish, welds and finishes damaged by welding shall be cleaned and touched up with inorganic zinc paint.
 - 5. Steel floor deck units shall be permanently fastened by welding stud connectors through deck to steel beams or by round fusion welds as required by the drawings. Additional welding, if required, shall be in accordance with manufacturer's recommendations.
 - 6. Studs shall be welded through a single thickness of previously installed steel deck. Top flange of beam shall be free of dirt, oil and water. Deck shall bear directly on beam flange and studs and shall be placed as shown on drawings. All other studs will be end welded with automatically timed stud welding equipment in accordance with manufacturer's recommendations.
 - a) When two or more stud welding guns are operated from the same power source, they shall be interlocked so that only one gun can be operated at a time, and so the power source has fully recovered from making one weld before another weld is started.
 - b) All ceramic insulators shall be removed from the base of the studs.
 - c) Where welded studs are not required by the drawings, the deck shall be attached to the supporting members with $\frac{3}{4}$ inch round fusion welds in accordance with recommendations of the deck manufacturer.

3.6 STRUCTURAL STEEL, INSPECTION

- A. General: An independent testing laboratory will insure that all fasteners, welds, and welded studs are installed in accordance with the specifications.
- B. Bolted and Welded Connections: A visual inspection shall be made of all welded and bolted connections. In addition, a minimum of 10% of all high strength bolts shall be checked for proper tension and a minimum of 100% of all full penetration welds shall be checked by ultrasonic testing. Additional bolts and welds may be tested at the option of the testing lab representative. Defective bolts or welds shall be removed and replaced at no additional cost to the Owner. No ultrasonic testing of welds shall be started until the weld is allowed to cool to the touch or a minimum time of 24 hours has elapsed after completion of the welding.
- C. Welded Studs on Composite Beams: Establish settings and procedures before starting stud welding. Tests of first five welded studs shall be made by striking with a hammer until bent 45 degrees. A visual inspection of each beam shall be made for all welded stud connections. All questionable studs shall be tested by striking with a hammer to a minimum bend of 15 degrees from the vertical, but a minimum of 5 percent of all studs shall be tested. Should a significant number of these studs fail, a larger percentage of the studs shall be tested as deemed appropriate by the testing company and structural engineer of record. Replace all studs that crack in either the weld or the shank. The testing lab representative may select additional studs to be tested. Tested studs that show no signs of failure are satisfactory and may be left in the bent position.

END OF SECTION

SECTION 05 41 00 COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Exterior non-load-bearing wall framing.

1.2 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
 - 1. Design Loads: As indicated.
 - a. Dead Loads: Weights of materials and construction.
 - b. Live Loads: see drawings for live loads
 - c. Wind Loads: see drawings for wind loads
 - 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/360 of the wall height.

1.3 SUBMITTALS

- A. Product Data: For each type of product and accessory indicated.
- B. Shop Drawings: Show layout, spacings, sizes, thicknesses, and types of cold-formed metal framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
 - 1. For cold-formed metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Welding certificates.
- D. Qualification data.
- E. Product test reports.
- F. Research/evaluation reports.

1.4 QUALITY ASSURANCE

- A. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements.
- B. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code--Sheet Steel."
- C. Fire-Test-Response Characteristics: Where indicated, provide cold-formed metal framing identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
- D. AISI Specifications and Standards: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel Framing - General Provisions."
 - 1. Comply with AISI's "Standard for Cold-Formed Steel Framing - Truss Design."
 - 2. Comply with AISI's "Standard for Cold-Formed Steel Framing - Header Design."
- E. Comply with AISI's "Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
 - 1. Grade: As required by structural performance.
 - 2. Coating: G60, A60, AZ50, or GF30.

2.2 EXTERIOR NON-LOAD-BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
 - 1. Minimum Base-Metal Thickness: 0.0329 inch.
 - 2. Flange Width: 1-3/8 inches.
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and same minimum base-metal thickness as steel studs.

- C. Vertical Deflection Clips: Manufacturer's standard head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
- D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads.

2.3 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members, unless otherwise indicated.
- B. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- C. Anchor Bolts: ASTM F 1554, Grade 55, threaded carbon-steel hex-headed bolts and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
- D. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
- E. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.
- F. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
 - 1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

2.4 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20 or DOD-P-21035.
- B. Shims: Load bearing, high-density multimonomer plastic, nonleaching.
- C. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.
- B. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.
- C. Install framing members in one-piece lengths.
- D. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- E. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
- F. Install insulation, specified in Division 7 Section "Building Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- G. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.
- H. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
 - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.2 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
- B. Fasten both flanges of studs to top and bottom track, unless otherwise indicated. Space studs as follows:
 - 1. Stud Spacing: 16 inches.

- C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.
- D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
 - 1. Install single deflection tracks and anchor to building structure.
 - 2. Connect vertical deflection clips to infill studs and anchor to primary building structure.
- E. Install horizontal bridging in wall studs, spaced in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
 - 1. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches of single deflection track. Install a combination of flat, taut, steel sheet straps of width and thickness indicated and stud or stud-track solid blocking of width and thickness matching studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
 - a. Install solid blocking at 48-inch centers.
 - 2. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
- F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners, and stud girts, to provide a complete and stable curtain-wall-framing system.

3.3 FIELD QUALITY CONTROL

- A. Testing: Engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Field and shop welds will be subject to testing and inspecting.
- C. Testing agency will report test results promptly and in writing to Owner and Architect.
- D. Remove and replace work where test results indicate that it does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

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3.4 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05400

SECTION 055313 - BAR GRATINGS

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Metal bar gratings.
2. Related Requirements:
 1. Section 055213 "Pipe and Tube Railings" for metal pipe and tube handrails and railings.

1.2 ACTION SUBMITTALS

1. Product Data:
 1. Clips and anchorage devices for gratings.
 2. Paint products.
2. Shop Drawings:
 1. Include plans, sections, and attachment details.
 2. Signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

1. Coordination Drawings: Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry.
2. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.
3. Delegated design engineer qualifications.

1.4 QUALITY ASSURANCE

1. Delegated Design Engineer Qualifications: A professional engineer who is legally qualified to practice in F[state] <Insert jurisdiction>lorida where Project is located and who is experienced in providing engineering services of the type indicated.
2. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:
 1. AWS D1.1/D1.1M.
 2. AWS D1.2/D1.2M.
 3. AWS D1.3/D1.3M.
 4. AWS D1.6/D1.6M.

1.5 FIELD CONDITIONS

1. Field Measurements: Verify actual locations of walls and other construction contiguous with gratings by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Structural Performance: Gratings to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 1. Floors for Light Manufacturing: Uniform load of 125 lbf/sq. ft. or concentrated load of 2000 lbf, whichever produces the greater stress.
 2. Floors for Heavy Manufacturing: Uniform load of 250 lbf/sq. ft. or concentrated load of 3000 lbf, whichever produces the greater stress.
 3. Walkways and Elevated Platforms Other Than Exits: Uniform load of 60 lbf/sq. ft..
 4. Walkways and Elevated Platforms Used as Exits: Uniform load of 100 lbf/sq. ft..
 5. Sidewalks and Vehicular Driveways, Subject to Trucking: Uniform load of 250 lbf/sq. ft. or concentrated load of 8000 lbf, whichever produces the greater stress.

2.2 METAL BAR GRATINGS

1. Manufacturers: Subject to compliance with requirements, provide the Basis of Design or product prior approved by Architect that meets the specifications.

2.3 FABRICATION

1. Shop Assembly: Fabricate grating sections in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
2. Cut, drill, and punch material cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
3. Form from materials of size, thickness, and shapes indicated, but not less than that needed to support indicated loads.
4. Fit exposed connections accurately together to form hairline joints.
5. Welding: Comply with AWS recommendations and the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.

6. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space the anchoring devices to secure gratings, frames, and supports rigidly in place and to support indicated loads.
 1. Fabricate toeplates to fit grating units and weld to units in shop unless otherwise indicated.
 2. Fabricate toeplates for attaching in the field.
 3. Toeplate Height: 4 inches unless otherwise indicated.
7. Removable Grating Sections: Fabricate with banding bars attached by welding to entire perimeter of each section. Include anchors and fasteners of type indicated or, if not indicated, as recommended by manufacturer for attaching to supports.
 1. Provide no fewer than four weld lugs for each heavy-duty grating section, with each lug shop welded to two bearing bars.
 2. Provide no fewer than four saddle clips for each grating section containing rectangular bearing bars 3/16 inch or less in thickness and spaced 15/16 inch or more o.c., with each clip designed and fabricated to fit over two bearing bars.
 3. Provide no fewer than four weld lugs for each grating section containing rectangular bearing bars 3/16 inch or less in thickness and spaced less than 15/16 inch o.c., with each lug shop welded to three or more bearing bars. Interrupt intermediate bearing bars as necessary for fasteners securing grating to supports.
 4. Provide no fewer than four flange blocks for each section of aluminum I-bar grating, with block designed to fit over lower flange of I-shaped bearing bars.
 5. Furnish threaded bolts with nuts and washers for securing grating to supports.
 6. Furnish self-drilling fasteners with washers for securing grating to supports.
8. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings.
 1. Edge-band openings in grating that interrupt four or more bearing bars with bars of same size and material as bearing bars.
9. Do not notch bearing bars at supports to maintain elevation.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

1. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing gratings to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
2. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
3. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or masonry.
4. Fit exposed connections accurately together to form hairline joints.

1. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
5. Attach toeplates to gratings by welding at locations indicated.
6. Field Welding: Comply with AWS recommendations and the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
7. Corrosion Protection: With a heavy coat of bituminous paint, coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals.

3.2 INSTALLATION OF METAL BAR GRATINGS

1. Install gratings to comply with recommendations of referenced metal bar grating standards that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.
2. Attach removable units to supporting members with type and size of clips and fasteners indicated or, if not indicated, as recommended by grating manufacturer for type of installation conditions shown.
3. Attach nonremovable units to supporting members by welding where both materials are same; otherwise, fasten by bolting as indicated above.

3.3 REPAIR

1. Repair Painting:
 1. Wire brush and clean rust spots, welds, and abraded areas on prime-painted gratings immediately after installation, and apply repair paint with same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.
 - a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
 2. Wire brushing, cleaning, and repair painting of rust spots, welds, and abraded areas of both deck surfaces are included in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
2. Repair of Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 055313

SECTION 057300 – DECORATIVE METAL RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. [Stainless steel] decorative metal railings, **with** stainless steel infill railings.
 2. Fasteners.
 3. Miscellaneous materials.
2. Related Requirements:
 1. Section 055213 "Pipe and Tube Railings" for nonornamental railings fabricated from pipes and tubes.

1.2 DEFINITIONS

1. Railings: Guards, handrails, and similar devices used for protection of occupants at open-sided floor areas and for pedestrian guidance and support, visual separation, or wall protection.

1.3 COORDINATION AND SCHEDULING

1. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver items to Project site in time for installation.
2. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not meet structural performance requirements.

1.4 PREINSTALLATION MEETINGS

1. Preinstallation Conference: Conduct conference at 5001 St Johns Avenue, Palatka, FL, 32177

1.5 ACTION SUBMITTALS

1. Product Data:
 1. Manufacturer's product lines of [**stainless steel**] decorative metal railings assembled from standard components.
 2. Stainless steel cable and cable fittings infill.
 3. Fasteners.
 4. Post-installed anchors.

5. Handrail brackets.
 6. Nonshrink, nonmetallic grout.
 7. Anchoring cement.
 8. Metal finishes.
2. Shop Drawings: Include plans, elevations, sections, and attachment details.
 3. Samples for Initial Selection: For products involving selection of color, texture, or design.
 4. Samples for Verification: For each type of exposed finish required.
 1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters
 2. Fittings, end caps, and brackets.
 3. Cable and cable hardware and connections.
 4. Assembled Sample of railing system, made from full-size components, including top rail, post, handrail, and guard infill. Sample need not be full height.
 - a. Show method of **[connecting]** **[and]** **[finishing]** members at intersections.
 5. Delegated Design Calculations: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

1. Qualification Data: For **[delegated design professional engineer]** **[testing agency]** **[manufacturer-certified Installer]**.

1.7 QUALITY ASSURANCE

1. Installer Qualifications: The manufacturer of railing system or a qualified installation firm that is approved, authorized, or licensed by railing system manufacturer to install manufacturer's products.
2. Welding Qualifications: Qualify procedures and personnel in accordance with the following:
 1. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

1.8 MOCKUPS

1. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 FIELD CONDITIONS

1. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.

2.1 SOURCE LIMITATIONS

1. Obtain decorative metal railing systems from single source from single manufacturer. Systems must be designed, engineered, and fabricated by manufacturer of railing system.

2.2 MANUFACTURERS

1. **[Stainless Steel]** Decorative Metal Railings:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide VIVA Railings, LLC; **CIRCA** Railing System or comparable product by one of the following or equal
 - a. HDI RAILINGS
 - b. Indital US.
2. Product Options: Drawings indicate size, profiles, and dimensional requirements of railings and are based on the specific system indicated. See Section 016000 "Product Requirements."
 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

2.3 PERFORMANCE REQUIREMENTS

1. General: For engineering decorative metal railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
 1. Stainless Steel: 45 percent of minimum yield strength.
2. Structural Performance: Decorative metal railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
 - b. Infill load and other loads need not be assumed to act concurrently.
3. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior railings by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.4 METALS, GENERAL

1. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
2. Brackets, Flanges, and Anchors: Same metal and finish as supported rails unless otherwise indicated.
 1. Provide stainless steel wall brackets with flange tapped for concealed anchorage with vertical and horizontal adjustment capability.

2.5 [STAINLESS STEEL] DECORATIVE METAL RAILINGS

1. Stainless Steel Tubing: ASTM A554, [**Grade MT 304**]
2. Stainless Steel Pipe: ASTM A312/A312M, [**Grade TP 304**]
3. Stainless Steel Castings: ASTM A743/A743M, [**Grade CF 8 o**]
4. Stainless Steel Sheet, Strip, Plate, and Flat Bar: ASTM A666, [**Type 304**]
5. Stainless Steel Bars and Shapes: ASTM A276, [**Type 304**]
6. Steel Bars: Hot-rolled, carbon steel complying with ASTM A29/A29M, Grade 1010.
7. Posts: Tube, made from [**stainless steel**]
 1. Post top caps to be fully-welded to posts and ground smooth, leaving no seam marks.
8. Top Rail/Hand Rail: [**Tubular stainless steel pipe**] wit [**round**] cross-section shape.
9. Stainless Steel Cable and Cable Fitting Infill:
 1. Cable: 1-by-19 wire cable made from wire complying with ASTM A492, Type 316.
 2. Cable Diameter: 3/16 inch.
 3. Cable Fittings: Swageless hardware fabricated from stainless steel, with capability to sustain, without failure, a load equal to minimum breaking strength of cable with which they are used.
10. Horizontal 1/2-inch round stainless steel tubing rods.

2.6 FASTENERS

1. Fastener Materials: Unless otherwise indicated, provide the following:
 1. For [**Stainless Steel**] [**and**] [**Steel**] Railing Components: [**Type 304**] stainless steel fasteners.
 2. For Dissimilar Metal Railing Components: [**Type 304**] stainless steel fasteners.
 3. Finish exposed fasteners to match appearance, including color and texture, of railings.

2. Fasteners for Anchoring to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction[**and capable of withstanding design loads**].
3. Provide concealed fasteners for interconnecting railing components and for attaching railings to other work unless [**otherwise indicated**] [**exposed fasteners are unavoidable**] [**exposed fasteners are the standard fastening method for railings indicated**].
 1. Provide hex, hex socket, or hex-button head machine screws for exposed fasteners unless otherwise indicated.
4. Post-Installed Anchors: Fastener systems with working capacity greater than or equal to the design load, in accordance with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193[**or ICC-ES AC308**].
 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy [**Group 1**] [**Group 2**] stainless steel bolts, ASTM F593 and nuts, ASTM F594.

2.7 MISCELLANEOUS MATERIALS

1. Handrail Brackets: Stainless steel with center of handrail [2-1/2 inches] [3-1/8 inches] from [**face of railing**] [**wall**].
 1. Provide brackets with flange tapped for concealed anchorage to threaded hanger bolt.
2. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.
 1. Provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
3. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
4. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for [**interior**] [**and**] [**exterior**] applications.
5. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
 1. Water-Resistant Product: [**At exterior locations**] [**and**] [**where indicated on Drawings**], provide formulation that is recommended in writing to be resistant to erosion from water exposure without needing protection by a sealer or waterproof coating.

2.8 FABRICATION

1. General: Fabricate decorative metal railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage[, **but not less than that required to support structural loads**].

2. Shop assemble railings and guards to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations.
 1. Clearly mark units for reassembly and coordinated installation.
 2. Use connections that maintain structural value of joined pieces.
3. Cut, drill, and punch metals cleanly and accurately.
 1. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated.
 2. Remove sharp or rough areas on exposed surfaces.
4. Form work true to line and level with accurate angles and surfaces.
5. Fabricate connections that will be exposed to weather in a manner to exclude water.
 1. Provide weep holes where water may accumulate.
 2. Locate weep holes in inconspicuous locations.
6. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
7. Connections: Fabricate railings with **[welded]** **[or]** **[mechanical]** connections unless otherwise indicated.
8. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove flux immediately.
 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint.
9. Mechanical Connections: Connect members with concealed mechanical fasteners and fittings.
 1. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
 2. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.
10. Form changes in direction as follows:
 1. As detailed.
 2. **[By bending]** **[or]** **[by inserting prefabricated elbow fittings]**.
 3. **[By flush bends]** **[or]** **[by inserting prefabricated flush-elbow fittings]**.
 4. **[By radius bends of radius indicated]** **[or]** **[by inserting prefabricated elbow fittings of radius indicated]**.
 5. By bending to smallest radius that will not result in distortion of railing member.
11. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

12. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.
13. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns, unless clearance between end of rail and wall is 1/4 inch or less.
14. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, handrail brackets, miscellaneous fittings, and anchors to interconnect railing members to other Work unless otherwise indicated.
 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and to prevent bracket or fitting rotation and crushing of substrate.
15. Provide inserts and other anchorage devices for connecting railings to concrete or masonry Work.
 1. Fabricate anchorage devices capable of withstanding loads imposed by railings.
 2. Coordinate anchorage devices with supporting structure.
16. For railing posts set in concrete, provide stainless steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with metal plate forming bottom closure.
17. For removable railing posts, fabricate slip-fit sockets from stainless steel tube or pipe whose ID is sized for a close fit with posts; limit movement of post without lateral load, measured at top, to not more than one-fortieth of post height.
 1. Provide socket covers designed and fabricated to resist being dislodged.
 2. Provide chain with eye, snap hook, and staple across gaps formed by removable railing sections at locations indicated. Fabricate from same metal as railings.
18. Stainless Steel Cable Guard Infill: Fabricate cable guard infill assemblies in the shop to field-measured dimensions with fittings machine swaged.
 1. Minimize amount of turnbuckle take-up used for dimensional adjustment, so maximum amount is available for tensioning cable.
 2. Tag cable assemblies and fittings to identify installation locations and orientations for coordinated installation.
19. Toe Boards: Where indicated on Drawings, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.

2.9 METAL FINISH REQUIREMENTS, GENERAL

1. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" recommendations for applying and designating finishes.
2. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.

3. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
4. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.

2.10 STAINLESS STEEL FINISHES

1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
2. Stainless Steel Finishes:
 1. Color Electro-Plated Metal: Vertical and stand-off components.
 - a. Basis-of-Design Product: Subject to compliance with requirements, provide VIVA Railings, LLC; ECM Finish System or comparable product.
 - b. By Architect, chosen from manufacturers full color line.

2.11 STEEL FINISHES

1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
2. Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 1. Color and Gloss: **[As selected by Architect from manufacturer's full range]**

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for Installer. Locate reinforcements and mark locations if not already done.
2. Installation Tolerances: Structural steel and concrete slabs to be within 1/8 inch in 10 ft. horizontally and 1/8 inch vertically. Correct out-of-tolerance conditions to meet railing manufacturer's requirements.

3.2 INSTALLATION, GENERAL

1. Perform cutting, drilling, and fitting required for installing railings.
 1. Fit exposed connections together to form tight, hairline joints.
 2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.

3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
 4. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 5. Set posts plumb within a tolerance of 1/16 inch in 3 ft..
 6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 ft..
2. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
 3. Adjust railings before anchoring to ensure matching alignment at abutting joints.
 4. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 METAL RAILING CONNECTIONS

1. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws, using plastic cement filler colored to match finish of railings.
2. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article, whether welding is performed in the shop or in the field.
3. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve, extending 2 inches beyond joint on either side; fasten internal sleeve securely to one side; and locate joint within 6 inches of post.

3.4 ANCHORING METAL POSTS

1. Use stainless steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with **[nonshrink, nonmetallic grout] [or] [anchoring cement]**, mixed and placed to comply with anchoring material manufacturer's written instructions.
2. Form or core-drill holes in accordance with engineering requirements for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with **[nonshrink, nonmetallic grout] [or] [anchoring cement]**, mixed and placed to comply with anchoring material manufacturer's written instructions.

3. Cover anchorage joint with flange of same metal as post, **[welded to post after placing anchoring material]** or **[attached to post with setscrews]**.
4. Anchor posts to metal surfaces with flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
 1. For **[stainless steel]** **[steel]** railings, weld flanges to posts and bolt to metal-supporting surfaces.
5. Install removable railing sections, where indicated, in slip-fit metal sockets cast in concrete.

3.5 ATTACHING RAILINGS

1. Anchor railing ends to concrete and masonry with **[sleeves concealed within]** **[flanges connected to]** or **[brackets on underside of rails connected to]** railing ends and anchored to wall construction with anchors and bolts.
2. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and **[welded to railing ends]** [or] **[connected to railing ends, using nonwelded connections]**.
 1. Attach handrails to walls with wall brackets[, except where end flanges are used]. Provide brackets with [1-1/2-inch] Use type of bracket with **[flange tapped for concealed anchorage to threaded hanger bolt]** or **[predrilled hole for exposed bolt anchorage]**.
 2. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
3. Secure wall brackets **[and railing end flanges]** to building construction as follows:
 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
 2. For hollow masonry anchorage, use toggle bolts.
 3. For wood stud partitions, use hanger or lag bolts set into studs or wood backing between studs. Coordinate with carpentry work to locate backing members.
 4. For steel-framed partitions, use hanger or lag bolts set into **[fire-retardant-treated]** wood backing between studs. Coordinate with stud installation to locate backing members.
 5. For steel-framed partitions, fasten brackets directly to steel framing or concealed steel reinforcements using self-tapping screws of size and type required to support structural loads.
 6. For steel-framed partitions, fasten brackets with toggle bolts installed through flanges of steel framing or through concealed steel reinforcements.

3.6 FIELD QUALITY CONTROL

1. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections and to prepare test reports. Payment for these services will be made **[by Owner]**

2. Extent and Testing Methodology: Testing agency will randomly select completed railing assemblies for testing that are representative of different railing designs and conditions in the completed Work. Test railings in accordance with ASTM E894 and ASTM E935 for compliance with performance requirements.
3. Remove and replace railings where test results indicate that they do not comply with specified requirements unless they can be repaired in a manner satisfactory to Architect and comply with specified requirements.
4. Perform additional testing and inspecting, at Contractor's expense, to determine compliance of replaced or additional work with specified requirements.

3.7 CLEANING

1. Clean [**stainless steel**] by washing thoroughly with clean water and soap, rinsing with clean water, and wiping dry.

3.8 PROTECTION

1. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
2. Restore finishes damaged during installation and construction period, so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 057300

SECTION 057500 - DECORATIVE FORMED METAL

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Closures and trim.

1.2 COORDINATION

1. Coordinate installation of anchorages for decorative formed metal items. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver items to Project site in time for installation.
2. Coordinate installation of decorative formed metal with adjacent construction to ensure that wall assemblies, flashings, trim, and joint sealants, are protected against damage from the effects of weather, age, corrosion, and other causes of deterioration.

1.3 ACTION SUBMITTALS

1. Samples for Initial Selection: For products involving selection of color, texture, or design.
2. Samples for Verification: For each type of exposed finish required, prepared on 6-inch-square Samples of metal of same thickness and material indicated for the Work.

1.4 DELIVERY, STORAGE, AND HANDLING

1. Deliver decorative formed metal products wrapped in protective coverings and strapped together in suitable packs or in heavy-duty cartons. Remove protective coverings before they stain or bond to finished surfaces.
2. Store products on elevated platforms in a dry location.

1.5 FIELD CONDITIONS

1. Field Measurements: Verify actual locations of walls, columns, beams, and other construction contiguous with decorative formed metal by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

1. For decorative metal items, obtain each color, grade, finish, type, and variety of metal from single source with resources to provide products of consistent quality in appearance and physical properties.

2.2 PERFORMANCE REQUIREMENTS

1. Structural Performance: Decorative formed metal items, including anchors and connections, are to withstand the effects of gravity loads and the following loads and stresses without exceeding the allowable design working stress of materials involved and without exhibiting permanent deformation in any components:
 1. Wind Loads on Exterior Items: [As indicated on Drawings]
2. Component Importance Factor: 1.0.
3. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.3 SHEET METAL

1. General: Fabricate products from sheet metal without pitting, seam marks, roller marks, stains, discolorations, or other imperfections where exposed to view on finished units.
2. Aluminum Sheet: Flat sheet complying with ASTM B209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with strength and durability properties of not less than Alloy 5005-H32. All fabricated aluminum to be a minimum of .040 or thicker depending on final use and finish to prevent oil canning or other visual defects after installation.

2.4 FABRICATION, GENERAL

1. Shop Assembly: Preassemble decorative formed metal items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
2. Coordinate dimensions and attachment methods of decorative formed metal items with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.

3. Form metal to profiles indicated, in maximum lengths to minimize joints. Produce flat, flush surfaces without cracking or grain separation at bends. Fold back exposed edges of unsupported sheet metal to form a 1/2-inch- wide hem on the concealed side, or ease edges to a radius of approximately 1/32 inch and support with concealed stiffeners.
4. .040 thickness
5. Increase metal thickness or reinforce with concealed stiffeners, backing materials, or both, as needed to provide surface flatness equivalent to stretcher-leveled standard of flatness and sufficient strength for indicated use.
 1. Support joints with concealed stiffeners as needed to hold exposed faces of adjoining sheets in flush alignment.
6. Build in straps, plates, and brackets as needed to support and anchor fabricated items to adjoining construction. Reinforce decorative formed metal items as needed to attach and support other construction.
7. Provide support framing, mounting and attachment clips, splice sleeves, fasteners, and accessories needed to install decorative formed metal items.
8. Where welding or brazing is indicated, weld or braze joints and seams continuously. Grind, fill, and dress to produce smooth, flush, exposed surfaces in which joints are not visible after finishing is completed.
 1. Use welding and brazing procedures that will blend with and not cause discoloration of metal being joined.

2.5 CLOSURES AND TRIM

1. Manufacturers: Subject to compliance with requirements, provide through manufacturer that best means intention of design, prior approved by Architect.
2. Form closures and trim from metal of type and thickness indicated below. Fabricate to fit tightly to adjoining construction[, **with weathertight joints at exterior installations**].
 1. Aluminum Sheet: .
 - a. Finish: Baked enamel or powder coat.
 2. Closures and trim may be fabricated from prefinished metal sheet in lieu of finishing after fabrication provided unfinished edges are concealed from view and not exposed to weather.
3. Conceal fasteners where possible; otherwise, locate where they are as inconspicuous as possible. Size fasteners to support closures and trim, with fasteners spaced to prevent buckling or waviness in finished surfaces.
4. Drill and tap holes needed for securing closures and trim to other surfaces.
5. Incorporate gaskets where indicated or needed for concealed, continuous seal at abutting surfaces.
6. Miter or cope trim members at corners and reinforce with bent metal splice plates to form tight joints.

2.6 GENERAL FINISH REQUIREMENTS

1. Complete mechanical finishes of flat sheet metal surfaces before fabrication where possible. After fabrication, finish all joints, bends, abrasions, and other surface blemishes to match sheet finish.
2. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
3. Apply organic and anodic finishes to formed metal after fabrication unless otherwise indicated.
4. Finish **[items indicated on Drawings]** after assembly.
5. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 ALUMINUM FINISHES

1. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative formed metal.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Locate and place decorative formed metal items level and plumb and in alignment with adjacent construction. Perform cutting, drilling, and fitting required to install decorative formed metal.
 1. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

2. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where needed to protect metal surfaces and to make a weathertight connection.
3. Form tight joints with exposed connections accurately fitted together. Provide reveals and openings for sealants and joint fillers as indicated.
4. Install concealed gaskets, joint fillers, insulation, sealants, and flashings, as the Work progresses, to make exterior decorative formed metal items weatherproof.
5. Install concealed gaskets, joint fillers, sealants, and insulation, as the Work progresses, to make interior decorative formed metal items soundproof or lightproof as applicable to type of fabrication indicated.
6. Corrosion Protection: Apply bituminous paint or other permanent separation materials on concealed surfaces where metals would otherwise be in direct contact with substrate materials that are incompatible or could result in corrosion or deterioration of either material or finish.

3.3 ADJUSTING AND CLEANING

1. Unless otherwise indicated, clean metals by washing thoroughly with water and soap, rinsing with clean water, and drying with soft cloths.
2. Clean copper alloys according to metal finisher's written instructions in a manner that leaves an undamaged and uniform finish matching approved Sample.
3. Touchup Painting:
 1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
4. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

3.4 PROTECTION

1. Protect finishes of decorative formed metal items from damage during construction period. Remove temporary protective coverings at time of Substantial Completion.

END OF SECTION 057500

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section Includes:

1. Wood blocking and nailers.
2. Plywood backing panels.

1.3 ACTION SUBMITTALS

1. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 1. Include data for wood-preserved treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Power-driven fasteners.
3. Post-installed anchors.

1.5 DELIVERY, STORAGE, AND HANDLING

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

2.1 WOOD PRODUCTS, GENERAL

1. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. Dress lumber, S4S, unless otherwise indicated.
Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal thickness or less; no limit for more than 2-inch nominal thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

1. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2 for interior construction not in contact with ground.
 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
Application: Treat all miscellaneous carpentry unless otherwise indicated.
 2. Wood blocking, stripping, and similar concealed members in contact with masonry or concrete.
All pressure treated wood shall be certified Arsenic Free.

2.3 MISCELLANEOUS LUMBER

1. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 1. Blocking.
 2. Nailers.
Concealed Boards: 19 percent maximum moisture content of the following species and grades:
 3. Mixed southern pine or southern pine, No. 2 grade; SPIB.
2. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
3. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 PLYWOOD BACKING PANELS

1. Equipment Backing Panels: Plywood, DOC PS 1, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.5 FASTENERS

1. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture. B. Nails, Brads, and Staples: ASTM F 1667.
2. Screws for Fastening to Metal Framing: ASTM C 954, length as recommended by screw manufacturer for material being fastened.
3. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
4. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC58, ICC-ES AC193 or ICC-ES AC308 as appropriate for the substrate.
 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

1. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
2. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.
3. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
4. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
5. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative treated lumber.
 1. Use inorganic boron for items that are continuously protected from liquid water.
 2. Use copper naphthenate for items not continuously protected from liquid water.

Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

3. Florida Building Code - Current Edition.
4. ICC-ES evaluation report for fastener.

Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

1. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
2. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 PROTECTION

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

EEND OF SECTION 061053

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
1. Sheathing.

1.3 SUBMITTALS

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

1.4 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

2.1 SHEATHING

1. Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Building Products; Dens-Glass Gold. or a comparable product by one of the following:
 - a. CertainTeed Corporation.
 - b. National Gypsum Company.
 - c. United States Gypsum Company.
 2. Thickness: 5/8-inch minimum.
 3. Size: 48 by 96 inches.

2.2 FASTENERS

1. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 1. Type 304 Stainless Steel fasteners.

2. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
3. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.
 1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002.
 2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C 954.

2.3 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

1. Sealant for Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

1. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
2. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
3. Securely attach to substrate by fastening as indicated, complying with the following:
 1. Florida Building Code - Current Edition.
 2. ICC-ES evaluation report for fastener.
4. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
5. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

3.2 GYPSUM SHEATHING INSTALLATION

1. Comply with GA-253 and with manufacturer's written instructions.
 1. Fasten gypsum sheathing to cold-formed metal framing with screws.
 2. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.

3. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
4. Install panels with a 1/8-inch or as required by the Manufacturer of applied Weather Barriers."
2. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
3. Horizontal Installation: Abut ends over centers of studs, and stagger end joints of adjacent panels not less than one stud spacing. Attach at perimeter and within field of panel to each stud.
 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
 2. For sheathing under stucco cladding, panels may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
4. Vertical Installation: Install vertical edges centered over studs. Abut ends and edges with those of adjacent panels. Attach at perimeter and within field of panel to each stud.
 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
 2. For sheathing under stucco cladding, panels may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
5. Seal sheathing joints according to sheathing manufacturer's written instructions.
 1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient amount of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.

END OF SECTION 061600

SECTION 064116 - PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

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

Section Includes:

1. Plastic-laminate-clad architectural cabinets.
2. Cabinet hardware and accessories.
3. Miscellaneous materials.

1.3 COORDINATION

1. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to support loads imposed by installed and fully loaded cabinets.

1.4 PREINSTALLATION MEETINGS

1. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS A. Product Data:

1. Plastic-laminate-clad architectural cabinets.
2. Cabinet hardware and accessories.
3. Miscellaneous materials.

Product Data Submittals: For each product.

Shop Drawings:

4. Include plans, elevations, sections, and attachment details.
5. Show full-size details.
6. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.

7. Show locations and sizes of cutouts and holes for items installed in plastic laminate architectural cabinets.
8. Apply AWI Quality Certification Program label to Shop Drawings.
Samples for Initial Selection: For each type of exposed finish.
Samples for Verification: For the following:
 9. Plastic Laminates: 8 by 10 inches, for each type, color, pattern, and surface finish required.
 1. Provide one sample applied to core material with specified edge material applied to one edge.
 10. Corner Pieces:
 1. Cabinet-front frame joints between stiles and rails and at exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
 2. Miter joints for standing trim.
 11. Exposed Cabinet Hardware and Accessories: One full-size unit for each type and finish.

1.6 INFORMATIONAL SUBMITTALS

Qualification Data: For manufacturer and Installer.
Product Certificates: For each type of product.
Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.8 MAINTENANCE MATERIAL SUBMITTALS

A. Extra Stock Materials: Furnish extra materials to Owner that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Provide (10) pulls.

1.9 QUALITY ASSURANCE

Manufacturer's Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1. Manufacturer's Certification: Licensed participant in AWI's Quality Certification Program.

Installer Qualifications: Licensed participant in AWI's Quality Certification Program.

Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

2. Build mockups of typical architectural cabinets as shown on Drawings.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver cabinets until painting and similar finish operations that might damage architectural cabinets have been completed in installation areas. Store cabinets in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.11 FIELD CONDITIONS

Environmental Limitations with Humidity Control: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed/concealed by construction, and indicate measurements on Shop Drawings.

Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of cabinets indicated for construction, finishes, installation, and other requirements.

1. Provide labels and certificates from AWI certification program indicating that woodwork and installation complies with requirements of grades specified.
2. The Contract Documents contain requirements that are more stringent than the referenced quality standard. Comply with requirements of Contract Documents in addition to those of the referenced quality standard. B. Architectural Woodwork Standards Grade: Custom.
 1. Type of Construction: Frameless.
 2. Door and Drawer-Front Style: Flush overlay.
 3. High-Pressure Decorative Laminate: ISO 4586-3, grades as indicated or if not indicated, as required by quality standard.
3. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 1. Wilsonart
 2. Egger

3. Formica Corporation.
 4. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, ISO 4586-3.
 1. Edges of Plastic-Laminate Shelves: PVC T-mold matching laminate in color, pattern, and finish.
 2. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, ISO 4586-3, grade to match exposed surface.
 5. Drawers shall be 1/2" plywood bottom w/ MDF drawer fronts w/ liner and finish as noted.
 6. Doors shall be 3/4" MDF w/ liner and finish as noted.
 7. Filler panels shall not be less than 1 1/2" wide at cabinets perpendicular to wall. At cabinets that meet in a corner, provide 3" filler panels, typ.
 8. Provide plywood toe kicks, typ.
- Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.
- Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, ISO 4583-3, grade to match exposed surface.
- Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
9. Join subfronts, backs, and sides with glued dovetail joints.
 1. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 10. As selected by Architect from laminate manufacturer's full range.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.

1. Wood Moisture Content: 8 to 13 percent.
1. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
2. Particleboard (Medium Density): ANSI A208.1, Grade M-2.
3. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade 130.
4. Softwood Plywood: DOC PS 1, medium-density overlay. Cabinetry Shall be 3/4" plywood Construction using marine grade plywood at sink bases.

2.3 CABINET HARDWARE AND ACCESSORIES

A. Frameless Concealed Hinges (European Type): ANSI/BHMA A156.9, B01602, 135 degrees of opening. Fully Concealed with soft-close hinges. B. Back-Mounted Pulls: ANSI/BHMA A156.9, B02011.

1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer; Mockett Model DP252A or approved equal.

1. Finish: Matte Chrome(26M)

- a. Catches: Magnetic catches, ANSI/BHMA A156.9, B03141.
 - b. Adjustable Shelf Standards and Supports: ANSI/BHMA A156.9, B04071; with shelf rests, B04081.
 - c. Adjustable Shelf Standards and Supports: ANSI/BHMA A156.9, B04102; with shelf brackets, B04112.
 - d. Shelf Rests: ANSI/BHMA A156.9, B04013; metal.
 - e. Drawer hardware: Full-extension, heavy duty 150lb capacity side-mount drawer slides. ANSI/BHMA Grade 1, soft closing.
 - f. Slides for Sliding Glass Doors: ANSI/BHMA A156.9, B07063; aluminum.
 - g. Door Locks: ANSI/BHMA A156.11, E07121.
 - h. Drawer Locks: ANSI/BHMA A156.11, E07041.
 - i. Door and Drawer Silencers: ANSI/BHMA A156.16, L03011.
 - j. Grommets for Cable Passage: 2-1/2" Solid Brass Desk Grommet Cap and Liner Set in Santin Chrome(26D)
 - k. Grommets for Trash: 10" Diameter Stainless Steel Trash Grommet in Stainless Steel

2. Color: To be selected from manuf. standard color options to coordinate with countertop finish. Provide options for selection.

M. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with ANSI/BHMA A156.18 for ANSI/BHMA finish number indicated.

3. Satin Stainless Steel: ANSI/BHMA 630.

N. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in ANSI/BHMA A156.9.

2.4 MISCELLANEOUS MATERIALS

Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.

Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

Adhesive for Bonding Plastic Laminate: Type II water-resistant type as selected by fabricator to comply with requirements.

1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.5 FABRICATION

Fabricate architectural cabinets to dimensions, profiles, and details indicated.

Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times architectural cabinet fabrication will be complete.
2. Trial fit assemblies at manufacturer's shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.

Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

Install glass to comply with applicable requirements in Section 088000 "Glazing" and in GANA's "Glazing Manual."

3. For glass in frames, secure glass with removable stops.
4. For exposed glass edges, polish and grind smooth.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

3.2 INSTALLATION

Architectural Woodwork Standards Grade: Install cabinets to comply with quality standard grade of item to be installed.

Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.

Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with wafer-head cabinet installation screws.

Install cabinets level, plumb, and true in line to a tolerance of 1/8 inch in 96 inches using concealed shims.

1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
2. Install cabinets without distortion so doors and drawers fit openings and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

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3. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head screws sized for not less than 1-1/2inch penetration into wood framing, blocking, or hanging strips.

3.3 FIELD QUALITY CONTROL

A. Inspections: Provide inspection of installed Work through AWI's Quality Certification Program certifying that woodwork, including installation, complies with requirements of the Architectural Woodwork Standards for the specified grade.

1. Inspection entity is to prepare and submit report of inspection.

3.4 ADJUSTING AND CLEANING

Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects. Where not possible to repair, replace architectural cabinets. Adjust joinery for uniform appearance.

Clean, lubricate, and adjust hardware.

Clean cabinets on exposed and semiexposed surfaces.

END OF SECTION 064116

SECTION 070150.73 - REHABILITATION OF EXISTING MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

1. This Section includes the following:
 1. Roof re-coating preparation.
 2. Application of fluid-applied roof membrane and flashings over existing membrane roofing.
2. Related Requirements:
 - a. Roof moisture survey report.

1.2 ROOFING CONFERENCES

1. Roofing Rehabilitation Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roofing system.
 1. Meet with Owner, Architect; roofing re-coating materials manufacturer's representative; roofing re-coating Installer including project manager and foreman; and installers whose work interfaces with or affects re-coating including installers of roof accessories and roof-mounted equipment requiring removal and replacement as part of the Work.
 2. Review methods and procedures related to re-coating preparation, including membrane roofing system manufacturer's written instructions.
 3. Procedures for salvaging and recycling of demolition and construction waste
 4. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.
 5. Review roof drainage during each stage of re-coating and review roof drain plugging and plug removal procedures.
 6. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 7. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect re-coating.
 8. Review HVAC shutdown and sealing of air intakes.
 9. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
 10. Review governing regulations and requirements for insurance and certificates if applicable.
 11. Review existing conditions that may require notification of Owner before proceeding.

1.3 MATERIALS OWNERSHIP

1. Demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 DEFINITIONS

1. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing Manual" for definition of terms related to roofing work in this Section.
2. Roofing Coating Preparation: Existing roofing that is to remain and be prepared to accept restorative coating application.
3. Patching: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system and replacement with compatible similar materials.
4. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
5. Existing to Remain: Existing items of construction that are not indicated to be removed.
6. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
7. Demolition Waste: Building and site improvement materials resulting from re-roofing preparation, demolition, or selective demolition operations.
8. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
9. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
10. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
11. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.5 ACTION SUBMITTALS

1. Product Data: For each type of product specified.

1.6 INFORMATIONAL SUBMITTALS

1. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.
 1. Letter written for this Project indicating manufacturer approval of Installer to apply specified products and provide specified warranty.
2. Manufacturer's Certificate: Provide UL listing certificate for roofing system.

3. Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.
4. Product Test Reports: If requested, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing rehabilitation system.
5. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, and for dust control. Indicate proposed locations and construction of barriers.
6. Warranties: Unexecuted sample copies of special warranties.
7. Existing Conditions Photographs: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, which might be misconstrued as having been damaged by re-coating operations. Submit before Work begins.
8. Inspection Reports: Daily reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions required and carried out.

1.7 CLOSEOUT SUBMITTALS

1. Maintenance Data: To include in maintenance manuals.
2. Warranties: Executed copies of approved warranty forms.

1.8 QUALITY ASSURANCE

1. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of three years' experience installing products comparable to those specified, able to communicate verbally with Contractor, and employees, and the following:
 1. Qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
2. Manufacturer Qualifications: Primary product manufacturer that is UL listed for roofing system identical to that specified for this Project with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements.
 1. Approval of Other Manufacturers and Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
 - a. Product data, including certified independent test data indicating compliance with requirements.
 - b. Samples of each component.

- c. Sample submittal from similar project.
 - d. Project references: Minimum of five installations of specified products with Owner and Architect contact information.
 - e. Sample warranty.
- 3. Moisture Surveyor Qualifications: Contractor provided and approved by the manufacturer issuing the warranty, an independent certified Level 1 Thermographer or manufacturer issuing the warranty to perform a moisture survey with a Mid Wave Thermal Imager that operates in the 3.5 to 5 micron region of the electromagnetic spectrum or a technical representative of the manufacturer.
 - 1. Provide signed letter from the manufacturer authorizing the use of an approved 3rd party Thermographer to perform moisture survey.
- 4. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 - 1. An authorized full-time technical employee of the manufacturer.
 - 2. An independent party certified as a Registered Roof Observer by IIBEC, Inc. retained by the Contractor or the Manufacturer and approved by the Manufacturer.

1.9 PROJECT CONDITIONS

- 1. Weather Limitations: Proceed with rehabilitation work only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
 - 1. Store all materials prior to application at temperatures recommended by manufacturer.
 - 2. Apply coatings within range of ambient and substrate temperatures recommended by manufacturer.
 - 3. Do not apply roofing in snow, rain, fog, or mist.
- 2. Protect building to be rehabilitated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from rehabilitation operations.
- 3. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- 4. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
- 5. Owner will occupy portions of building immediately below re-coating area. Conduct re-coating so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

1.10 WARRANTY

1. Manufacturer: Manufacturer's standard warranty form, covering work of this Section, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period.
 1. Warranty Period: 20 years from date of completion.
2. Installer Warranty: Installer's warranty signed by Installer, covering the Work of this Section, on form acceptable to Roofing Manufacturer and Owner.
 1. Warranty Period: 2 years from date of completion.
3. Manufacturer Inspection Services: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum.
 1. Inspections to occur in following years: 2, 5, 10, and 15 following completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco CPG, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com, that are named in other Part 2 articles. Subject to compliance with requirements, other acceptable manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ALDO Coatings
 - b. Equal manufacturer prior approved by Architect that meets the qualifications stated in these specifications.

2.2 PERFORMANCE REQUIREMENTS

1. General Performance: Rehabilitated roofing shall withstand exposure to weather without failure or leaks due to defective manufacture or installation.
 1. Accelerated Weathering: Roofing system shall withstand 5000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
2. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
3. Exterior Fire-Test Exposure: Roofing system exterior fire-test exposure performance following application of rehabilitation coating shall be not be less than that of the pre-rehabilitated roof performance when tested in accordance with ASTM E 108, based upon manufacturer's tests of identical applications.

2.3 MATERIALS

1. General: Re-coating materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.
2. Infill Materials: Where required to replace test cores and to patch existing roofing, use infill materials matching existing membrane roofing system materials, unless otherwise indicated.
3. Temporary Roof Drainage: Design and selection of materials for temporary roof drainage are responsibilities of the Contractor.

2.4 FLUID-APPLIED ROOFING MEMBRANE

1. Polyurethane Elastomeric Fluid-Applied System: Two-coat fluid-applied roofing membrane formulated for application over prepared existing roofing substrate.
 1. Polyurethane roof coating system base coat, bio-based, low-odor low-VOC two-part, for use with a compatible top coat.
 - a. Basis of design product: Tremco, AlphaGuard BIO Base Coat.
 - b. Combustion Characteristics, UL 790: Class A, for two-coat system.
 - c. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 1 g/L.
 - d. Accelerated Weathering, 5000 hours, ASTM G154: Pass.
 - e. Hardness, Shore A, minimum, ASTM D2240: 88.
 - f. Solids, by volume, ASTM D2697: 100 percent.
 - g. Bio-Based Content, Minimum: 70 percent.
 - h. Minimum Thickness, Base Coat over Granular Surfaced MB: 64 mils wet.
 2. Polyurethane roof coating system top coat, bio-based low-odor low-VOC two-part, for application over compatible base coat.
 - a. Basis of design product: Tremco, AlphaGuard BIO Top Coat.
 - b. Combustion Characteristics, UL790: Class A, for two-coat system.
 - c. Volatile Organic Compounds (VOC), maximum, ASTM D3960: <6 g/L.
 - d. Solar Reflectance Index (SRI), ASTM E1980: For white, not less than 103.
 - e. Accelerated Weathering, 5000 hours, ASTM G 154: Pass.
 - f. Hardness, Shore A, minimum, ASTM D2240: 81.
 - g. Solids, by volume, ASTM D2697: 100 percent.
 - h. Bio-Based Content, Minimum: 60 percent.
 - i. Minimum Thickness: 32 mils wet.
 - j. Minimum Thickness, Slip-Resistant Coat: 32 mils wet.
 - k. Color: White.
 3. Primer for Masonry Surfaces: Two-part high-solids epoxy-penetrating low-odor primer for masonry and concrete surfaces.
 - a. Basis of design product: Tremco, AlphaGuard C-Prime.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 0 g/L.
 - c. Solids, by weight: 100 percent.
 4. Primer for Non-Porous Surfaces: Single-part, water based primer to promote adhesion of urethanes to metals, PVC and other non-porous surfaces.
 - a. Basis of design product: Tremco, AlphaGuard M-Prime.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 22 g/L.

- c. Nonvolatile Content, minimum, ASTM D2369: 5 percent.
 - d. Density at 77 deg F: 8.3 lb/gal.
- 5. Primer for Intercoat and Substrate Adhesion: Single-part, quick-drying primer to promote adhesion of urethane products to previous urethane coats and to other approved surfaces.
 - a. Basis of design product: Tremco, Geogard Primer.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 5 g/L.
 - c. Coverage Rate, 400 sq. ft/ gal.: 4 mils wet.
- 2. Fluid-Applied Membrane Reinforcing Fabric:
 - 1. Polyester Reinforcing and Protection Fabric: 100 percent stitch-bonded mildew-resistant polyester fabric intended for reinforcement of compatible fluid-applied membranes and flashings and as a protection layer under pavers or stone aggregates.
 - a. Basis of design product: Tremco, Permafab.
 - b. Tensile Strength, Minimum, ASTM D1682: 50 lbf avg..
 - c. Elongation, Minimum, ASTM D1682: 60 percent.
 - d. Tear Strength, Minimum, ASTM D1117: 16 lbf avg..
 - e. Weight: 3 oz./sq. yd.

2.5 AUXILIARY MATERIALS

- 1. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with existing roofing system and fluid-applied roofing system.
- 2. Joint Sealant: Elastomeric joint sealant compatible with applied coating, with movement capability appropriate for application.
 - 1. Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.
 - a. Basis of design product: Tremco, TremSEAL Pro.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.
 - c. Hardness, Shore A, ASTM C661: 40.
 - d. Adhesion to Concrete, ASTM C794: 35 pli.
 - e. Tensile Strength, ASTM D412: 350 psi.
 - f. Color: Closest match to substrate.
- 3. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FM 4470; designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength; and acceptable to roofing system manufacturer.
- 4. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.6 WALKWAYS

- 1. Slip Resistant Aggregate for Fluid-Applied Walkways:

1. Aggregate, Slip Resistant Silica Sand: Silica sand, broadcast into fluid-applied roof coating products for use as aggregate fill for slip-resistant, abrasion-resistant coating applications.
 - a. Basis of design product: Aggregate, Slip Resistant Silica Sand.
 - b. Size: 20 - 40 mesh.
 - c. Application Rate: Minimum 20 lb/100 sq ft.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine existing roofing substrates, with Installer present, for compliance with requirements and for other conditions affecting application and performance of roof coatings.
 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
 2. Verify compatibility of approved re-coating system with and suitability of substrates.
 3. Verify that substrates are visibly dry and free of moisture.
 4. Verify that roofing membrane surfaces have adequately aged to enable proper bond with re-coating system base coat.
 5. Verify that existing roofing membrane is free of blisters, splits, open laps, indications of shrinkage, and puncture damage or other indications of impending roof system failure.
 6. Commencing application of fluid-applied re-coating membrane indicates acceptance of surfaces and conditions.

3.2 PREPARATION

1. Protect existing roofing system that is indicated not to be rehabilitated, and adjacent portions of building and building equipment.
 1. Mask surfaces to be protected. Seal joints subject to infiltration by coating materials.
 2. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
 3. Maintain temporary protection and leave in place until replacement roofing has been completed.
2. Pollution Control: Comply with environmental regulations of authorities having jurisdiction. Limit spread of dust and debris.
 1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 2. Remove debris from building roof by chute, hoist, or other device that will convey debris to grade.
3. Shut down air intake equipment in the vicinity of the Work in coordination with the Owner. Cover air intake louvers before proceeding with re-coating work that could affect indoor air quality or activate smoke detectors in the ductwork.
 1. Verify that rooftop utilities and service piping affected by the Work have been shut off before commencing Work.

4. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
 1. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

3.3 ROOFING COATING PREPARATION

1. Removal of Wet Insulation: Remove portions of roofing membrane with underlying wet insulation. Remove wet insulation, fill in tear-off areas to match existing insulation and membrane, and prepare patched membrane for roof coating application specified below.
2. Repair of Ponding Areas: Repair areas indicated as ponding areas or areas of inadequate drainage by removing roof membrane, adding additional insulation as required to provide minimum slopes to drain required by roofing rehabilitation coating manufacturer, and replace membrane with material matching existing. Submit photographic report indicating compliance.
3. Membrane Surface Preparation:
 1. Remove blisters, ridges, buckles, roofing membrane fastener buttons projecting above the membrane, and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.
 2. Substrate Cleaning: Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at maximum 2,000 psi.
 3. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.
 4. Verify adhesion of new products.
4. Existing Flashing and Detail Preparation: Repair flashings, gravel stops, copings, and other roof-related sheet metal and trim elements. Reseal joints, replace loose or missing fasteners, and replace components where required to leave in a watertight condition.
 1. Do not damage metal counter flashings that are to remain. Replace metal counter flashings damaged during removal with counter flashings of same metal, weight or thickness, and finish.
 2. Roof Drains: Remove drain strainer and clamping ring. Grind metal surfaces down to clean, bare, metal.

3.4 FLUID-APPLIED FLASHING APPLICATION

1. Fluid-Applied Flashing and Detail Base Coat Application: Complete base coat and fabric reinforcement at parapets, curbs, penetrations, and drains prior to application of field of fluid-applied membrane. Apply base coat in accordance with manufacturer's written instructions.
 1. Apply base coat on prepared and primed surfaces and spread coating evenly. Extend coating minimum of 8 inches up vertical surfaces and 4 inches onto horizontal surfaces.

2. Back roll to achieve not less than minimum coating thickness indicated in Part 2 product listing, unless greater thickness is recommended by manufacturer. Verify thickness as work progresses.
3. Fabric Reinforcement: Embed fabric reinforcement into wet base coat. Lap adjacent flashing pieces of fabric minimum 3 inches along edges and 6 inches at end laps.
 - a. Roll surface of fabric reinforcing to completely embed and saturate fabric. Leave finished base coat with fabric free of pin holes, voids, or openings.
4. Roof Drains: Install base coat onto surrounding membrane surface and metal drain bowl flange. Install target piece of fabric reinforcement immediately into wet base coat and roll to fully embed and saturate fabric. Reinstall clamping ring and strainer following application of top coat. Replace broken drain ring clamping bolts.
5. Allow base coat to cure prior to application of top coat.

3.5 FLUID-APPLIED MEMBRANE APPLICATION

1. Fluid-Applied Membrane Base Coat: Apply base coat to field of membrane in accordance with manufacturer's written instructions.
 1. Apply base coat on prepared and primed surfaces and spread coating evenly.
 2. Back roll to achieve not less than minimum coating thickness indicated in Part 2 product listing, unless greater thickness is recommended by manufacturer. Verify thickness as work progresses.
 3. Fabric Reinforcement: Embed fabric reinforcement into wet base coat. Lap adjacent flashing pieces of fabric minimum 3 inches along edges and 6 inches at end laps.
 - a. Roll surface of fabric reinforcing to completely embed and saturate fabric. Leave finished base coat with fabric free of pin holes, voids, or openings.
 - b. Following curing of base coat and prior to application of top coat, sand raised or exposed edges of fabric reinforcement.
2. Top Coat Application: Apply top coat to field of membrane and flashings uniformly in a complete, continuous installation.
 1. Allow base coat to cure prior to application of top coat.
 2. Following curing of base coat and prior to application of top coat, sand raised or exposed edges of fabric reinforcement.
 3. Prime base coat prior to application of top coat if top coat is not applied within 72 hours of the base coat application, using manufacturer's recommended primer.
 4. Apply top coat extending coating up vertical surfaces and out onto horizontal surfaces. Install top coat over field base coat and spread coating evenly.
 5. Back roll to achieve not less than minimum coating thickness indicated in Part 2 product listing, unless greater thickness is recommended by manufacturer. Verify thickness as work progresses.
 6. Avoid foot traffic on new fluid-applied membrane for a minimum of 24 hours.
3. Slip-Resistant Walkway Topcoat: Apply walkway second topcoat following application and curing of top coat. Locate as indicated on Drawings.
 1. Mask walkway location with tape.
 2. Prime first top coat prior to application of walkway top coat if walkway top coat is not applied within 72 hours of the first top coat application, using manufacturer's recommended primer.

3. Apply walkway top coat and back roll to achieve not less than minimum coating thickness indicated in Part 2 product listing, unless greater thickness is recommended by manufacturer. Verify thickness as work progresses.
4. Broadcast Slip-Resistant Top Coat Aggregate in wet top coat at rate indicated in Part 2 product listing or as otherwise recommended by coating manufacturer.
 - a. Back roll aggregate filled top coat creating even dispersal of sand. Remove masking immediately.

3.6 FIELD QUALITY CONTROL

1. Roofing Inspector: Contractor shall engage and include in base bid a qualified roofing inspector for FULL TIME 8 Hour Days on site to perform roof tests and inspections and to prepare start up, interim, and final reports. Roofing Inspector's quality assurance inspections shall comply with criteria established in ARMA/NRCA's "Quality Control Guidelines for the Application of Built Up Roofing".
2. Roof Inspection: Engage roofing system manufacturer's technical personnel to inspect roofing installation, and submit daily report.
3. Repair fluid-applied membrane where test inspections indicate that they do not comply with specified requirements.
4. Arrange for additional inspections, at Contractor's expense, to verify compliance of replaced or additional work with specified requirements.

3.7 DISPOSAL

1. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
 1. Storage or sale of demolished items or materials on-site is not permitted.
2. Transport and legally dispose of demolished materials off Owner's property.

3.8 PROTECTING AND CLEANING

1. Protect roofing system from damage and wear during remainder of construction period.
2. Correct deficiencies in or remove coating that does not comply with requirements, repair substrates, and reapply coating.
3. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 070150.73

SECTION 071716 - BENTONITE WATERPROOFING

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. Bentonite waterproofing.

1.3 SUBMITTALS

1. Product Data: Include product specifications, installation instructions and recommendations of manufacturer, for each material and type of application required.
2. Shop Drawings: Show installation details for interface with other work.
3. Contractor Certificate: Submit written certification that installer has current Approved Applicator status with waterproofing material manufacturer.
4. Warranty: Submit a specimen of specified waterproofing warranty.
5. Test Report: Submit manufacturer's test report on water samples taken at the site along with recommendations as a result of these tests.
6. Field quality-control reports.
7. Manufacturer Certificates: Signed by materials manufacturer certifying that waterproofing system complies with requirements specified.
8. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

1. Installer Qualifications: Installing company shall have at least three years' experience in work of the type indicated, who can comply with manufacturer's warranty requirements, and who is an Approved Applicator as determined by waterproofing system manufacturer.

2. Single-Source Responsibility: Obtain bentonite waterproofing system from one source of a single manufacturer. Obtain accessory products used in conjunction with bentonite waterproofing from sources acceptable to the bentonite waterproofing manufacturer.
3. Preinstallation Conference: Approximately 2 weeks prior to scheduled commencement of waterproofing installation, meet at Project site with Waterproofing Installer; preparer of substrate to receive waterproofing; installers of other work in and around waterproofing that must precede, follow, or penetrate waterproofing (including Mechanical and Electrical Installers as applicable); Architect; Owner; and waterproofing manufacturer's representative to review materials, procedures, schedules, and other requirements and conditions related to installing bentonite waterproofing.
4. Water Samples: Obtain water samples from the site at approximate locations where waterproofing will be installed and have the waterproofing manufacturer test for acids, alkalis, brine, or other contaminants that may inhibit the performance of untreated bentonite. Comply with manufacturer's recommendations resulting from these tests.
5. Manufacturer Certificates: Signed by waterproofing system materials manufacturer certifying that the installation complies with requirements specified.
 1. Submit evidence of meeting performance requirements.
 2. Manufacturer shall attend pre-construction meetings, and shall conduct site visits during construction and after completion of construction (for that phase of work that directly applies to the specific product) before issuing a manufacturer warrantee certificate.

1.5 DELIVERY, STORAGE, AND HANDLING

1. Deliver materials to Project site in manufacturer's original unopened containers.
2. Store materials in a dry, well-ventilated space and in accordance with manufacturer's instructions and recommendations.
3. Remove and replace bentonite materials that have been prematurely exposed to moisture.

1.6 PROJECT CONDITIONS

1. General: Comply with manufacturer's recommendations regarding weather conditions before and during installation, condition of the substrate to receive waterproofing, and protection of the installed waterproofing system.
2. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit bentonite waterproofing to be installed according to manufacturers' written instructions and warranty requirements.
 1. Do not apply waterproofing materials to surfaces where ice or frost is visible. Do not apply bentonite waterproofing materials in areas with standing water.

2. Placing bentonite clay products in panel or composite form on damp surfaces is allowed if approved in writing by manufacturer.

1.7 WARRANTY

1. Manufacturer's Warranty: Submit manufacturer's Warranty in which manufacturer agrees to provide waterproofing system materials to repair or replace components of bentonite waterproofing system that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: 10 years from date of Substantial Completion.
2. Installer's Warranty: Submit installer's Warranty in which installer agrees to provide all labor required to repair or replace components of bentonite waterproofing system that fail within specified warranty period.
 1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

1. Bentonite Waterproofing - Under Concrete Slabs and Foundations:
 1. Product and Manufacturer - Basis of Design: Ultraseal AB; CETCO, Colloid Environmental Technologies Company.
2. Bentonite Waterproofing - Vertical Walls Below Grade:
 1. Product and Manufacturer - Basis of Design: Ultraseal AB; CETCO, Colloid Environmental Technologies Company.

2.2 ACCESSORIES

1. General: Provide accessories as recommended by manufacturer for a complete and waterproof system. Accessories include, but are not limited to, the following:
 1. Bentonite Seal (Mastic): Trowelable consistency, bentonite compound, specifically formulated for application at joints and penetrations.
 - a. Product: Bentoseal.
2. Termination Bar: Minimum 1-inch wide aluminum bar with pre-punched holes on 12-inch centering for fastening.
 - a. Fasteners for Termination Bar: 300 Series stainless steel.
3. Seam Tape: Type recommended by the materials manufacturer for applications indicated.
4. Transition Tube: Granular bentonite clay (sodium bentonite), minimum 85 percent montmorillonite (hydrated aluminum silicate), with a minimum of 90 percent passing a 20-mesh sieve.
 - a. Product: Hydrobar Tubes; water-soluble plastic tubing filled with bentonite.

5. Mechanical Fasteners: Case hardened nails or hardened-steel powder-actuated fasteners. Provide 1/2-inch diameter or 1-inch diameter washers (dependant on manufacturer's requirements) under fastener heads.
6. Waterstoppage: Dry granular bentonite.
7. Preformed Waterstop: Flexible strip of bentonite waterproofing compound in cartridge or coil form, designed specifically for vertical and horizontal joints in concrete construction.
 - a. Product: Waterstop Rx.
8. Plastic Sheets: Polyethylene sheeting conforming to ASTM D 4397, thickness as recommended by waterproofing manufacturer to suit application, but not less than 15.0 mils.
9. Sealants: As recommended by manufacturer.

2.3 EXAMINATION

1. Examine substrates, areas, and conditions, with Installer, manufacturer's representative, and Owner's Representative present, for compliance with requirements for substrate preparations affecting performance of bentonite waterproofing.
2. Verify that substrate is complete and that work that will penetrate waterproofing is complete and rigidly installed.
3. Proceed with installation only after unsatisfactory conditions have been corrected.
4. Provide photo documentation.

2.4 PREPARATION

1. General: Comply with manufacturer's instructions and recommendations. Verify that substrate is complete and that all work that will penetrate waterproofing is complete and rigidly installed. Verify locations of waterproofing termination.
 1. Coordinate work in vicinity of waterproofing to assure proper conditions for installation of the waterproofing system and to prevent damage to the waterproofing after installation.

2.5 INSTALLATION

1. General: Install waterproofing and accessories according to manufacturer's instructions, standard details, and recommended practices.
 1. Protect waterproofing from damage and wetting before and during subsequent construction operations. Repair punctures, tears, and cuts according to manufacturer's written instructions.

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2.6 FIELD QUALITY CONTROL

1. Inspection: Arrange for manufacturer's representative and Owner's Representative to inspect during installation and completed waterproofing installation before covering with other construction and provide written report that installation complies with manufacturer's written instructions.
 1. Remove and replace applications of bentonite waterproofing where inspection indicates that it does not comply with specified requirements.
 2. Perform additional testing and inspecting, at Contractor's expense, to determine compliance of replaced or additional work with specified requirements.

END OF SECTION 071716

SECTION 072100 - BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section Includes:
 1. Insulation.

1.3 SUBMITTALS

1. Product Data: Each type of insulation product specified.
2. Product Test Reports: From and based on tests performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water absorption, and other properties, based on comprehensive testing of current products.

1.4 QUALITY ASSURANCE

1. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work.
2. Fire-Test-Response Characteristics: Provide insulation and related materials with the firetest-response characteristics indicated on Drawings or specified elsewhere in this Section as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 1. Surface-Burning Characteristics: ASTM E 84.
 2. Fire-Resistance Ratings: ASTM E 119.
 3. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY, STORAGE, AND HANDLING

1. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS STUFFING INSULATION

1. Shall be inorganic (nonasbestos) mineral wool insulation without facing, for the purpose of filling and stuffing openings in walls around pipes, structural components, conduits, expansion joints to eliminate noise transfer and to insulate. Use to seal top of interior walls, not fire rated walls, between masonry and roof deck, or as otherwise indicated. Use at expansion joints as detailed or as otherwise indicated. Insulation shall have a flame spread rating of 25 or less, and a smoke development rating of 450; per ASTM E84. Approved manufacturers are as follows:
 1. "Industrial Bulk Wool" packing wool fibers by Thermafiber Corporation.
 2. Rock Wool Manufacturing Company.

2.2 UNFACED BATT INSULATION

1. Glass-Fiber Blanket, Unfaced: ASTM C665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E84; passing ASTM E136 for combustion characteristics.
 1. JohnsManville, Denver, Colorado.
2. Other manufacturers are acceptable provided they can provide a formaldehyde-free glass fiber batt insulation. Submit request for product approval at least 10 days prior to bid due date to the Architect.

2.3 SOUND ATTENUATION BLANKETS

1. Sound attenuation blankets shall be formaldehyde-free unfaced glass fiber insulation conforming to ASTM C665, Type I. Blankets shall be held in place by clips as recommended by the manufacturer. Flame spread shall be 25, smoke developed 450 in accordance with ASTM E136 and ASTM C84. Approved manufacturers are as follows:
 1. JohnsManville, Denver, Colorado.
 2. Other manufacturers are acceptable provided they can provide a formaldehyde-free glass fiber batt insulation. Submit request for product approval at least 10 days prior to bid due date to the Architect.

2.4 ROOF BOARD INSULATION

1. Refer to Section 075216.15 for information regarding roof board insulation requirements.

2.5 ACCESSORIES

1. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.
2. Insulation for Miscellaneous Voids:
 1. Spray Polyurethane Foam Insulation: ASTM C4536, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Clean substrates of substances harmful to insulation.

3.3 INSTALLATION, GENERAL

1. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
2. Install insulation that is undamaged, dry, and unsoiled
3. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
4. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

3.4 MISCELLANEOUS STUFFING INSULATION

1. Where the Drawings call for interior walls to extend to deck or roof, openings in walls between rooms above the ceiling shall be sealed with mineral wool placed or stuffed in openings to eliminate noise transfer and air movement. Mineral wool insulation shall be provided at other building locations indicated or requiring minor fill to eliminate air movement.

3.5 BATT INSULATIONS

1. Install in areas as indicated. Install in strict accordance with the manufacturers written installation instructions. Install in all exterior wall voids, behind beams, and concealed locations in the exterior walls and roof areas of the building whether or not indicated. All gaps shall be filled with batt insulation.
2. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
 1. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application.
 2. After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation.
 3. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.
3. Install in successive layers to achieve R-value as indicated on the drawings.
4. Install in accordance with Manufacturers Requirements.

3.6 INSTALLATION OF RIGID INSULATION

1. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face and as recommended by manufacturer.
 1. Fit courses of insulation between obstructions, with edges butted tightly in both directions, and with faces flush.
 2. Press units firmly against inside substrates.

3.7 PROTECTION

1. General: Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

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SECTION 072116 - BLANKET INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. Drawing and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
2. Refer to section 072100 BUILDING INSULATION for further information regarding Roof Board Insulation.

END OF SECTION 072116

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SECTION 072216 - ROOF BOARD INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. Drawing and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
2. Refer to section 075216.15 for further information regarding Roof Board Insulation.

END OF SECTION 072216

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SECTION 072217 LOW SLOPE ROOFING COVER BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 REFER TO SECTION 07 52 16.15 FOR MORE INFORMATION

SECTION 072413 - POLYMER-BASED EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes: Polymer-based exterior insulation and finish system (EIFS).
 1. EIFS-clad barrier-wall assemblies that are field applied over substrate.

1.2 DEFINITIONS

1. Definitions in ASTM E2110 apply to Work of this Section.
2. EIFS: Exterior insulation and finish system(s).
3. IBC: International Building Code.
4. Polymer-Based Exterior Insulation and Finish System: Class PB EIFS, as defined in ASTM E2568.

1.3 ACTION SUBMITTALS

1. Product Data: For each EIFS component, trim, and accessory.
2. Samples for Verification: 24-inch- square panels for each type of finish-coat color and texture indicated, prepared using same tools and techniques intended for actual work, including .
 1. Include [**exposed trim and accessory**] Samples to verify color selected.
 2. Include a typical control joint filled with sealant of color selected

1.4 INFORMATIONAL SUBMITTALS

1. Manufacturer Certificates: Signed by EIFS manufacturer, certifying the following:
 1. EIFS substrate is acceptable to EIFS manufacturer.
 2. Accessory products installed with EIFS, including joint sealants, water-resistant barriers, trim, whether or not furnished by EIFS manufacturer and whether or not specified in this Section, are acceptable to EIFS manufacturer.
2. Product Certificates: For[**cementitious materials and aggregates and for**] insulation, from manufacturer.
3. Product Test Reports: For each EIFS assembly and component, for tests performed by a qualified testing agency.
4. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

1. Maintenance Data: For EIFS to include in maintenance manuals.

1.6 QUALITY ASSURANCE

1. Installer Qualifications: [**An installer who is certified in writing by AWCI International as qualified to install Class PB EIFS using trained workers**]
2. Fabricator/Erector Qualifications: Certified in writing by EIFS manufacturer as qualified to fabricate and erect manufacturer's prefabricated panel system using skilled and trained workers.

1.7 DELIVERY, STORAGE, AND HANDLING

1. Deliver materials in original, unopened packages with manufacturers' labels intact and clearly identifying products.
2. Store materials inside and under cover; keep them dry and protected from weather, direct sunlight, surface contamination, aging, corrosion, damaging temperatures, construction traffic, and other causes.
 1. Stack insulation board flat and off the ground.
 2. Protect plastic insulation against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.8 FIELD CONDITIONS

1. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions and ambient outdoor air, humidity, and substrate temperatures permit EIFS to be applied, dried, and cured according to manufacturers' written instructions and warranty requirements.
 1. Proceed with installation of adhesives or coatings only when ambient temperatures have remained, or are forecast to remain, above 40 deg F for a minimum of 24 hours before, during, and after application. Do not apply EIFS adhesives or coatings during rainfall.

1.9 WARRANTY

1. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace components of EIFS that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Bond integrity and weathertightness.
 - b. Deterioration of EIFS finishes and other EIFS materials beyond normal weathering.
 2. Warranty coverage includes the following EIFS components:
 - a. EIFS finish, including base coats, finish coats, and reinforcing mesh.

- b. Insulation installed as part of EIFS[, **including buildouts**].
 - c. Insulation adhesive
 - d. EIFS accessories, including trim components and flashing.
3. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 POLYMER-BASED EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following]** :
 1. Dryvit Systems, Inc.
 2. Senergy Corp.
 3. Sto Corp.
2. Source Limitations: Obtain EIFS from single source from single EIFS manufacturer and from sources approved by EIFS manufacturer as tested and compatible with EIFS components.

2.2 PERFORMANCE REQUIREMENTS

1. EIFS Performance: Comply with ASTM E2568 and with the following:
 1. Weathertightness: Resistant to water penetration from exterior.
 2. Impact Performance: ASTM E2568, Standard impact resistance[**unless otherwise indicated**].
 3. Abrasion Resistance of Finish Coat: Sample consisting of 1-inch- thick EIFS mounted on 1/2-inch- thick gypsum board; cured for a minimum of 28 days and shows no cracking, checking, or loss of film integrity after exposure to 528 quarts of sand when tested in accordance with ASTM D968, Method A.
 4. Mildew Resistance of Finish Coat: Sample applied to 2-by-2-inch clean glass substrate; cured for 28 days and shows no growth when tested in accordance with ASTM D3273 and evaluated in accordance with ASTM D3274.

2.3 EIFS MATERIALS

1. Insulation Adhesive: EIFS manufacturer's standard formulation designed for indicated use; compatible with substrate and complying with[**one of**] the following:
 1. Job-mixed formulation of portland cement, complying with ASTM C150/C150M, Type I, and polymer-based adhesive specified for base coat.
 2. Factory-blended dry formulation of portland cement, dry polymer admixture, and fillers specified for base coat.
 3. Factory-mixed noncementitious formulation designed for adhesive attachment of insulation to substrates of type indicated, as recommended by EIFS manufacturer.
2. Reinforcing Mesh: Balanced, alkali-resistant, open-weave, glass-fiber mesh treated for compatibility with other EIFS materials, made from continuous multi-end strands with retained mesh tensile strength of not less than 120 lbf/in. in accordance with ASTM E2098/E2098M and the following:

1. Reinforcing Mesh for EIFS, General: Not less than weight required to comply with impact-performance level specified in "Performance Requirements" Article.
2. Strip-Reinforcing Mesh: Not less than As recommended by EIFS manufacturer.
3. Detail-Reinforcing Mesh: Not less than As recommended by EIFS manufacturer.
4. Corner-Reinforcing Mesh: Not less than As recommended by EIFS manufacturer.
3. Water-Resistant Base Coat: EIFS manufacturer's standard waterproof formulation complying with[**one of**] the following:
 1. Job-mixed formulation of portland cement complying with ASTM C150/C150M, Type I, white or natural color; and manufacturer's standard polymer-emulsion adhesive designed for use with portland cement.
 2. Job-combined formulation of manufacturer's standard polymer-emulsion adhesive and manufacturer's standard dry mix containing portland cement.
4. Primer: EIFS manufacturer's standard factory-mixed, elastomeric-polymer primer for preparing base-coat surface for application of finish coat.
5. Finish Coat: EIFS manufacturer's standard acrylic-based coating with enhanced mildew resistance complying with the following:
 1. Factory-mixed formulation of polymer-emulsion binder, colorfast mineral pigments, sound stone particles, and fillers.
 2. Factory-mixed formulation of polymer-emulsion binder, colorfast mineral pigments, and fillers used with stone particles for embedding in finish coat to produce an applied-aggregate finish.
 - a. Aggregate: Marble chips of size and color as indicated by manufacturer's designations.
 3. Colors: As selected by Architect from manufacturer's full range.
 4. Textures: As selected by Architect from manufacturer's full range.
6. Sealer: Manufacturer's waterproof, clear acrylic-based sealer for protecting finish coat.
7. Water: Potable.

2.4 MIXING

1. Comply with EIFS manufacturer's requirements for combining and mixing materials. Do not introduce admixtures, water, or other materials, except as recommended by EIFS manufacturer. Mix materials in clean containers. Use materials within time period specified by EIFS manufacturer or discard.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
2. Examine roof edges, wall framing, flashings, openings, substrates, and junctures at other construction for suitable conditions where EIFS will be installed.

3. Proceed with installation only after unsatisfactory conditions have been corrected.
 1. Begin coating application only after surfaces are dry.
 2. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

1. Protect contiguous work from moisture deterioration and soiling caused by application of EIFS. Provide temporary covering and other protection needed to prevent spattering of exterior finish coats on other work.
2. Protect EIFS, substrates, and wall construction behind them from inclement weather during installation. Prevent penetration of moisture behind EIFS and deterioration of substrates.
3. Prepare and clean substrates to comply with EIFS manufacturer's written instructions to obtain optimum bond between substrate and adhesive for insulation.
 1. Concrete Substrates: Provide clean, dry, neutral-pH substrate for insulation installation. Verify suitability of substrate by performing bond and moisture tests recommended by EIFS manufacturer.

3.3 INSTALLATION OF EIFS, GENERAL

1. Comply with ASTM C1397, ASTM E2511, and EIFS manufacturer's written instructions for installation of EIFS as applicable to each type of substrate.

3.4 INSTALLATION OF INSULATION

1. Board Insulation: Adhesively attach insulation to substrate in compliance with ASTM C1397 and the following:
 1. Concrete or Masonry: Apply adhesive by ribbon-and-dab method.
 2. Press and slide insulation into place. Apply pressure over entire surface of insulation to accomplish uniform contact, high initial grab, and overall level surface.
 3. Allow adhered insulation to remain undisturbed for not less than 24 hours, before[**installing mechanical fasteners,**] beginning rasping and sanding insulation or before applying base coat and reinforcing mesh.
 4. Apply insulation over dry substrates in courses, with long edges of boards oriented horizontally.
 5. Begin first course of insulation from a level base line and work upward.
 6. Begin first course of insulation from screed/track and work upward. Work from perimeter casing beads toward interior of panels if possible.
 7. Stagger vertical joints of insulation boards in successive courses to produce running bond pattern. Locate joints, so no piece of insulation is less than 12 inches wide or 6 inches high. Offset joints not less than 6 inches from corners of window and door openings[**and not less than 4 inches from aesthetic reveals**].
 - a. Adhesive Attachment: Offset joints of insulation not less than 6 inches from horizontal and 4 inches from vertical joints in sheathing.
 8. Interlock ends at internal and external corners.

9. Abut insulation tightly at joints within and between each course to produce flush, continuously even surfaces without gaps or raised edges between boards. If gaps greater than 1/16 inch occur, fill with insulation cut to fit gaps exactly; insert insulation without using adhesive or other material.
10. Cut insulation to fit openings, corners, and projections precisely and to produce edges and shapes complying with details indicated.
11. Rasp or sand flush entire surface of insulation to remove irregularities projecting more than [1/32 inch] [1/16 inch] from surface of insulation and to remove yellowed areas due to sun exposure; do not create depressions deeper than 1/16 inch. Prevent airborne dispersal and immediately collect insulation raspings or sandings.
12. Interrupt insulation for expansion joints where indicated.
13. Form joints for sealant application by leaving gaps between adjoining insulation edges and between insulation edges and dissimilar adjoining surfaces. Make gaps wide enough to produce joint widths indicated after encapsulating joint substrates with base coat and reinforcing mesh.
14. Form joints for sealant application with back-to-back casing beads for joints within EIFS and with perimeter casing beads at dissimilar adjoining surfaces. Make gaps between casing beads and between perimeter casing beads and adjoining surfaces of width indicated.
15. Before installing insulation and before applying field-applied reinforcing mesh, fully wrap board edges. Cover edges of board and extend encapsulating mesh not less than 2-1/2 inches over front and back face unless otherwise indicated on Drawings.
16. Treat exposed edges of insulation as follows:
 - a. Except for edges forming substrates of sealant joints, encapsulate with base coat, reinforcing mesh, and finish coat.
 - b. Encapsulate edges forming substrates of sealant joints within EIFS or between EIFS and other work with base coat and reinforcing mesh.
 - c. At edges trimmed by accessories, extend base coat, reinforcing mesh, and finish coat over face leg of accessories.
17. Coordinate installation of flashing and insulation to produce wall assembly that does not allow water to penetrate behind flashing and EIFS lamina.

3.5 APPLICATION OF BASE COAT

1. Water-Resistant Base Coat: Apply full-thickness coverage [**to exposed insulation and**] and to other surfaces indicated on Drawings.
2. Reinforcing Mesh: Embed reinforcing mesh in wet base coat to produce wrinkle-free installation with mesh continuous at corners, overlapped not less than 2-1/2 inches or otherwise treated at joints to comply with ASTM C1397. Do not lap reinforcing mesh within 8 inches of corners. Completely embed mesh, applying additional base-coat material if necessary, so reinforcing-mesh color and pattern are invisible.
3. Double-Layer Reinforcing-Mesh Application: Where indicated or required, apply second base coat and second layer of reinforcing mesh, overlapped not less than 2-1/2 inches or otherwise treated at joints to comply with ASTM C1397 in same manner as first application. Do not apply until first base coat has cured.

4. Additional Reinforcing Mesh: Apply strip-reinforcing mesh around openings, extending 4 inches beyond perimeter. Apply additional 9-by-12-inch strip-reinforcing mesh diagonally at corners of openings (re-entrant corners). Apply 8-inch-wide, strip-reinforcing mesh at both inside and outside corners unless base layer of mesh is lapped not less than 4 inches on each side of corners.
 1. At aesthetic reveals, apply strip-reinforcing mesh not less than 8 inches wide.
 2. Embed strip-reinforcing mesh in base coat before applying first layer of reinforcing mesh.
5. Foam Buildouts: Fully embed reinforcing mesh in base coat.
6. Double Base-Coat Application: Where indicated, apply second base coat in same manner and thickness as first application, except without reinforcing mesh. Do not apply until first base coat has cured.

3.6 APPLICATION OF FINISH COAT

1. Primer: Apply over dry base coat.
2. Finish Coat: Apply full-thickness coverage over dry primed base coat, maintaining a wet edge at all times for uniform appearance, to produce a uniform finish of color and texture matching approved sample and free of cold joints, shadow lines, and texture variations.
 1. Embed aggregate in finish coat to produce a uniform applied-aggregate finish of color and texture matching approved sample.

3.7 CLEANING AND PROTECTION

1. Remove temporary covering and protection of other work. Promptly remove coating materials from window and door frames and other surfaces outside areas indicated to receive EIFS coatings.

END OF SECTION 072413

SECTION 072423 - CEMENT BOARD STUCCO SYSTEM

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.
- B. Section 061600 – Sheathing

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Cement Board Stucco System.

1.2 DEFINITIONS

- 1. Senergy CBS 1000 System: Exterior assembly comprised of Senergy air/water-resistive barrier or other code approved secondary air/weather barrier, Senergy Base Coat, Senergy Reinforcing Mesh and Senergy Finish Coat.

1.3 SUBMITTALS

- 1. Product Data: Provide data on Senergy CBS 1000 System materials, product characteristics, performance criteria, limitations and durability.
- 2. Shop Drawings: Indicate wall joint pattern and joint details, thickness, and installation details.
- 3. Samples: Submit two 24-inch square size samples of Senergy CBS 1000 System illustrating Finish Coat color and texture range.
- 4. Certificate: System manufacturer's approval of applicator.
- 5. Sealant: Sealant manufacturer's certificate of compliance with ASTM C920.
- 6. System manufacturer's current specifications, typical details, system design guide and related product literature which indicate preparation required, storage, installation techniques, jointing requirements and finishing techniques.

1.4 QUALITY ASSURANCE

- 1. Manufacturer: More than 10 years in the EIFS industry, with more than 1000 completed cement board stucco projects.
- 2. Applicator: Approved by Master Builders Solutions in performing work of this section.

3. Regulatory Requirements: Conform to applicable code requirements for finish system.
4. Field Samples:
 1. Construct one field sample panel for each color and texture, 48" square in size of system materials illustrating method of attachment, Senergy Finish, color and texture.
 2. Prepare each sample panel using the same tools and techniques to be used for the actual application.
 3. Locate sample panel where directed.
 4. Field samples shall be comprised of all wall assembly components including substrates, air/water- resistive barrier, Drainage Mat by Master Builders Solutions (if specified), base coat, reinforcing mesh, primer (if specified), finish coat and typical sealant/flashing conditions.

1.5 DELIVERY, STORAGE AND HANDLING

1. Deliver Master Builders Solutions materials in original unopened packages with manufacturer's labels intact.
2. Protect Master Builders Solutions materials during transportation and installation to avoid physical damage.
3. Store Master Builders Solutions materials in cool, dry place protected from freezing. Store at no less than 40°F/4°C (50°F/10°C AURORA STONE, AURORA TC-100 and ALUMINA finish).
4. Store MAXFLASH at a minimum of 40F. In cold weather, keep containers at room temperature for at least 24 hours before using.
5. Store insulation boards flat and protected from direct sunlight and extreme heat.
6. Store Reinforcing Mesh, SHEATHING FABRIC and WS FLASH flexible flashing in cool, dry place protected from exposure to moisture.

1.6 PROJECT/SITE CONDITIONS

1. Do not apply Master Builders Solutions material in ambient temperatures below 40°F/4°C (50°F/10°C for AURORA STONE, AURORA TC-100 and ALUMINA Finish). Provide properly vented, supplementary heat during installation and drying period when temperatures less than 40°F/4°C (50°F/10°C for AURORA STONE, AURORA TC-100 and ALUMINA Finish) prevail.
2. Do not apply materials to frozen surfaces.
3. Maintain ambient temperature at or above 40°F/4°C (50°F/10°C for AURORA STONE, AURORA TC- 100 and ALUMINA Finish) during and at least 24 hours after CBS 1000 Wall System installation and until dry.

1.7 SEQUENCING AND SCHEDULING

1. Coordinate and schedule installation of Senergy CBS 1000 with related work of other sections.
2. Coordinate and schedule installation of trim, flashing, and joint sealers to prevent water infiltration behind the System.
3. Coordinate and schedule installation of air/weather barrier, windows, doors, AC units etc.

1.8 WARRANTY

1. Provide Master Builders Solutions material warranty for Senergy CBS 1000 wall system installations.
 1. Warranty Term: Manufacturers extended maximum term.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. A. Basis-of-Design Product: Subject to compliance with requirements, provide CBS 1000 by Senergy or equal system by one of the manufacturers below, or approved equal.
 - a. Dryvit
 - b. Master Builders Solutions

2.2 MATERIALS

1. Sheathing
 1. Fiber Glass Matte Faced Gypsum Sheathing
 - a. 1/2" Densglas Glass Matte Faced Gypsum Sheathing Or Approved Equal
2. Air/water-Resistive Barrier Components:
 1. Air/Water-Resistive Barrier:
 - a. SENERSHIELD-R: A one-component fluid-applied vapor permeable air/water-resistive barrier.
 - b. Code approved secondary air/water resistive barrier.
 2. Rough Opening and Joint Treatment:
 - a. MAXFLASH: A one-component elastomeric material for use as a flexible flashing membrane.
 3. Transitional Membrane / Expansion Joint Flashing
 - a. WS FLASH: 30-mil thick, self-sealing, self-healing composite membrane of polyester fabric and rubberized asphalt. Compatible with Senergy liquid air/weather resistive barriers.
 - b. FLASHING PRIMER: A water-based primer for use prior to application of WS FLASH on all acceptable surfaces.
 4. Cold Temperature Additive:
 - a. LT ADDITIVE: Blending of LT ADDITIVE with a pail of SENERSHIELD-R/-RS/-VB enables application of these materials at temperatures as low as 25°F (4°C).

3. DRAINAGE MAT

1. Three-dimensional drainage core consisting of fused, entangled filaments.
4. Base Coats: As recommended by the Manufacturer:
 1. Base Coat: A 100% acrylic base coat, field-mixed with Type I or Type II Portland cement. It has a creamy texture that is easily spread.
 2. XTRA-STOP Base Coat: A 100% acrylic-based, water-resistant base coat, fieldmixed with Type I or Type II Portland cement.
 3. ALPHA GENIE Base Coat: A 100% acrylic, fiber-reinforced base coat, adhesive and leveler that is field-mixed with Type I or Type II Portland cement.
5. Portland cement: Conform to ASTM C150, Type I, II, or I/II, grey or white; fresh and free of lumps.
6. Water: Clean and potable without foreign matter.
7. Senergy Reinforcing Mesh: Balanced, open-weave glass, fiber reinforcing mesh, twisted multi-end strands treated for compatibility with Senergy Base Coats.
 1. FLEXGUARD 4: Standard weight, 4 oz.
 2. INTERMEDIATE 6: Standard/medium weight, 6 oz.
 3. INTERMEDIATE 12: Intermediate weight, 12 oz.
 4. CORNER MESH: Intermediate weight, pre-marked for easy bending, for reinforcing at exterior corners.
 5. SELF-ADHERING MESH TAPE by Master Builders Solutions: a standard weight mesh coated with a pressure sensitive adhesive for use with base coat as reinforcement over acceptable sheathing joints, rough openings and at terminations
8. TINTED PRIMER by Master Builders Solutions Primer: A 100% acrylic-based primer that helps alleviate shadowing and enhances performance of the Senergy Wall Systems. Color to closely match the selected Senergy Finish Coat color.
9. Senergy Finish Coat:
 1. SENERFLEX Finish: 100% acrylic polymer finishes with advanced technology to improve long- term performance and dirt pick-up resistance; air cured, compatible with base coat; Senergy finish.
 - a. Color as selected by Architect from Manufacturers full range.
 - b. Texture: Match approved sample panel.

2.3 ACCESSORIES

1. Starter track, L bead, J bead, angled termination bead, casing beads, corner beads, expansion joints and weep screed must comply with ASTM D1784 or C1063 for vinyl. Type as recommended by Senergy Wall Systems.

PART 3 - EXECUTION

3.1 EXAMINATION A. Walls:

1. Substrates/Sheathing:

Wall sheathing must be securely fastened per applicable building code and sheathing manufacturer's requirements.

Examine surfaces to receive Senergy materials and verify that substrate and adjacent materials are dry, clean, sound, and free of releasing agents, paint, or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 1/4" in 10' (6.4 mm in 3 m).

2. Air/weather Barrier:
 - a. Verify that the air/weather barrier is installed over the sheathing per applicable building code requirements, manufacturers' specifications and Senergy details, prior to application of the Senergy Cement-Board Stucco 1000 System.
 3. Cement-Board Substrates:

Acceptable substrates are cement-boards which satisfy ASTM C1325 (Type A, Exterior).
Cement-board must be securely fastened per manufacturers' recommendations, applicable building code and project requirements.
Walls shall have maximum deflection not to exceed L/360 of span under positive or negative design loads
Cement-board must be a single piece around corners of openings.
Cement-board must be fastened with corrosion resistant fasteners.
Cement-board and sheathing joints must be offset.
 4. Flashings:

Head, jamb and sills of all openings must be flashed with secondary air/weather barrier prior to window/door, HVAC, etc. installation. Refer to Senergy Moisture Protection Guidelines.
Windows and openings shall be flashed according to design and building code requirements.
Individual windows that are ganged to make multiple units require that the heads be continuously flashed and/or the joints between the units must be fully sealed.
 5. Decks:

Decks must be properly flashed prior to system application.
The system must be terminated a minimum of 1" (25 mm) above all decks, patios and sidewalks, etc.
Utilities: The system must be properly terminated at all lighting fixtures, electrical outlets, hose bibs, dryer vents, etc.
Roof: Verify that all roof flashings have been installed in accordance with the guidelines set forth by the Asphalt Roofing Manufacturers Association (ARMA).
Kick-out flashing must be leak-proof and angled (min 100 degrees) to allow for proper drainage and water diversion.
1. Do not proceed until all unsatisfactory conditions have been corrected.
 2. Installation of Senergy CBS 1000 is limited to residential and low rise commercial and institutional construction.
 3. Supplemental framing/blocking may be required to secure cement board at vertical control/expansion joints.

3.2 PREPARATION

1. Protect all surrounding areas and surfaces from damage and staining during application of Senergy Cement-Board Stucco 1000 System.
2. Protect finished work at end of each day to prevent water penetration.

3. Prepare substrates in accordance with manufacturer's instructions.

3.3 MIXING

1. General: No additives are permitted unless specified in product mixing instructions. Close containers when not in use. Prepare in a container that is clean and free of foreign substances. Do not use a container which has contained or been cleaned with a petroleum-based product. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically. B. Air/Water-Resistive Barriers:
 1. WS FIL & SENERSHIELD-R/RS/VB: Mix with a clean, rust-free paddle and drill until thoroughly blended. Do not add water.
 2. Cold Temperature Additive: LT ADDITIVE: Pour the entire contents of one (1) bottle of LT ADDITIVE into one (1) full pail of SENERSHIELD-R/RS/VB. Mix with a clean, rustfree paddle and drill until fully blended.
2. Senergy Base Coat:
 1. ALPHA Base Coat: Mix base coat with a clean, rust-free paddle and drill until thoroughly blended, before adding Portland cement. Mix one-part (by weight) Portland cement with one-part basecoat. Add Portland cement in small increments, mixing until thoroughly blended after each additional increment. Clean, potable water may be added to adjust workability.
 2. XTRA-STOP Base Coat: Mix base coat with a clean, rust-free paddle and drill until thoroughly blended, before adding Portland cement. Mix one-part (by weight) Portland cement with one-part base coat. Add Portland cement in small increments, mixing until thoroughly blended after each additional increment. Clean, potable water may be added to adjust workability.
 3. ALPHA GENIE Base Coat: Mix base coat with a clean, rust-free paddle and drill until thoroughly blended, before adding Portland cement. Mix one-part (by weight) Portland cement with one-part base coat. Add Portland cement in small increments, mixing until thoroughly blended after each additional increment. Clean, potable water may be added to adjust workability.
 4. ALPHA DRY Base Coat: Mix and prepare each bag in a 5-gallon pail. Fill the container with approximately 1.5-gallons of clean, potable water. Add ALPHA DRY Base Coat in small increments, mixing after each additional increment. Mix ALPHA DRY Base Coat and water with a clean, rust-free paddle and drill until thoroughly blended. Additional ALPHA DRY Base Coat or water may be added to adjust workability.
3. TINTED PRIMER: Mix the factory-prepared material with a clean, rust-free paddle and drill until thoroughly blended. A small amount of clean, potable water may be added to adjust workability. Do not overwater.
4. Senergy Finishes: SENERFLEX TERSUS, CHROMA Finish - Mix the factory-prepared material with a clean, rust-free paddle and drill until thoroughly blended. A small amount of clean, potable water may be added to adjust workability. Do not over water.

3.4 APPLICATION

A. Accessories:

Attach Window/Door Drip Edge level and per manufacturer's instructions.

Attach starter track per manufacturer's instructions and Senergy CBS 1000 Typical Details.

1. Air/Water-Resistive Barrier:
 1. Senergy Air/Water Resistive Barrier:
 - a. All sheathing joints and windows/openings must be protected, and the air/water- resistive barrier applied in accordance with Air/WaterResistive/Vapor Barrier Application Guideline technical bulletin.
 - b. Substrate shall be dry, clean, sound, and free of releasing agents, paint, or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 1/4" in 10' (6.4 mm in 3 m).
 - c. Unsatisfactory conditions shall be corrected before application of the Senergy air/water-resistive barriers.
 - d. Apply the SHEATHING FABRIC and Senergy air/water-resistive barrier in accordance with the Senergy air/water-resistive barrier product bulletin.
 - e. Apply the MAXFLASH in accordance with the product bulletin.
 - f. Installed materials shall be checked before continuing system application.
 - g. Ensure the Senergy air/water-resistive barrier or MAXFLASH overlaps the top flange off he starter track.
 2. Water-Resistive Barrier (By Others):
 - a. Install according to the specific water resistive barrier manufacturer's specifications and all applicable building code requirements. The water resistive barrier shall be free of any damage such as holes or breaks and must be applied to all surfaces to receive the Senergy CBS 1000 Wall System. Wrap the water resistive barrier into rough openings (doors, windows, etc.) in accordance with Senergy's Secondary Moisture Protection Barrier Guidelines bulletin to increase the level of moisture protection to the building frame and interior. Coordinate work with other trades to assure proper sequencing, detailing and installation of materials.
2. DRAINAGE MAT: Apply horizontally or vertically over Senergy Air/Water-Resistive Barrier ensuring it is free of wrinkles. Abut all vertical and horizontal edge and Secure DRAINAGE MAT to substrate with sufficient building staples or galvanized nails to remain in place prior to application of insulation board.
3. Cement Board: Install cement board over secondary weather barrier, securely fastened, per manufacturers' recommendations, applicable building code and project requirements.
4. Trim Accessories: Install per manufacturer's recommendations. Refer to Senergy's Cement- Board Stucco Trim and Accessories bulletin for accessory placement. F. SELF-ADHERING MESH TAPE (4"):
 1. Center the SELF-ADHERING MESH TAPE (4") over all cement board joints and terminations and firmly press while unrolling.
 2. Ensure it is continuous, void of wrinkles. Overlap SELF-ADHERING MESH TAPE a minimum 2 1/2".
 3. Apply mixed Base Coat to surface of SELF-ADHERING MESH TAPE by troweling from the center to the edges.

4. Allow Base Coat and SELF-ADHERING MESH TAPE to dry prior to application of Senergy Reinforcing Mesh and Base Coat. G. Senergy CORNER MESH:
 5. Install at corners.
 6. Apply CORNER MESH prior to application of reinforcing mesh.
 7. Cut CORNER MESH to workable lengths.
 8. Apply mixed Senergy Base Coat to insulation board at outside corners using a stainless-steel trowel.
 9. Immediately place CORNER MESH against the wet base coat and embed the CORNER MESH into the base coat by troweling from the corner; butt edges and avoid wrinkles.
 10. After base coat is dry and hard, apply a layer of selected Senergy Reinforcing Mesh over the entire surface of the CORNER MESH.
5. Reinforcing Mesh: Standard or Medium Impact Resistance Reinforcing Mesh: FLEXGUARD 4 INTERMEDIATE 6 and INTERMEDIATE 12:
 1. Install Senergy Reinforcing Mesh where indicated on drawings.
 2. Apply mixed Senergy Base Coat to entire surface of the cement board with a stainless- steel trowel to embed the reinforcing mesh.
 3. Immediately place Senergy Reinforcing Mesh against wet base coat and embed the reinforcing mesh into the base coat by troweling from the center to the edges.
 4. Lap reinforcing mesh 2 ½" minimum at edges.
 5. Ensure reinforcing mesh is continuous at corners, void of wrinkles and embedded in base coat so that no reinforcing mesh color is visible.
 6. If required, apply a second layer of base coat to achieve total nominal base coat/reinforcing mesh thickness of 1/16" .
 7. Allow base coat with embedded reinforcing mesh to dry hard (normally 8 to 10 hours).
6. COLOR COAT:
 1. Apply material to the base coat/reinforcing mesh in sealant joints with a high quality, latex-type paintbrush. Work material continuously until a uniform appearance is obtained.
 2. Allow to dry thoroughly (approximately 24 hours) prior to application of sealant primer and sealant. J. TINTED PRIMER:
 3. Apply Primer to the base coat/reinforcing mesh with a sprayer, ¾"-inch nap roller, or good quality latex paint brush at a rate of approximately 150-250 ft² per gallon.
 4. Primer shall be dry to the touch before proceeding to the Senergy Finish coat application.
7. Senergy Finish Coat: SENERFLEX, SENERFLEX TERSUS and CHROMA.
 1. Apply Senergy Finish directly to the base coat with a clean, stainless steel trowel.
 2. Apply and level Senergy Finish during the same operation to minimum obtainable thickness consistent with uniform coverage.
 3. Maintain a wet edge on Senergy Finish by applying and texturing continually over the wall surface.
 4. Work Senergy finish to corners, joints or other natural breaks and do not allow material to set up within an uninterrupted wall area.
 5. Float Senergy Finish to achieve final texture.

3.5 CLEANING

1. Clean adjacent surfaces and remove excess material, droppings, and debris.

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3.6 PROTECTION

1. Protect base coat from rain, snow and frost for 48 - 72 hours following application.

END OF SECTION 072423

SECTION 072600 - VAPOR RETARDERS

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Polyethylene vapor retarders.

1.2 ACTION SUBMITTALS

1. Product Data:
 1. Polyethylene vapor retarders.

1.3 INFORMATIONAL SUBMITTALS

1. Product Test Reports: For each product, for tests performed by a qualified testing agency.

PART 2 - PRODUCTS

2.1 POLYETHYLENE VAPOR RETARDERS

1. Polyethylene Vapor Retarders: ASTM D4397, 10-mil- thick sheet, with maximum permeance rating of 0.1 perm.

2.2 ACCESSORIES

1. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
2. Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and has demonstrated capability to bond vapor retarders securely to substrates indicated.
3. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

PART 3 - EXECUTION

3.1 PREPARATION

1. Clean substrates of substances that are harmful to vapor retarders, including removing projections capable of puncturing vapor retarders.

3.2 INSTALLATION OF VAPOR RETARDERS ON FRAMING

1. Place vapor retarders on side of construction indicated on Drawings.
2. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives, vapor retarder fasteners, or other anchorage system as recommended by manufacturer. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.
3. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

3.3 Seal around penetrations such as utilities and columns in order to create a monolithic, airtight membrane at grade surface, perimeter, and all vertical penetrations.

3.4 PROTECTION

1. Protect vapor retarders from damage until concealed by permanent construction.

END OF SECTION

SECTION 072726 - AIR AND WATER BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Vapor-permeable, fluid-applied air/water barriers.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 QUALITY ASSURANCE

1. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
2. The following standards and publications are applicable to the extent referenced in the text. The most recent version of these standards is implied unless otherwise stated.
American Society for Testing and Materials (ASTM)
 1. C 836 Standard Specification for High Solids, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course
 2. D 412 Standard Test Methods for Rubber Properties in Tension
 3. D 903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
 4. D 1644 Test Methods for Non-volatile Content of Varnishes
 5. D 1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
 6. D 4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
 7. E 96 Test Methods for Water Vapor Transmission of Materials
 8. E 283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 9. E 2178 Standard Test Method for Air Permeance of Building Materials
 10. E 2357 Standard Test Method for Determining Air Leakage of Air Barrier
 11. D 3767 Standard Practice for Rubber - Measurements of Dimensions

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Air-Barrier Performance: Air-barrier assembly and seals with adjacent construction shall be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
2. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft., when tested according to ASTM E 2357.
3. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load. D. It shall be durable or maintainable.
4. The air barrier shall be joined in an airtight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep. Connection shall be made between:
 1. Foundation and walls.
 2. Walls and windows or doors.
 3. Different wall systems.
 4. Wall and roof.
 5. Wall and roof over unconditioned space.
 6. Walls, floor and roof across construction, control and expansion joints.
 7. Walls, floors and roof to utility, pipe and duct penetrations.
5. All penetrations of the air barrier and paths of air infiltration/exfiltration shall be made airtight.

2.2 VAPOR-PERMEABLE, FLUID-APPLIED AIR/WATER BARRIER A. Air/Water-Resistive Barrier Components:

1. A one-component fluid-applied vapor permeable air/water-resistive barrier. Basis of Design: Senergy SENERSHIELD-R Air and Water Barrier, or an approved equivalent by one of the following:
 1. Grace Construction Products
 2. Henry Company
 3. W.R. Meadows, Inc
 - a. Rough Opening and Joint Treatment:
2. MAXFLASH: A one-component elastomeric material for use as a flexible flashing membrane
 1. Transitional Membrane/Expansion Joint Flashing:
3. WS FLASH: 30-mil thick, self-adhering composite membrane of polyester fabric and rubberized asphalt.

4. FLASHING PRIMER: A water-based primer for use prior to application of WS FLASH on all acceptable surfaces.

2.3 ACCESSORIES

1. Sprayed Polyurethane Foam Sealant: 1- or 2- component, foamed-in-place, polyurethane foam sealant, 1.5 to 2.0 ;b/cu. ft. density; flame spread index of 25 or less according to ASTM E162; with primer and noncorrosive substrate cleaner recommended by foam sealant manufacturer,
2. Joint Sealant: reference Acceptable Sealant for use with Senergy Air/Water-Resistive Barriers Technical Bulletin or approved equal per manufacturers standards.

PART 3 - EXECUTION

3.1 EXAMINATION A. Walls

1. Substrates: Roller applied air/water-resistive barrier acceptable substrates: Acceptable substrates are: PermaBase® Cement Board and other cementboards conforming with ASTM C1325 (Type A- exterior); poured concrete/unit masonry; ASTM C1177 type sheathings, including, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, eXP™ sheathing,
2. GlasRoc® sheathing, Securock™ glass-mat sheathing, and DensGlass® exterior sheathing; gypsum sheathing (ASTM C79/C1396); Exposure I or exterior plywood (Grade C/D or better); or Exposure I OSB. Consult the BASF Wall Systems Technical Services Department for all other applications.
3. Wall sheathing must be securely fastened per applicable building code and
4. Sheathing manufacturer's requirements.
5. Examine surfaces to receive SENERSHIELD-R air/water resistive barrier and verify that substrate and adjacent materials are dry, clean, sound, and free of releasing agents, paint, or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 6.4 mm in 3 m (1/4" in 10').
6. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263.
7. Verify that masonry joints are struck flush and completely filled with mortar.

Flashings

9. All flashings are by others and must be installed in accordance with specific
10. manufacturer's requirements. Where appropriate, end-dams must be provided.

11. Openings must be flashed prior to window/door, HVAC, etc. installation. Refer to WS FLASH product bulletin and the Moisture Protection Guidelines for Senerflex Wall Systems bulletin for further information.
12. Windows and openings shall be flashed according to design and Building Code Requirements.
13. Individual windows that are ganged to make multiple units require continuous head flashing and the joints between the units must be fully sealed.

Roof:

14. Verify that all roof flashings have been installed in accordance with the guidelines set by the Asphalt Roofing Manufacturers Association (ARMA). D.

Kick-out flashing:

15. Kick-out flashing must be installed leak-proof and angled (min 100°) to allow for proper drainage and water diversion.
- E. Do not proceed until all unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Protect all surrounding areas and surfaces from damage and staining during application of Senergy SENERSHIELD-R Air/Water-Resistive Barrier.
2. Protect finished work at end of each day to prevent water penetration.
3. Substrate preparation: Prepare substrates in accordance with Senergy instructions.

3.3 MIXING

1. General: No additives are permitted unless specified in product mixing instructions. Close containers when not in use. Prepare in a container that is clean and free of foreign substances. Do not use a container which has contained or been cleaned with a petroleum-based product. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.
2. SENERSHIELD-R: Mix with a clean, rust-free paddle and drill until thoroughly blended. Do not add water.
3. Cold Temperature Additive: LT ADDITIVE: Pour the entire contents of one (1) bottle of LT ADDITIVE into one (1) full pail of SENERSHIELD-R. Mix with a clean, rust-free paddle and drill until fully blended.

3.4 APPLICATION

1. Air/Water Resistive Barrier:
 1. Substrate shall be installed per substrate manufacturer's instructions. Substrate shall be dry, clean, sound and free of release agents, paint or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 6.4 mm in 3 m (1/4" in 10'). Unsatisfactory conditions shall be reported to the general contractor and corrected before application of the air/water-resistive barrier materials.
 2. Rough Opening:
 - a. Apply a bead of MAXFLASH in each corner of the rough opening, ensuring that corners are fully sealed. Where wood bucks are used, apply a bead of MAXFLASH into gaps between bucks and between the buck and building structure. Apply additional MAXFLASH in a zigzag pattern onto head, sill, jambs and exterior substrate. Spread MAXFLASH evenly across the rough opening to form a uniform, continuous, void and pinhole-free membrane with a 12-20 mil thickness. Extend MAXFLASH membrane minimum 4 inches onto the exterior wall, maintaining 12-20 mil thickness. Extend MAXFLASH at a minimum 4 inches onto the exterior wall, maintaining 12-20 mil thickness.
 - b. Allow MAXFLASH to skin before applying BASF fluid-applied air/water-resistive barrier to sheathing. Lap the air/water-resistive barrier a minimum of 2 inches onto MAXFLASH, creating a continuous, monolithic air/waterresistive barrier membrane. Allow MAXFLASH to cure prior to the installation of windows, doors and other wall assemblies.
3. Sheathing Joints:
 - a. SHEATHING FABRIC: Spot all fasteners and precoat sheathing joints, terminations, inside and outside corners with mixed SENERSHIELD-R using a 101 mm (4") wide by 20 mm (3/4") nap roller, brush or spray. Immediately place and center SHEATHING FABRIC over wet SENERSHIELD-R at all sheathing joints, terminations, inside and outside corners, as well as knot holes and check cracks that may exist in plywood or OSB. Ensure SHEATHINGFABRIC extends evenly on both sides of the sheathing joint. Completely saturate SHEATHING FABRIC with SENERSHIELD-R. Lap SHEATHING FABRIC 63.5 mm (2 1/2") minimum at intersections. If using roller, brush, or trowel application, allow to dry to the touch before applying Senersshield-R to entire wall surface. If spraying, "wet on wet" application is acceptable.
 - b. Apply a thick bead of MAXFLASH to sheathing joints. Spread MAXFLASH evenly a minimum of 1-inch beyond the joint on either side. Apply 20 mils of MAXFLASH across the sheathing joint. Spot fastener heads with MAXFLASH or BASF fluid-applied air/water-resistive barrier. Allow MAXFLASH to skin before applying BASF fluid-applied air/water-resistive barrier to sheathing.
4. Field of Substrate:
 - a. Apply SENERSHIELD-R to DensGlass exterior sheathing with a 20 mm (3/4") nap roller, stainless steel trowel, brush or spray gun to a consistent, minimum 10 wet mil thickness that is free of voids and pin holes. A fully loaded roller pad is required to obtain a consistent, minimum 10 wet mil thickness. Back rolling may be needed to produce a pinhole- free film. Note: Refer to Spray Application technical bulletin for spray application equipment and application instructions.
5. Transition Membrane Installation
 - a. Install SENERSHIELD-R / SHEATHING FABRIC and/or WS FLASH/FLASHING PRIMER and sealant in accordance with project details & specifications to form a seal with adjacent construction and maintain a continuous air/water-resistive barrier.

- a. General Contractor shall make provision to coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
- b. General Contractor shall make provision to install strip on roofing membrane or base flashing so that a minimum of 75 mm (3") of coverage is achieved over both substrates.
 - 1) Apply FLASHING PRIMER to substrates scheduled to receive transition membrane as required and at required amount. Apply membrane as soon as possible after FLASHING PRIMER is dry and tacky. Limit priming to areas that will be covered with WS FLASH on the same day. Re-prime areas exposed for more than 24 hours. Using a wallpaper roller, extension-handled counter top roller or weighted hand roller, firmly roll the WS FLASH to the area being sealed. As the WS FLASH is applied, pull more of the release film from the WS FLASH, exposing the adhesive surface, pressing down on the WS FLASH with a roller and keeping the WS FLASH smooth.

3.5 FIELD QUALITY CONTROL

1. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections and prepare test reports.
2. Inspections: Air barrier materials and installation are subject to inspection for compliance with requirements. Inspections may include the following:
 1. Continuity of air barrier system has been achieved throughout the building envelope with no gaps or holes.
 2. Continuous structural support of air barrier system has been provided.
 3. Masonry and concrete surfaces are smooth, clean and free of cavities, protrusions, and mortar droppings.
 4. Site conditions for application temperature and dryness of substrates have been maintained.
 5. Maximum exposure time of materials to UV deterioration has not been exceeded.
 6. Surfaces have been primed, if applicable.
 7. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fish mouths.
 8. Termination sealant has been applied on cut edges.
 9. Strips and transition strips have been firmly adhered to substrate.
 10. Compatible materials have been used.
 11. Transitions at changes in direction and structural support at gaps have been provided.
 12. Connections between assemblies (membrane and sealants) have complied with requirements for cleanliness, preparation and priming of surfaces, structural support, integrity, and continuity of seal.
 13. All penetrations have been sealed.
3. Tests: Testing to be performed will be determined by Owner's testing agency from among the following tests:
 1. Qualitative Testing: Air barrier assemblies will be tested for evidence of air leakage according to ASTM E1186, smoke pencil with pressurization or depressurization.

4. Remove and replace deficient air barrier components and retest as specified above.

3.6 CLEANING AND PROTECTION

1. Protect air barrier system from damage during application and remainder of construction period.
2. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace air barrier exposed for more than 90 days.
3. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.
4. Remove masking materials after installation.

END OF SECTION 072726

SECTION 074213 - METAL WALL PANELS

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. Concealed-fastener, metal wall panels.

1.3 PREINSTALLATION MEETINGS

Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of doors, windows, and louvers.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that affect metal panels.
6. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
7. Review temporary protection requirements for metal panel assembly during and after installation.
8. Review of procedures for repair of metal panels damaged after installation.
9. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

1. Product Data: For each type of product.
 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
 - a. Shop Drawings:
2. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
3. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.
Samples for Initial Selection: For each type of metal panel indicated with factory applied finishes.
4. Include Samples of trim and accessories involving color selection.
 1. Samples for Verification: For each type of exposed finish, prepared on Samples of size indicated below:
5. Metal Panels: 12 inches long by actual panel width. Include fasteners, closures, and other metal panel accessories.

1.5 INFORMATIONAL SUBMITTALS

1. Qualification Data: For Installer.
2. Product Test Reports: For each product, for tests performed by a qualified testing agency.
3. Field quality-control reports.
4. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

1. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
2. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 1. Build mockup of typical metal panel assembly as shown on Drawings, including corner, supports, attachments, and accessories.

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.

1.8 DELIVERY, STORAGE, AND HANDLING

1. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
2. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
3. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
4. Retain strippable protective covering on metal panels during installation.

1.9 FIELD CONDITIONS

1. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.10 COORDINATION

1. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

1. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
2. Structural failures including rupturing, cracking, or puncturing.
3. Deterioration of metals and other materials beyond normal weathering.
 1. Warranty Period: Two years from date of Substantial Completion.
4. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
5. Color fading more than 5 Delta E units when tested according to ASTM D2244.
6. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
7. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 1. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
 1. Wind Loads: As indicated on Drawings.
 2. Other Design Loads: As indicated on Drawings.
 - a. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E283 at the following test-pressure difference:
2. Test-Pressure Difference: 6.24 lbf/sq. ft.
Water Penetration under Static Pressure: No water penetration when tested according to ASTM E331 at the following test-pressure difference:
3. Test-Pressure Difference: 6.24 lbf/sq. ft.
Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
4. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
5. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 WOOD-LOOK METAL WALL PANELS

1. A. Basis-of-Design Product: Subject to compliance with requirements, provide Knotwood; a brand of OmniMax International; or comparable product by one of the following: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
2. LUX Architectural Products.

3. Aluminum Sheet: Coil-coated sheet, ASTM B209, alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
4. Finish: Manufacturer's standard powder coating.
 - A. Color: Wood Grain, as selected by Architect from Manufacturers full range.

Metal Panel Accessories:

- E. Provide complete metal panel assembly including trim, copings, fascia, sills, factory fabricated one-piece inside and outside corners, jambs, and miscellaneous flashings. Include required fasteners, gaskets, closure strips, and sealants.
- F. Provide Manufactures recommended vented hat Channels for rainscreen systems.
- G. Fabricate accessories listed above from materials matching panels.
- H. Finish exposed trim and extrusions to match panels.

2.3 CONCEALED-FASTENER, LAP-SEAM METAL WALL PANELS

Provide factory-formed metal panels designed to be field assembled by lapping and interconnecting edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners and factory-applied sealant in side laps. Include accessories required for weathertight installation.

Corrugated Profile, Concealed-Fastener Metal Wall Panels: Formed with interlocking edges.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Berridge HR-16 Panels, or comparable product by one of the following:
 - a. MBCI; a division of NCI Group, Inc.
2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
Nominal Thickness: 0.034 inch.
Exterior Finish: Two-coat fluoropolymer.
Color: As selected by Architect from manufacturer's full range.
3. Panel Coverage: 16 inches.
4. Panel Height: .875 inch.

2.4 MISCELLANEOUS MATERIALS

Miscellaneous Metal Subframing and Furring: ASTM C645, cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 coating designation or ASTM A792/A792M, Class AZ50 aluminum-zinc-alloy coating designation unless otherwise indicated. Provide

manufacturer's standard sections as required for support and alignment of metal panel system.

Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.
4. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
5. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
6. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
7. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.5 FABRICATION

Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factoryformed

panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.

Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
3. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 1. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.6 FINISHES

Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples.

Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast. C. Aluminum Panels and Accessories:

1. Wood Look, Fluoropolymer: AAMA 621. Two-coat fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 1. Color: As selected by Architect from Manufacturer's full range.
2. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.
 - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION

A. Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
3. Install screw fasteners in predrilled holes.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.

7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with selftapping screws.
8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

Fasteners:

9. Use stainless steel fasteners.

Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

Watertight Installation:

10. Apply a continuous ribbon of sealant or tape to seal lapped joints of metal panels, using sealant or tape as recommend by manufacturer on side laps of nesting-type panels; and elsewhere as needed to make panels watertight.

11. Provide sealant or tape between panels and protruding equipment, vents, and accessories.

12. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.

Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

13. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal wall panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.

Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.

14. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof performance.

15. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

3.4 FIELD QUALITY CONTROL

Testing Agency: Engage a qualified testing agency to perform tests and inspections.

Water-Spray Test: After installation, test area of assembly as directed by Architect for water penetration according to AAMA 501.2.

Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect completed metal wall panel installation, including accessories.

Remove and replace metal wall panels where tests and inspections indicate that they do not comply with specified requirements.

Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements. F. Prepare test and inspection reports.

3.5 CLEANING AND PROTECTION

Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074213

SECTION 075216.15 - (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section Includes:
 1. Styrene-butadiene-styrene (SBS)-modified bituminous membrane roofing on metal deck including but not limited to:
 - a. Roof insulation.
 - b. Roof membrane and membrane base flashings.
 - c. Roof consisting of mineral granulated cap sheet.

1.3 ACTION SUBMITTALS

1. Product Data: For each type of product.
2. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:
 1. Base flashings and membrane terminations.
 2. Tapered insulation, including slopes.
 3. Crickets, saddles, and tapered edge strips, including slopes.
 4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
3. Samples for Verification: For the following products:
 1. Cap sheet, of color required.
 2. Flashing sheet, of color required.
 3. Aggregate surfacing material in gradation [and color] required.
 4. Walkway pads or rolls, of color required.

1.4 BID SUBMITTALS

1. Qualification Data: For Installer.
2. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 1. The Bid shall include a signed letter from approved manufacturer stating qualification by the manufacturer to install manufacturer's product and furnish warranty of type specified.
 2. The Bid shall include a 20 year sample warranty from the manufacturer covering Work of this Section.

3. Field quality-control reports.
4. Sample Warranties: For manufacturer's special warranties.

1.5 CLOSEOUT SUBMITTALS

1. Maintenance Data: For roofing system to include in maintenance manuals.

1.6 QUALITY ASSURANCE

1. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.
2. Manufacturer Qualifications: Approved manufacturer with UL listed roofing systems comparable to those specified for this Project, with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements
 1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within 48 hours after the prebid meeting to allow time for substitution review:
 - a. Product data, including certified independent test data indicating compliance with requirements.
 - b. Samples of each component.
 - c. Sample submittal from similar project.
 - d. Project references: Minimum of five installations of specified products not less than five years old, with Owner and Architect contact information.
 - e. Sample 20 year warranty.
 - f. Letter signed by company officer indicating procurement of full-time roofing inspector covering Work of this Section.
 2. Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements.
 3. Approved manufacturers must meet separate requirements of Submittals Article.
3. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 1. An authorized full-time technical employee of the manufacturer.
 2. An independent party certified as a Registered Roof Observer by IBEC, Inc., retained by the Contractor or the Manufacturer and approved by the Manufacturer.

4. Manufacturer's Installation Instructions: Obtain and maintain on-site access to manufacturer's written instructions for installation of products.
5. Preinstallation Roofing Conference: Conduct conference at Project site.
 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 5. Review structural loading limitations of roof deck during and after roofing.
 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.

1.7 DELIVERY, STORAGE, AND HANDLING

1. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
2. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
3. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
4. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

1. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

2. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecasted.
 1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.
 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
 3. Remove temporary plugs from roof drains at end of each day.
 4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.9 WARRANTY

1. Warranty, General: Warranties specified 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.
2. Manufacturer's Warranty: Manufacturer's standard or customized form, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
 1. No Dollar Limit (NDL) Warranty Period: 20 years from date of completion. Required interval renewal periods not permitted; Warranty period shall be continuous.
3. Installer's Warranty: Submit roofing installer's warranty, on warranty form at end of this Section, signed by installer, covering the Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:
 1. Warranty Period: Two years from date of Substantial Completion.
4. Manufacturer's Inspection Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum.
 1. Inspections to occur in the following years subsequent to completion: 2, 5, 10, and 15.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Manufacturers: Subject to compliance with requirements, provide products by a manufacturer meeting qualification requirements in Quality Assurance Article.
2. Basis-of-Design Manufacturer/Product: The roof system specified in the Section is based upon products of Tremco, Inc., www.tremcoroofing.com, named in other Part 2 articles. Subject to compliance with requirements, provide the named product or a comparable product approved by Architect.

2.2 PERFORMANCE REQUIREMENTS

1. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
2. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
3. Roofing System Design: Provide roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency in accordance with ANSI/FM 4474, UL 580, or UL 1897, and to resist uplift pressures.
 1. All Zones (Corner, Perimeter, and Field-of-Roof) Uplift Pressures:
 - a. As indicated on drawings.
4. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressures:
 1. Basis of Design product: Tremco CPG, Inc., TremLock Infinity Gold Coping
5. Flashings and Fastening: Comply with requirements of Division 07 Sections "Sheet Metal Flashing and Trim" and "Roof Specialties". Provide base flashings, perimeter flashings, detail flashings, and component materials and installation techniques that comply with requirements and recommendations of the following:
 1. NRCA Roofing Manual for construction details and recommendations.
 2. SMACNA Architectural Sheet Metal Manual for construction details.
6. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

2.3 ROOFING MEMBRANE SHEETS, SBS-MODIFIED BITUMEN MECHANICALLY ATTACHED

1. Base Ply: ASTM D 6163 Type III, Grade S SBS-modified, asphalt-coated base sheet reinforced with a composite glass fiber mat / glass fiber scrim and dusted with fine mineral surfacing on both sides.
 1. Basis of design product: Tremco, POWERply Heavy Duty Base Sheet.
 2. Tensile Strength at 0 deg. F, minimum, ASTM D 5147: machine direction, 220 lbf/in; cross machine direction, 190 lbf/in.
 3. Elongation at 0 deg. F, minimum, ASTM D 5147: machine direction 3.0 percent; cross machine direction, 3.5 percent.
 4. Tear Strength at 77 deg. F, minimum, ASTM D 5147: machine direction, 220 lbf; cross-machine direction, 240 lbf.
 5. Low Temperature Flexibility, minimum, ASTM D 5147: 0 deg. F.
 6. Thickness, minimum, ASTM D 5147: 0.120 inch.

2.4 ROOFING MEMBRANE CAP SHEETS, SBS-MODIFIED BITUMEN

1. SBS/RET/Urethane-modified asphalt-coated glass-fiber-reinforced high-tensile strength sheet, white granular surfaced, ASTM D6163 Type III Grade G .
 1. Basis of design product: Tremco, POWERply Endure 100 FR.
 2. Tensile Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction 185 lbf/in (32 kN/m); Cross machine direction 210 lbf/in (35 kN/m).
 3. Tear Strength at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction, 325 lbf; Cross machine direction 325 lbf.
 4. Elongation at 77 deg. F (25 deg. C), minimum, ASTM D5147: Machine direction 6 percent; Cross machine direction 8 percent.
 5. Low Temperature Flex, maximum, ASTM D5147: Machine Direction, -40 deg. F (-40 deg. C); Cross machine direction -35 deg. F (-37 deg.C).
 6. Granule Retention, maximum, ASTM D4977: 0.2 g loss per sample.
 7. Thickness, minimum, ASTM D5147: 0.130 inch.

2.5 BASE FLASHING SHEET MATERIALS

1. Flashing Sheet: Same as cap sheet.
2. Fluid-Applied Flashing Material:
 1. Polyurethane roof coating system base coat, bio-based, low-odor low-VOC two-part, for use with a compatible top coat.
 - a. Basis of design product: Tremco, AlphaGuard BIO Base Coat.
 - b. Combustion Characteristics, UL 790: Class A, for two-coat system.
 - c. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 1 g/L.
 - d. Accelerated Weathering, 5000 hours, ASTM G 154: Pass.
 - e. Hardness, Shore A, minimum, ASTM D 2240: 88.
 - f. Solids, by volume, ASTM D 2697: 100 percent.
 - g. Bio-Based Content: Not less than 70 percent.
 2. Polyurethane roof coating system top coat, bio-based low-odor low-VOC two-part, for application over compatible base coat.
 - a. Basis of design product: Tremco, AlphaGuard BIO Top Coat.
 - b. Combustion Characteristics, UL 790: Class A, for two-coat system.
 - c. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 6 g/L.
 - d. Solar Reflectance Index (SRI), ASTM E 1980: 103.
 - e. Accelerated Weathering, 5000 hours, ASTM G 154: Pass.
 - f. Hardness, Shore A, minimum, ASTM D 2240: 82.
 - g. Solids, by volume, ASTM D 2697: 85 percent.
 - h. Bio-Based Content: Not less than 60 percent.
 3. Polyester Reinforcing Fabric: 100 percent stitch-bonded mildew-resistant polyester fabric intended for reinforcement of compatible fluid-applied membranes and flashings.
 - a. Basis of design product: Tremco, Permafab.
 - b. Tensile Strength, ASTM D 1682: Not less than 50 lbf. (222 N).
 - c. Elongation, ASTM D 1682: Not less than 60 percent.
 - d. Tear Strength, ASTM D 1117: Not less than 16 lbf. (70 N).
 - e. Weight: 3 oz./sq. yd.

3. Detail Fabric:

1. Polyester Reinforcing Fabric: 100 percent stitch-bonded mildew-resistant polyester fabric intended for reinforcement of compatible fluid-applied membranes and flashings.
 - a. Basis of design product: Tremco, Permafab.
 - b. Tensile Strength, ASTM D 1682: Not less than 50 lbf. (222 N).
 - c. Elongation, ASTM D 1682: Not less than 60 percent.
 - d. Tear Strength, ASTM D 1117: Not less than 16 lbf. (70 N).
 - e. Weight: 3 oz./sq. yd.

2.6 AUXILIARY ROOFING MATERIALS

1. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
2. Cold-Applied Adhesive Materials:
 1. Roofing Sheet Adhesive:
 - a. Cold-applied bio-based low odor urethane roofing adhesive, two-part, USDA BIO Preferred, formulated for compatibility and use with specified roofing membranes and flashings.
 - 1) Basis of design product: Tremco, POWERply Endure BIO Adhesive TF (PEBA).
 - 2) Volatile Organic Compounds (VOC), maximum, ASTM D 3690: 1 g/L.
 - 3) Low Temperature Flexibility, ASTM D 2240: 88 Shore A.
 - 4) Solids, by Volume, ASTM D 2697: 100 percent.
 - 5) Biobase Content, ASTM D 6866: Not less than 70 percent.
3. Joint Sealant: Elastomeric joint sealant compatible with roofing materials, with movement capability appropriate for application.
 1. Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.
 - a. Basis of design product: Tremco, TremSEAL Pro.
 - b. Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.
 - c. Hardness, Shore A, ASTM C661: 40.
 - d. Adhesion to Concrete, ASTM C794: 35 pli.
 - e. Tensile Strength, ASTM D412: 350 psi.
 - f. Color: Closest match to substrate.
4. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
5. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve, color to match roofing.

6. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

2.7 COVER BOARDS

1. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Georgia Pacific Corporation; Dens Deck.
 - b. USG Corporation; Securock Gypsum Fiber Roof Board.
2. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening substrate board to roof deck.

2.8 ROOF INSULATION

1. General: Preformed roof insulation boards approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
2. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, approved and listed by FM Global for windstorm and fire characteristics specified, CFC- and HCFC- free, with recycled content glass-fiber mat facer on both major surfaces. CCMC listed.
 1. Basis of design product: Tremco, Trisotech.
 2. Compressive Strength, ASTM C1621: Grade 2: 20 psi.
 3. Conditioned Thermal Resistance at 75 deg. F: 14.4 at 2.5 inchesthick.
3. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.
4. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.9 INSULATION ACCESSORIES

1. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.
2. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
3. Insulation Cant Strips: ASTM C 728, perlite insulation board.
4. Insulation Cant Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
5. Tapered Edge Strips: ASTM C 728, perlite insulation board.

6. Tapered Edge Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.

2.10 WALKWAYS

1. Walkway Pads: Mineral-granule-surfaced, reinforced asphaltic composition, slip-resisting pads, manufactured as a traffic pad for foot traffic and acceptable to roofing system manufacturer, 1/2 inch thick, minimum.
 1. Basis of design product: Tremco, Trem-Tred.
 2. Flexural Strength at max. load, minimum, ASTM C 203: 218 psi.
 3. Granule adhesion (weight loss), maximum, ASTM D 4977: 1.1 gram.
 4. Impact Resistance at 77 deg. F, ASTM D 3746: No Damage to Roof.
 5. Pad Size: 3 by 4 foot.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 3. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
2. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
3. Prime surface of concrete deck with asphalt primer at a rate of application recommended in writing by manufacturer for substrate type and condition.
4. Install insulation strips in ribs of acoustical roof decks according to acoustical roof deck manufacturer's written instructions.

3.3 INSTALLATION, GENERAL

1. Comply with roofing system manufacturer's written instructions.
2. Substrate-Joint Penetrations: Prevent roofing asphalt and adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.4 INSULATION INSTALLATION

1. Install one lapped base-sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions.
2. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing system with vertical surfaces or angle changes greater than 45 degrees.
3. Install tapered insulation under area of roofing to conform to slopes indicated.
4. Install insulation with long joints of insulation in a continuous straight line, with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
5. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
6. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
7. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
8. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.
9. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction. Loosely butt cover boards together. Tape joints if required by roofing system manufacturer.
 1. Fasten cover boards to resist uplift pressure at corners, perimeter, and field of roof.

3.5 ROOFING INSTALLATION, GENERAL

1. Install roofing system according to roofing system manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:
 1. Number of Smooth Surfaced SBS Modified Asphalt Base Ply Sheets: One
 - a. Adhering Method: Mechanically fastened
 2. Granular Surfaced SBS Modified Asphalt Cap Sheet:
 - a. Adhering Method: Cold Adhered
2. Start installation of roofing in presence of manufacturer's technical personnel.
3. Cooperate with testing agencies engaged or required to perform services for installing roof system.
4. Coordinate installation of roofing system so insulation and other components of the roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 1. Provide tie-offs at end of each day's work to cover exposed roofing sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt, with joints and edges sealed.
 2. Complete terminations and base flashings, and provide temporary seals to prevent water from entering completed sections of roofing system.
 3. Remove and discard temporary seals before beginning work on adjoining roofing.

3.6 BASE SHEET INSTALLATION

1. Install base sheets according to roofing system manufacturer's written instructions starting at low point of roofing system. Align base sheets without stretching. Extend sheets over and terminate beyond cants.
 1. Shingle side laps of base sheets uniformly to ensure that required number of base sheets covers substrate at any point. Shingle in direction to shed water.
 2. Mechanically attached base sheet through cover board and insulation into steel deck.

3.7 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

1. Install modified bituminous roofing cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
 1. Adhere to substrate in cold-applied adhesive.
 2. Unroll roofing sheets and allow them to relax for minimum time period required by manufacturer.
2. Laps: Accurately align roofing sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
 1. Repair tears and voids in laps and lapped seams not completely sealed.
 2. Apply roofing granules to cover exuded bead at laps while bead is hot.
3. Install roofing sheets so side and end laps shed water.

3.8 FLASHING AND STRIPPING INSTALLATION

1. Install base flashing over cant strips and other sloped and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
 1. Flashing-Sheet Application: Adhere flashing sheet to substrate.
 2. Flashing-Sheet Bottom Termination: Adhere flashing sheet to roof membrane sheet continuously along bottom of flashing sheet.
 - a. Seal bottom termination of base flashing by adhering to roofing membrane and stripping flashing to membrane joint with reinforcing fabric and cold applied adhesive.
2. Extend base flashing up walls or parapets a minimum of 8 inches above roofing membrane and 4 inches on to field of roofing membrane.
3. Fluid-applied flashing application: Apply base coat with embedded fabric reinforcement and top coat at parapets, curbs, penetrations, and drains in accordance with manufacturer's written instruction.
 1. Apply base coat at minimum wet mil coating thickness of 48 mils unless additional thickness is recommended by manufacturer.
 2. Apply top coat over field base coat and spread evenly. Apply top coat at minimum wet mil thickness of 32 mils unless additional thickness is recommended by manufacturer.
4. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
 1. Seal top termination of base flashing a metal termination bar.
5. Install roofing cap-sheet stripping where metal flanges and edgings are set on roofing according to roofing system manufacturer's written instructions.
6. Roof Drains: Set 30-by-30-inch metal flashing in bed of asphaltic adhesive on completed roofing membrane. Cover metal flashing with roofing cap-sheet stripping, and extend a minimum of 6 inches beyond edge of metal flashing onto field of roofing membrane. Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring.
 1. Install stripping according to roofing system manufacturer's written instructions.

3.9 WALKWAY INSTALLATION

1. Walkway Pads: Install walkway pads using units of size indicated or, if not indicated, of manufacturer's standard size, according to walkway pad manufacturer's written instructions.
 1. Set walkway pads in cold-applied adhesive.

3.10 FIELD QUALITY CONTROL

1. Roofing inspector: Contractor shall engage a qualified roofing inspector for full time days on site to perform roof tests and inspections and to prepare start up, interim, and final reports. Roofing Inspector's quality assurance inspections shall comply with criteria established in ARMA/NRCA's "Quality Control Guidelines for the Application of Built Up Roofing".
2. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
 1. Notify Architect and Owner 48 hours in advance of date and time of inspection.
3. Repair or remove and replace components of roofing where test results or inspections indicate that they do not comply with specified requirements.
 1. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.11 PROTECTING AND CLEANING

1. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
2. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
3. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075216.15

SECTION 076200 SHEET METAL FLASHING AND TRIM

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

Section Includes:

1. Manufactured reglets with counterflashing.
2. Formed roof-drainage sheet metal fabrications.
3. Formed low-slope roof sheet metal fabrications.

1.3 COORDINATION

1. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
2. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETINGS

1. Preinstallation Conference: Conduct conference at Project site.
2. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
4. Review requirements for insurance and certificates if applicable.
5. Review sheet metal flashing observation and repair procedures after flashing installation.

1.5 ACTION SUBMITTALS

1. Product Data: For each of the following
 1. Underlayment materials.
 2. Elastomeric sealant.
 3. Butyl sealant.
 4. Epoxy seam sealer.
- Shop Drawings: For sheet metal flashing and trim.
 5. Include plans, elevations, sections, and attachment details.
 6. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
 7. Include identification of material, thickness, weight, and finish for each item and location in Project.
 8. Include details for forming, including profiles, shapes, seams, and dimensions.
 9. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 10. Include details of termination points and assemblies.
 11. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
 12. Include details of roof-penetration flashing.
 13. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
 14. Include details of special conditions.
 15. Include details of connections to adjoining work.
 16. Detail formed flashing and trim at scale of not less than 3 inches per 12 inches.
- Samples: For each exposed product and for each color and texture specified, 12 inches long by actual width.
- Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.
- Samples for Verification: For each type of exposed finish.
 17. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
 18. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
 19. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.
 20. Aluminum Samples: Samples to show full range to be expected for each color required.

1.6 INFORMATIONAL SUBMITTALS

1. Qualification Data: For fabricator.
2. Product Certificates: For each type of coping and roof edge flashing that is ANSI/SPRI/FM 4435/ES-1 tested.
3. Product Test Reports: For each product, for tests performed by a qualified testing agency.

4. Evaluation Reports: For copings and roof edge flashing, from an agency acceptable to authority having jurisdiction showing compliance with ANSI/SPRI/FM 4435/ES-1. E. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

1. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals. B. Special warranty.

1.8 QUALITY ASSURANCE

1. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
 1. For copings and roof edge flashings that are ANSI/SPRI/FM 4435/ES-1 tested, shop shall be listed as able to fabricate required details as tested and approved.
Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 2. Build mockup of typical roof edge, approximately 10 feet long, including supporting construction cleats, seams, attachments, underlayment, and accessories.
 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations in writing.
 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

1. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.
 1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
 2. Protect stored sheet metal flashing and trim from contact with water.
Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.10 WARRANTY

1. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
2. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
3. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.

4. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 1. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
2. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
3. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested in accordance with ANSI/SPRI/FM 4435/ES-1 and capable of resisting the following design pressure:
 1. Design Pressure: As indicated on Drawings.
4. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METALS

1. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
2. Aluminum Sheet: ASTM B209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
 1. Exposed Coil-Coated Finish:
3. Metallic Fluoropolymer: AAMA 2605. Three-coat fluoropolymer finish with suspended metallic flakes containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 1. Color: As selected by Architect from manufacturer's full range.
 2. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil. C. Lead Sheet: ASTM B749 lead sheet.

2.3 UNDERLAYMENT MATERIALS

1. Self-Adhering, High-Temperature Sheet Underlayment: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer in accordance with underlayment manufacturer's written instructions.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlisle WIP Products; a brand of Carlisle Construction Materials.
 - b. GCP Applied Technologies Inc.
 - c. Henry Company.
2. Source Limitations: Obtain underlayment from single source from single manufacturer.
3. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F or lower.
Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.

2.4 MISCELLANEOUS MATERIALS

1. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
2. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
3. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
4. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
 1. Fasteners: Series 300 stainless steel.
5. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
6. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
7. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

8. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
9. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.
10. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.
11. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions and with interlocking counterflashing on exterior face, of same metal as reglet.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cheney Flashing Company.
 - b. Fry Reglet Corporation.
 - c. Heckmann Building Products, Inc.
 - d. Hohmann & Barnard, Inc.
12. Source Limitations: Obtain reglets from single source from single manufacturer.
13. Material: Aluminum, 0.024 inch thick.
14. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
15. Stucco Type: Provide with upturned fastening flange and extension leg of length to match thickness of applied finish materials.
16. Concrete Type: Provide temporary closure tape to keep reglet free of concrete materials, special fasteners for attaching reglet to concrete forms, and guides to ensure alignment of reglet section ends.
17. Accessories:
 1. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
 2. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing's lower edge.
18. Finish: With manufacturer's standard color coating.

2.5 FABRICATION, GENERAL

Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view. B. Fabrication Tolerances:
 6. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
 7. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.
- C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 8. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
 9. Use lapped expansion joints only where indicated on Drawings.

Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.

Seams:
10. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
11. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
12. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength. H. Do not use graphite pencils to mark metal surfaces.

2.6 ROOF-DRAINAGE SHEET METAL FABRICATIONS A. Hanging Gutters:

1. Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required.
2. Fabricate in minimum 96-inch-long sections.
3. Furnish flat-stock gutter brackets and flat-stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard, but with thickness not less than twice the gutter thickness.
4. Expansion Joints: Lap type. Fabricate from the following materials: Aluminum: 0.040 inch thick.
5. Downspouts: Fabricate rectangular downspouts to dimensions indicated on Drawings, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors.

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing (Gravel Stop): Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long sections. Furnish with 6-inch-wide, joint cover plates. Shop fabricate interior and exterior corners.

1. Joint Style: Overlapped, 4 inches wide.
2. Fabricate from the following materials: Aluminum: 0.040 inch thick.

B. Copings: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg. Miter corners, fasten and seal watertight. Shop fabricate interior and exterior corners.

1. Coping Profile: As Indicated, in accordance with SMACNA's "Architectural Sheet Metal Manual."

2. Joint Style: Butted with expansion space and 6-inch-wide, concealed backup plate. Fabricate from the following materials: Aluminum: 0.040 inch thick.

C. Roof and Roof-to-Wall Transition Expansion-Joint Cover: Shop fabricate interior and exterior corners. Fabricate from the following materials: Aluminum: 0.040 inch thick

2. Counterflashing: Shop fabricate interior and exterior corners. Fabricate from the following materials: Aluminum: 0.040 inch thick.
3. Aluminum: 0.040 inch thick.

- E. Flashing Receivers: Fabricate from the following materials:
 - 4. Aluminum: 0.040 inch thick.
- F. Roof-Penetration Flashing: Fabricate from the following materials:
 - 5. Lead: 4 lb.
- G. Roof-Drain Flashing: Fabricate from the following materials:
 - 6. Lead: 4 lb.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

- 1. Verify compliance with requirements for installation tolerances of substrates.
- 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- 3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
 - A. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

- A. Self-Adhering, High-Temperature Sheet Underlayment:
- 1. Install self-adhering, high-temperature sheet underlayment; wrinkle free.
 - 2. Prime substrate if recommended by underlayment manufacturer.
 - 3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
 - 4. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses.
 - 5. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller.
 - 6. Roll laps and edges with roller.
 - 7. Cover underlayment within 14 days.
 - A. Install slip sheet, wrinkle free, over underlayment before installing sheet metal flashing and trim.

8. Install in shingle fashion to shed water.
9. Lapp joints not less than 4 inches.

3.3 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder or sealant.
3. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
4. Install continuous cleats with fasteners spaced not more than 12 inches o.c.
5. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
6. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
7. Do not field cut sheet metal flashing and trim by torch.
8. Do not use graphite pencils to mark metal surfaces.
- A. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
9. Coat concealed side of uncoated-aluminum sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
10. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet. C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.
11. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
12. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.

13. Use lapped expansion joints only where indicated on Drawings.
Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
Seal joints as required for watertight construction.

14. Use sealant-filled joints unless otherwise indicated.
Embed hooked flanges of joint members not less than 1 inch into sealant.
Form joints to completely conceal sealant.
When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
Adjust setting proportionately for installation at higher ambient temperatures.
1) Do not install sealant-type joints at temperatures below 40 deg F.

3.4 INSTALLATION OF ROOF-DRAINAGE SYSTEM

A. Install sheet metal roof-drainage items to produce complete roof-drainage system in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system. B. Hanging Gutters:

1. Join sections with riveted joints or joints sealed with sealant.
 2. Provide for thermal expansion.
 3. Attach gutters at eave or fascia to firmly anchor them in position.
 4. Provide end closures and seal watertight with sealant.
 5. Slope to downspouts.
 6. Fasten gutter spacers to front and back of gutter.
 7. Anchor and loosely lock back edge of gutter to continuous eave or apron flashing.
 8. Install gutter with expansion joints at locations indicated on Drawings, but not exceeding, 50 feet apart. Install expansion-joint caps.
- C. Downspouts:

9. Join sections with 1-1/2-inch telescoping joints.
10. Provide hangers with fasteners designed to hold downspouts securely to walls.
11. Locate hangers at top and bottom and at approximately 60 inches o.c.
12. Provide elbows at base of downspout to direct water away from building.
13. Connect downspouts to underground drainage system.

D. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated on Drawings. Lap joints minimum of 4 inches in direction of water flow.

3.5 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Roof Edge Flashing:
 3. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
 4. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3inch centers.
 5. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for FM Approvals' listing for required windstorm classification.

C. Copings:

6. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
7. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated.
 1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 16-inch centers.
 2. Anchor interior leg of coping with washers and screw fasteners through slotted holes at 24-inch centers.
8. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for specified FM Approvals' listing for required windstorm classification.

Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches over base flashing. Install stainless steel draw band and tighten.

Counterflashing: Coordinate installation of counterflashing with installation of base flashing.

9. Insert counterflashing in reglets or receivers and fit tightly to base flashing.
10. Extend counterflashing 4 inches over base flashing.
11. Lap counterflashing joints minimum of 4 inches.

12. Secure in waterproof manner.

F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.6 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.7 CLEANING

Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

Clean and neutralize flux materials. Clean off excess solder.

Clean off excess sealants.

3.8 PROTECTION

Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

Maintain sheet metal flashing and trim in clean condition during construction.

Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076200

SECTION 077233 - ROOF HATCHES

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:
1. Roof access hatches.

1.3 SUBMITTALS

1. Product Approval: Submit current Product Approval documentation in accordance with the Florida Building Code.
2. Product Data: For products indicated. Include construction details, materials, dimensions of individual components and profiles, and finishes. C. Sample of specified Product for installation.
3. Shop Drawings: Show fabrication and installation details. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other Work.
 1. Anchoring methods for roof accessories shall comply with the requirements of the Florida Building Code.
4. Coordination Drawings: Roof plans drawn to scale and coordinating penetrations and roof-mounted items. Show the following:
 1. Size and location of roof accessories specified in this Section.
 2. Method of attaching roof accessories to roof or building structure.

1.4 WARRANTY

1. Warranty Requirements: Manufacturer's standard form in which manufacturer agrees that roof hatches will be free of defects in material and workmanship within specified warranty period. Should a part fail to function in normal use within the warranty period the manufacturer shall furnish a new part at no charge.
 1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ROOF ACCESS HATCH

1. General: Fabricate units to withstand 40-lbf/sq. ft. live load. Provide double-wall cover (lid) construction with 1-inch insulation core. Provide gasketing and equip corrosionresistant hardware including pintle hinges, hold-open devices, interior padlock hasps, and both interior and exterior latch handles.
2. Subject to compliance with requirements, provide Basis of Design Product and Manufacturer, indicated on the drawings or a comparable product by one of the following:
 1. Babcock-Davis Hatchways, Inc.
 2. Bilco
 3. Milcor
3. Size: 30"x54"
4. Cover: High strength composite panels with 14 gauge zinc-coated, prime-painted steel exterior and 22 gauge zinc-coated, prime painted steel liner bonded to core of 2" rigid foam insulation.
5. Curb: 12" in height with integral cap flashing, 1" fiberboard insulation, fully welded at corners, and 3-1/2" mounting flange with 7/16" holes provided for securing frame to the roof deck.
6. Hatch: Assembled with heavy steel pintle hinges, automatic locking hold-open arms, snap latch, turn handles, padlock hasp inside, and closed-cell rubber weather seal.
7. Hardware: Steel compression springs with electro-coated acrylic finish. All other hardware shall be zinc plated/chromate sealed.

2.2 FINISHES

1. Prime Paint: All exposed steel shall be prime painted. Manufacturer's standard primer shall be compatible with finish coats as specified in Division 09, Section, and Painting.

2.3 MATERIALS, GENERAL

1. Galvanized Steel Sheet: ASTM A 653/A 653M with G90 coating designation; commercial quality, unless otherwise indicated.
 1. Structural Quality: Grade 40, where indicated or as required for strength.

2.4 FASTENERS

1. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 1. Where fasteners are used in or come in contact with pressure treated wood, fasteners shall be Type 304 stainless steel.

2.5 FABRICATION

1. Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrications of units, including flanges, and cap flashing to coordinate with type of roofing indicated. PART 3 - EXECUTION

2.6 INSTALLATION

1. General: Comply with manufacturer's written instructions. Coordinate installation of roof accessories with installation of roof deck, roof insulation, flashing, roofing membranes, penetrations, equipment, and other construction involving roof accessories to ensure that each element of the Work performs properly and that combined elements are waterproof and weather tight. Anchor roof accessories securely to supporting structural substrates so they are capable of withstanding lateral and thermal stresses, and inward and outward loading pressures.
 1. Install roof accessory items according to construction details of NRCA's "Roofing and Waterproofing Manual," and manufacturer's instructions and recommendations.
2. Separation: Separate metal from incompatible metal or corrosive substrates, including wood, by coating concealed surfaces, at locations of contact, with permanent separation.
3. Operational Units: Test-operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.

2.7 CLEANING AND PROTECTION

1. Clean exposed surfaces according to manufacturer's written instructions. Touch up damaged metal coatings.

END OF SECTION 077233

SECTION 079513.13 - INTERIOR EXPANSION JOINT COVER ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Floor expansion joint covers.
 2. Wall expansion joint covers.
 3. Ceiling expansion joint covers.

1.2 ACTION SUBMITTALS

1. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for expansion joint cover assemblies.
 1. Floor expansion joint covers.
 2. Wall expansion joint covers.
 3. Ceiling expansion joint covers.
2. Samples for Initial Selection: For each type of exposed finish.
 1. Include manufacturer's color charts showing the full range of colors and finishes available for each exposed metal and elastomeric-seal material.
3. Samples for Verification: For each type of expansion joint cover assembly, full width by 6 inches long in size.

PART 2 - PRODUCTS

2.1 ASSEMBLY DESCRIPTION

1. Furnish units in longest practicable lengths to minimize field splicing.
2. Include factory-fabricated closure materials and transition pieces, T-joints, corners, curbs, cross-connections, and other accessories as required to provide continuous expansion joint cover assemblies.

2.2 PERFORMANCE REQUIREMENTS

1. Seismic Performance: Expansion joint cover assemblies to withstand the effects of earthquake motions determined according to **[ASCE/SEI 7]**.
2. Fire-Resistance Ratings: Provide expansion joint cover assemblies with fire barriers identical to those of systems tested for fire resistance according to **[UL 2079]** **[or]** **[ASTM E1966]** by a qualified testing agency.

1. Hose Stream Test: Wall-to-wall and wall-to-ceiling assemblies to be subjected to hose stream testing.
3. Expansion Joint Design Criteria **<Insert drawing designation>**:
 1. Type of Movement: **[Thermal]** **[Wind sway]**.
 - a. Nominal Joint Width: **[As indicated on Drawings]**
 - b. Minimum Joint Width: **[As indicated on Drawings]**
 - c. Maximum Joint Width: **[As indicated on Drawings]**
 2. Seismic Movement:
 - a. Joint Movement: As indicated on Drawings.

2.3 FLOOR EXPANSION JOINT COVERS

1. Elastomeric-Seal Floor Joint Cover: Assembly consisting of elastomeric seal anchored to frames fixed to sides of joint gap.
 1. Manufacturers: Subject to compliance of the Basis of Design product by EMSEAL Joint Systems requirements, or **[provide products by one of the following]** :
 - a. Watson Bowman Acme Corp.
 - b. inpro Corporation.
 2. Application: Floor to floor Floor to wall.
 3. Exposed Metal:
 - a. Aluminum: .
 - 1) Color: As selected by Architect from full range of industry colors and color densities.

2.4 WALL EXPANSION JOINT COVERS

1. Elastomeric-Seal Wall Joint Cover Assembly consisting of elastomeric seal anchored to frames fixed to sides of joint gap.
 1. Manufacturers: Subject to compliance with the Basis of Design product by EMSEAL Joint Systems requirements, or **[provide products by one of the following]**:
 - a. Watson Bowman Acme Corp.
 - b. inpro Corporation.
 2. Application: Wall to wall.
 3. Exposed Metal:
 - a. Aluminum: .
 - 1) Color: As selected by Architect from full range of industry colors and color densities.
 4. Seal: Preformed elastomeric membranes or extrusions.
 - a. Color: As selected by Architect from manufacturer's full range.

2.5 CEILING EXPANSION JOINT COVERS

1. Elastomeric-Seal Ceiling Joint Cover Assembly consisting of elastomeric seal anchored to frames fixed to sides of joint gap.
 1. Manufacturers: Subject to compliance with the Basis of Design by EMSEAL Joint Systems requirements, or **[provide products by one of the following]**:
 - a. MM Systems Corporation.
 - b. Nystrom, Inc.
 - c. inpro Corporation.

2.6 MATERIALS

1. Aluminum: ASTM B221, Alloy 6063-T5 for extrusions; ASTM B209, Alloy 6061-T6 for sheet and plate.
 1. Apply manufacturer's standard protective coating on aluminum surfaces to be placed in contact with cementitious materials.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine surfaces where expansion joint cover assemblies will be installed for installation tolerances and other conditions affecting performance of the Work.
2. Notify Architect where discrepancies occur that will affect proper expansion joint cover assembly installation and performance.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Prepare substrates according to expansion joint cover assembly manufacturer's written instructions.
2. Coordinate and furnish anchorages, setting drawings, and instructions for installing expansion joint cover assemblies. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of expansion joint cover assemblies.

3.3 INSTALLATION

1. Comply with manufacturer's written instructions for storing, handling, and installing expansion joint cover assemblies and materials unless more stringent requirements are indicated.
2. Metal Frames: Perform cutting, drilling, and fitting required to install expansion joint cover assemblies.
 1. Repair or grout block out as required for continuous frame support using nonmetallic, shrinkage-resistant grout.
 2. Install frames in continuous contact with adjacent surfaces.
 - a. Shimming is not permitted.
 3. Install in true alignment and proper relationship to joints and adjoining finished surfaces measured from established lines and levels.
 4. Adjust for differences between actual structural gap and nominal design gap due to ambient temperature at time of installation.

5. Cut and fit ends to accommodate thermal expansion and contraction of metal without buckling of frames.
6. Locate anchors at interval recommended by manufacturer, but not less than 3 inches from each end and not more than 24 inches o.c.
3. Seals: Install elastomeric seals and membranes in frames to comply with manufacturer's written instructions. Install with minimum number of end joints.
 1. Provide in continuous lengths for straight sections.
 2. Seal transitions. Vulcanize or heat-weld field-spliced joints as recommended by manufacturer.
 3. Installation: Mechanically lock seals into frames or adhere to frames with adhesive or pressure-sensitive tape as recommended by manufacturer.
4. Install with hairline mitered corners where expansion joint cover assemblies change direction or abut other materials.
5. Terminate exposed ends of expansion joint cover assemblies with field- or factory-fabricated termination devices.
6. Fire-Resistance-Rated Assemblies: Coordinate installation of expansion joint cover assembly materials and associated work so complete assemblies comply with performance requirements.
 1. Fire Barriers: Install fire barriers to provide continuous, uninterrupted fire resistance throughout length of joint, including transitions and field splices.
7. Moisture Barrier Drainage: If indicated, provide drainage fittings and connect to drains.

3.4 PROTECTION

1. Do not remove protective covering until finish work in adjacent areas is complete. When protective covering is removed, clean exposed metal surfaces to comply with manufacturer's written instructions.
2. Protect the installation from damage by work of other Sections. Where necessary due to heavy construction traffic, remove and properly store cover plates or seals and install temporary protection over expansion joint cover assemblies. Reinstall cover plates or seals prior to Substantial Completion.

END OF SECTION 079513.13

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section Includes:
 1. Standard and custom hollow metal doors and frames.
 2. Steel sidelight, borrowed lite and transom frames.
 3. Louvers installed in hollow metal doors.
 4. Light frames and glazing installed in hollow metal doors.
2. Related Sections:
 1. Division 01 Section "General Conditions".
 2. Division 01 Section "Closeout Procedures".
 3. Division 04 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
 4. Division 08 Section "Flush Wood Doors".
 5. Division 08 Section "Glazing" for glass view panels in hollow metal doors.
 6. Division 08 Section "Door Hardware".
 7. Division 08 Section "Access Control Hardware".
 8. Division 09 Sections "Exterior Painting" and "Interior Painting" for field painting hollow metal doors and frames.
 9. Division 28 Section "Access Control" for access control devices installed at door openings and provided as part of a security access control system.
3. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
 2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
 3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
 4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
 5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.

6. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
7. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
8. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
9. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
10. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
11. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
12. ANSI/BHMA A156.115 - Hardware Preparation in Steel Doors and Frames.
13. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
14. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
15. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
16. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
17. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
18. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.3 SUBMITTALS

1. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.
2. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.
3. Shop Drawings: Include the following:
 1. Elevations of each door design.
 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 4. Locations of reinforcement and preparations for hardware.
 5. Details of anchorages, joints, field splices, and connections.
 6. Details of accessories.
 7. Details of moldings, removable stops, and glazing.
 8. Details of conduit and preparations for power, signal, and control systems.
4. Samples for Verification:
 1. Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

5. Informational Submittals:

1. Hurricane Resistant Openings (State of Florida): Within the State of Florida, provide copy of current State of Florida Product Approval as proof of compliance that doors, frames and hardware for exterior opening assemblies have been tested and approved for use at the design pressure level and debris impact resistance requirements specified for the Project.
 - a. Hurricane Resistant Components (State of Florida): Within the State of Florida, provide copy of independent, third-party certified listing conforming to ANSI A250.13.

1.4 QUALITY ASSURANCE

1. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.
2. Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".
3. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL10C (neutral pressure at 40" above sill) or UL 10C.
 1. Oversize Fire-Rated Door Assemblies Construction: For units exceeding sizes of tested assemblies, attach construction label certifying doors are built to standard construction requirements for tested and labeled fire rated door assemblies except for size.
 2. Temperature-Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
 3. Smoke Control Door Assemblies: Comply with NFPA 105.
 - a. Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.
4. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Provide labeled glazing material.
5. Hurricane Resistant Exterior Openings (State of Florida including High Velocity Hurricane Zone (HVHZ): Provide exterior hollow metal doors and frames as complete and tested assemblies, or component assemblies, including approved hardware specified under Section 087100 "Door Hardware", to meet the design pressures, debris impact resistance, and glass and glazing requirements as detailed in the current State of Florida building code sections applicable to the Project.

1. Each unit to bear third party permanent label in accordance with Florida Building Code requirements.
6. **Sound Transmission Class (STC) Rated Doors: Provide sound transmission class rated doors fabricated as sound-reducing types with testing according to ASTM E 90, and classifications according to ASTM E 413. Submit manufacturer's written results of STC ratings from testing performed by a qualified independent testing agency for sound resistant doors.**
7. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.5 DELIVERY, STORAGE, AND HANDLING

1. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.
2. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
3. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.
 1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.6 PROJECT CONDITIONS

1. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.7 COORDINATION

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

1.8 WARRANTY

1. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
2. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Manufacturers: Subject to compliance with requirements, provide steel doors and frames from a SDI Certified manufacturer:
 1. CECO Door Products (C).
 2. Curries Company (CU).

2.2 MATERIALS

1. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
2. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 metallic coating.
3. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 metallic coating.

2.3 HOLLOW METAL DOORS

1. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.
2. Exterior Doors: Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
 1. Design: Flush panel.
 2. Core Construction: Manufacturer's thermally enhanced QMax core. Where indicated provide doors fabricated as thermal-rated assemblies with a minimum thermal rating of 0.41 BTU/hr-ft²-F.
 3. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2.
 4. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
 5. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
 6. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.

3. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
 1. Design: Flush panel.
 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, or one-piece polystyrene core, securely bonded to both faces.
 - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
 3. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2.
 4. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.
 5. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
 6. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
4. Manufacturers Basis of Design:
 1. Curries Company (CU) - Honeycomb Core - 707 Series.
 2. Curries Company (CU) - QMax Core - 707 Series.

2.4 SPECIAL FUNCTION HOLLOW METAL DOORS

1. **Sound Resistant Doors: Subject to the same compliance standards and requirements as standard hollow metal doors, provide manufacturer's standard sound resistant acoustic core tested in accordance with ASTM E90, ASTM 413, and ASTM E1332 standards. Fabricate with minimum 16 gauge construction, 1-3/4" thickness, combined with standard flush frames designed for mid-range and high range sound attenuation from STC 39 through STC 52 applications. Furnish complete with perimeter sound seals, bottom seals, and threshold as required for specified STC rating.**
 1. Provide sound resistant doors with minimum STC sound rating 50 as indicated on the door schedule:
 2. Each unit to bear a physical label applied to door certifying the product construction and identifying the specific STC rating.
 3. Sound resistant doors shall be installed by factory trained and certified installers.
 4. Provide with plastic laminate veneer option.
 5. **Manufacturers Basis of Design:**
 - a. **Curries Company (CU) - 757 Quiet Noise Series.**

2.5 HOLLOW METAL FRAMES

1. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
2. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
 1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
 2. Frames: Minimum 16 gauge (0.053-inch - thick steel sheet.
 3. Manufacturers Basis of Design:
 - a. Curries Company (CU) - M Series.
3. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
 1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
 2. Frames: Minimum 16 gauge (0.053-inch - thick steel sheet.
 3. Manufacturers Basis of Design:
 - a. Curries Company (CU) - CM Series.
 - b. Curries Company (CU) - M Series.
4. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
5. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.6 FRAME ANCHORS

1. Jamb Anchors:
 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 2. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.
 3. Hurricane Opening Anchors: Types as tested and required for indicated wall types to meet specified design pressure and impact rating criteria.
2. Floor Anchors: Floor anchors to be provided at each jamb, formed from metallic coated material, not less than 0.042 inch thick.
3. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.7 LOUVERS

1. Metal Louvers: Unless otherwise indicated provide louvers to meet the following requirements.

1. Blade Type: Vision proof inverted V or inverted Y.
 2. Metal and Finish: Galvanized steel, **0.040 inch** thick, factory primed for paint finish with baked enamel or powder coated finish. Match pre-finished door paint color where applicable.
2. Louvers for Fire Rated Doors: Metal louvers with fusible link and closing device, listed and labeled for use in doors with fire protection rating of 1-1/2 hours and less.
 1. Manufacturers: Subject to compliance with requirements, provide louvers to meet rating indicated.
 2. Metal and Finish: Galvanized steel, **0.040 inch** thick, factory primed for paint finish with baked enamel or powder coated finish. Match pre-finished door paint color where applicable.

2.8 LIGHT OPENINGS AND GLAZING

1. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator's shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.
2. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.
3. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of **5/8 inch** high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.
4. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of **0.048-inch**-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.9 ACCESSORIES

1. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
2. Grout Guards: Formed from same material as frames, not less than **0.016 inches** thick.

2.10 FABRICATION

1. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

2. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

3. Hollow Metal Doors:

1. Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.
2. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.
3. Louvers: Factory cut openings in door and install louvers into prepared openings where indicated.
4. Astragals: Provide overlapping astragals as noted in door hardware sets in Division 08 Section "Door Hardware" on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum **3/4 inch** beyond edge of door on which astragal is mounted.

4. Hollow Metal Frames:

1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
 - a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.
3. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
4. Electrical Thru-Wiring: Provide hollow metal frames receiving electrified hardware with loose wiring harness (not attached to open throat components or installed in closed mullion tubes) and standardized Molex™ plug connectors on one end to accommodate up to twelve wires. Coordinate connectors on end of the wiring harness to plug directly into the electric through-wire transfer hardware or wiring harness specified in hardware sets in Division 08 Sections "Door Hardware" and "Access Control Hardware".
5. Electrical Knock Out Boxes: Factory weld 18 gauge electrical knock out boxes to frame for electrical hardware preps; including but not limited to, electric through wire transfer hardware, electrical raceways and wiring harnesses, door position switches, electric strikes, magnetic locks, and jamb mounted card readers as specified in hardware sets in Division 08 Sections "Door Hardware" and "Access Control Hardware".
 - a. Provide electrical knock out boxes with a dual 1/2-inch and 3/4-inch knockouts.
 - b. Conduit to be coordinated and installed in the field (Division 26) from middle hinge box and strike box to door position box.

- c. Electrical knock out boxes to comply with NFPA requirements and fit electrical door hardware as specified in hardware sets in Division 08 Section "Door Hardware".
 - d. Electrical knock out boxes for continuous hinges should be located in the center of the vertical dimension on the hinge jamb.
- 6. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
- 7. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than **18 inches** from top and bottom of frame. Space anchors not more than **32 inches** on-center and as follows:
 - 1) Two anchors per jamb up to **60 inches** high.
 - 2) Three anchors per jamb from **60 to 90 inches** high.
 - 3) Four anchors per jamb from **90 to 120 inches** high.
 - 4) Four anchors per jamb plus 1 additional anchor per jamb for each **24 inches** or fraction thereof above **120 inches** high.
 - b. Stud Wall Type: Locate anchors not more than **18 inches** from top and bottom of frame. Space anchors not more than **32 inches** o.c. and as follows:
 - 1) Three anchors per jamb up to **60 inches** high.
 - 2) Four anchors per jamb from **60 to 90 inches** high.
 - 3) Five anchors per jamb from **90 to 96 inches** high.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each **24 inches** or fraction thereof above **96 inches** high.
 - 5) Two anchors per head for frames above **42 inches** wide and mounted in metal stud partitions.
 - c. Storm Shelter Openings: Provide jamb, head, and sill anchors in accordance with manufacturer's certified assembly listings.
- 8. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".
- 9. Bituminous Coating: Where frames are fully grouted with an approved Portland Cement based grout or mortar, coat inside of frame throat with a water based bituminous or asphaltic emulsion coating to a minimum thickness of 3 mils DFT, tested in accordance with UL 10C and applied to the frame under a 3rd party independent follow-up service procedure.
- 5. Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
 - 1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.

2. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.11 STEEL FINISHES

1. Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.
 1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
2. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
2. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.
3. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."
4. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.
5. Verify tolerances against manufacturers installations instructions for tornado and hurricane storm shelter openings.

3.3 INSTALLATION

1. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
2. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.
 1. Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
 3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
 4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.
3. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
 1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: **1/8 inch** plus or minus **1/16 inch**.
 - b. Between Edges of Pairs of Doors: **1/8 inch** plus or minus **1/16 inch**.
 - c. Between Bottom of Door and Top of Threshold: Maximum **3/8 inch**.
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum **3/4 inch**.
 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
4. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

3.4 ADJUSTING AND CLEANING

1. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
2. Remove grout and other bonding material from hollow metal work immediately after installation.
3. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024
FIELD QUALITY CONTROL

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

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Solid-core five-ply flush wood veneer-faced doors and transom panels for transparent finish.
2. Related Requirements:
 1. Section 064216 "Flush Wood Paneling" for requirements for veneers from the same flitches for both flush wood doors and flush wood paneling.
 2. Section 083473.16 "Wood Sound Control Door Assemblies" for acoustic flush wood doors.
 3. Section 088000 "Glazing" for glass view panels in flush wood doors.

1.2 PREINSTALLATION MEETINGS

1. Preinstallation Conference: Conduct conference at 5001 St Johns Ave, Palatka, FL, 32177.

1.3 ACTION SUBMITTALS

1. Product Data:
 1. Solid-core five-ply flush wood veneer-faced doors and transom panels for transparent finish.
 2. Solid-core seven-ply flush wood veneer-faced doors and transom panels for transparent finish.
 3. Fire-rated wood door frames.
 4. Light frames and louvers.
2. Product Data Submittals: For each product, including the following:
 1. Door core materials and construction.
 2. Door edge construction
 3. Door face type and characteristics.
 4. Door frame construction.
 5. Factory-machining criteria.
 6. Factory-specifications.
3. Sustainable Design Submittals:
 1. Product Data: For adhesives, indicating that product contains no urea formaldehyde.
 2. Product Data: For adhesives, indicating that product contains no urea formaldehyde.
 3. Product Data: For composite wood products, indicating compliance with requirements for formaldehyde emissions.
 4. Product Data: For composite wood products, indicating that product contains no urea formaldehyde.

4. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:
 1. Door schedule indicating door[**and frame**] location, type, size, fire protection rating, and swing.
 2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
 3. Details of frame for each frame type, including dimensions and profile.
 4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
 5. Dimensions and locations of blocking for hardware attachment.
 6. Dimensions and locations of mortises and holes for hardware.
 7. Clearances and undercuts.
 8. Requirements for veneer matching.
 9. Doors to be factory [**primed**] or [**finished**] and application requirements.
 10. Apply [**AWI Quality Certification**] [**WI Certified Compliance**] Program label to Shop Drawings.
5. Samples for Initial Selection: For .
6. Samples for Verification:
 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish.[**For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.**]
 2. Plastic laminate, 6 inches square, for each color, texture, and pattern selected.
 3. Polymer edging, in manufacturer's standard colors.
 4. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
 5. Louver blade and frame sections, 6 inches long, for each material and finish specified.
 6. Frames for light openings, 6 inches long, for each material, type, and finish required.

1.4 INFORMATIONAL SUBMITTALS

1. Qualification Data: For door inspector.
 1. Fire-Rated Door Inspector: Submit documentation of compliance with NFPA 80, Section 5.2.3.1.
 2. Egress Door Inspector: Submit documentation of compliance with NFPA 101, Section 7.2.1.15.4.
 3. Submit copy of DHI's Fire and Egress Door Assembly Inspector (FDAI) certificate.
2. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

1. Special warranties.

2. Quality Standard Compliance Certificates: **[AWI Quality Certification]** **[WI Certified Compliance]** Program certificates.

1.6 QUALITY ASSURANCE

1. Manufacturer's Certification: Licensed participant in **[AWI's Quality Certification Program]** **[WI's Certified Compliance Program]**.
2. Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections of fire-rated door assemblies complies with qualifications set forth in NFPA 80, Section 5.2.3.1 and the following:
 1. DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.
3. Egress Door Inspector Qualifications: Inspector for field quality-control inspections of egress door assemblies complies with qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:
 1. DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.

1.7 DELIVERY, STORAGE, AND HANDLING

1. Comply with requirements of referenced standard and manufacturer's written instructions.
2. Package doors individually in **[plastic bags or cardboard cartons]** **[cardboard cartons, and wrap bundles of doors in plastic sheeting]**.
3. Mark each door on **[top and]** bottom rail with opening number used on Shop Drawings.

1.8 FIELD CONDITIONS

1. Environmental Limitations:
 1. Do not deliver or install doors until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for the remainder of construction period.
 2. Do not deliver or install doors until building is enclosed and weathertight, wet work is complete, and HVAC system is operating and maintaining temperature between 60 **and 90 deg F** and relative humidity is at manufacturer accepted range for installation.

1.9 WARRANTY

1. Special Warranty: Manufacturer agrees to repair or replace doors **[and frames]** that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Delamination of veneer.

- b. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - c. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
2. Warranty also includes installation and finishing that may be required due to repair or replacement of defective doors[**and frames**].
3. Warranty Period for Solid-Core Exterior Doors: **[Two]** years from date of Substantial Completion.
4. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

1. Obtain flush wood doors **[indicated to be blueprint matched with paneling] [and wood paneling]** from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

1. Fire-Rated Wood Door and Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings **[and temperature-rise limits]** indicated on Drawings, based on testing at positive pressure in accordance with **[UL 10C] [or NFPA 252]**.
 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
 2. Temperature-Rise Limit: **[Where indicated on Drawings] [At vertical exit enclosures and exit passageways]**, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
2. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

2.3 SOLID-CORE FIVE-PLY FLUSH WOOD VENEER-FACED DOORS AND TRANSOM PANELS FOR TRANSPARENT FINISH

1. Interior Doors, Solid-Core Five-Ply Veneer-Faced
 1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following]**
 - a. Masonite Architectural.
 - b. Oshkosh Door Company.
 - c. Wilsonart LLC.
 2. Performance Grade: ANSI/WDMA I.S. 1A Extra Heavy Duty.
 3. Performance Grade by Location:

- a. ANSI/WDMA I.S. 1A Extra Heavy Duty: Classrooms public toilets assembly spaces exits Insert locations.
4. Faces: Single-ply wood veneer not less than 1/50 inch thick.
 - a. Species: Select white birch.
 - b. Cut: Rotary cut.
5. Exposed Vertical and Top Edges: .
 - a. Mineral-Core Doors: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
6. Core for Non-Fire-Rated Doors:
 - a. ANSI A208.1, particleboard.
 - 1) Provide doors with **[glued-wood-stave] [or] [WDMA I.S. 10 structural-composite-lumber]** cores instead of particleboard cores for doors scheduled to receive exit devices in **[Section 087100 "Door Hardware."]** **[Section 087111 "Door Hardware (Descriptive Specification)."]**
7. Core for Fire-Rated Doors: As required to achieve fire-protection rating indicated on Drawings.
8. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine doors and installed door frames, with Installer present, before hanging doors.
 1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 2. Reject doors with defects.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Hardware: For installation, see **[Section 087100 "Door Hardware."]** **[Section 087111 "Door Hardware (Descriptive Specification)."]**
2. Install doors[**and frames**] to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
3. Install frames level, plumb, true, and straight.
 1. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
 2. Anchor frames to anchors or blocking built in or directly attached to substrates.
 - a. Secure with countersunk, concealed fasteners and blind nailing.
 - b. Use fine finishing nails[**or finishing screws**] for exposed fastening, countersunk and filled flush with woodwork.

- 1) For factory-finished items, use filler matching finish of items being installed.
3. Install smoke- and draft-control doors in accordance with NFPA 105.
4. Job-Fitted Doors:
 1. Align and fit doors in frames with uniform clearances and bevels as indicated below.
 - a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.
 2. Machine doors for hardware.
 3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 4. Clearances:
 - a. Provide 1/8 inch at heads, jambs, and between pairs of doors.
 - b. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.
 - c. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - d. Comply with NFPA 80 for fire-rated doors.
 5. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
 6. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.
5. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
6. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

1. Operation: Rehang or replace doors that do not swing or operate freely.
2. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 14 16

SECTION 084113 – ALUMINIUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section Includes:
 1. Interior and exterior storefront.
 2. Entrance doors and frames.

1.3 CODE COMPLIANCE

1. Exterior glazing systems shall meet the requirements of the Florida Building Code.
 1. Provide product evaluations and installation requirements indicating compliance with Code requirements.

1.4 PREINSTALLATION MEETINGS

1. Preinstallation Conference: Conduct conference at Project site.

1.5 SUBMITTALS

1. Product Approval: Submit current Product Approval documentation in accordance with the Florida Building Code.
2. Engineering Responsibility: Prepare engineering data, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project as prepared by a professional engineer registered in the state of Florida.
3. Testing and Labeling: Comply with the Building Code. Submit manufacturer's certification indicating compliance.
4. Product Data: For each product specified. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes.
5. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.

1. Engineering Responsibility: Prepare engineering data for storefront and entrance systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project as prepared by a professional engineer registered in the state of Florida.
 - a. Include structural analysis data signed and sealed by professional engineer registered in the state of Florida responsible for their preparation.
 - b. Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.
 - c. Include all drawings and installation details required to ensure the elements installed on this Project will be installed in the same manner as they were tested and approved.
6. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
7. Samples for Verification: Of exposed finish selected in manufacturer's standard sizes.
8. Samples: For the following.
 1. Aluminum Framing:
 - a. Samples for Verification: Of exposed metal finish selected in manufacturer's standard sizes.
 2. Glass: Glass products, in the form of 12-inch-square Samples for each type of glass indicated.
9. Test Reports: Provide certified test reports indicating compliance with the Building Code.
10. Field Test Reports: Field quality-control test reports.
11. Warranties: Warranties specified in this Section.

1.6 QUALITY ASSURANCE

1. Installer Qualifications: Experienced Installers skilled in the successful installation of the specified materials and assemblies on similar projects for a minimum of five (5) years.
 1. Engineering Responsibility: Preparation of data for storefront systems including the following:
 - a. Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 - b. Shop Drawings, pre-construction testing program development, and comprehensive engineering analysis by a qualified professional engineer.
2. Test Reports: Provide test reports from AAMA accredited laboratories certifying the performance as specified.
 1. Test reports shall be accompanied by the window manufacturer's letter of certification, stating the tested window meets or exceeds the referenced criteria for the appropriate ANSI/AAMA/NWDA 101/I.S.2/NAFS-02 window type.
3. Source Limitations: Obtain aluminum windows through one source from a single manufacturer.

4. Glazing Publications: Comply with published recommendations of glass manufacturers and GANA's "Glazing Manual" unless more stringent requirements are indicated. E. Preinstallation Conference: Conduct conference at Project site.
 1. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 3. Review required testing and inspecting procedures.
5. Source Limitations for Glass: Obtain glass from one source from a single manufacturer for each glass type.
6. Welding Standards: Comply with applicable provisions of AWS D1.2, "Structural Welding Code--Aluminum."

1.7 MOCKUPS

1. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 1. Designate an installed unit as a mock-up for review by the Architect.
 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.

1.8 DELIVERY, STORAGE, AND HANDLING

1. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.9 PROJECT CONDITIONS

1. Field Measurements: Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
2. Environmental Limitations for Glass and Glazing: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 degrees F.

1.10 WARRANTY

1. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration caused by thermal movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Adhesive or cohesive sealant failures.
 - e. Water leakage through fixed glazing and framing areas.
 - f. Failure of operating components.
 2. Warranty Period: Two years from date of Substantial Completion.
2. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.
 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Building Code Requirements: Provide storefront and entrance systems that complies with the requirements of the Florida Building Code.
2. Performance Requirements: Provide exterior storefront and entrance systems capable of withstanding loads and thermal and structural movement requirements indicated without failure, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
3. Glazing Systems: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction. D. Structural Loads:
 1. Wind Loads: As indicated.
4. Dimensional Tolerances: Provide glazing systems that accommodate dimensional tolerances of building frame and other adjacent construction.

5. Air Infiltration: Completed storefront systems shall have 0.06 CFM/FT² maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 PSF.
6. Water Infiltration: Field test aluminum glazed systems in accordance with AAMA 503. Fastener Heads must be seated and sealed against Sill Flashing on any fasteners that penetrate through the Sill Flashing.
7. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AA Specifications for Aluminum Structures.
 1. Without Horizontals: L/175 maximum.
 2. With Horizontals: L/175 or L/240 + 1/4" for spans greater than 13'-6" (but less than 40'-0").
8. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
9. Thermal Performance: When tested in accordance with AAMA 507, AAMA 1503 and NFRC 100:
 1. Match Window Glazing See section 088000 "Glazing."

2.2 SOURCE LIMITATIONS

1. Obtain all components of curtain-wall systems, curtain walls, and storefront system, including framing, entrances and accessories, from single manufacturer.

2.3 MANUFACTURERS

1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer indicated, or a comparable product by one of the following:
 1. EFCO, Corporation.
 2. Kawneer North America, an Arconic company B. Finish: Color Anodized.
2. GLAZING
3. Glazing: Comply with Section 088000 "Glazing."

2.4 MATERIALS

1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of standards indicated below.
 1. Sheet and Plate: ASTM B 209.
 2. Extruded Bars, Rods, Shapes, and Tubes: ASTM B 221.
 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 4. Bars, Rods, and Wire: ASTM B 211.
 5. Welding Rods and Bare Electrodes: AWS A5.10.

2. Steel Reinforcement: Complying with ASTM A 36 for structural shapes, plates, and bars; ASTM A 611 for cold-rolled sheet and strip; or ASTM A 570 for hot-rolled sheet and strip.
3. Glazing Gaskets: As required to comply with system performance requirements. Provide gasket assemblies that have corners sealed with sealant recommended by gasket manufacturer.
4. Spacers, Setting Blocks, Gaskets, and Bond Breakers: Manufacturer's standard permanent, nonmigrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system performance requirements.
5. Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.
6. Compression Glazing Strips and Weather-Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action, and completely concealed when aluminum window is closed.
 1. Weather-Stripping Material: Elastomeric cellular preformed gaskets complying with ASTM C 509.
 2. Weather-Stripping Material: Dense elastomeric gaskets complying with ASTM C 864
 3. Weather-Stripping Material: Manufacturer's standard system and materials complying with AAMA/NWWDA 101/I.S.2.

2.5 COMPONENTS

1. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 1. Reinforce members as required to retain fastener threads.
 2. Do not use exposed fasteners, except for hardware application. For hardware application, use countersunk Phillips flat-head machine screws finished to match framing members or hardware being fastened, unless otherwise indicated.
2. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123 or ASTM A 153 requirements.
3. Dividers (False Muntins): Provide extruded-aluminum divider grilles in designs indicated for each sash lite.
 1. Type: Permanently located at exterior lite.
 2. Pattern: As indicated on Drawings.
 3. Profile: As selected by Architect from manufacturer's full range.

2.6 ENTRANCE DOOR HARDWARE

1. General: Provide entrance door hardware for each entrance door to comply with requirements in this Section.
 1. Entrance Door Hardware Sets: Refer to Section 087100 Door Hardware and the following.
 - a. Weather Stripping: Manufacturer's standard replaceable components.

- b. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.
 - c. Silencers: BHMA A156.16, Grade 1.
2. Thresholds: BHMA A156.21, raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch.

2.7 FABRICATION

1. General: Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.
 1. Fabricate components for screw-spline (concealed fastener) frame construction.
 2. Forming: Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
 3. Prepare components to receive concealed fasteners and anchor and connection devices.
 4. Fabricate components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.
2. Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
3. Glazing Channels: Provide minimum clearances for thickness and type of glass indicated according to FGMA's "Glazing Manual."
4. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

2.8 ALUMINUM FINISHES

1. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
 1. Color: Match Architect's sample.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of glazing systems. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. General: Comply with manufacturer's written instructions for protecting, handling, and installing glazing systems. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints. Seal joints watertight.
2. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
3. Install the system plumb and true in alignment with established lines and grades without warp or rack. Lubricate operating hardware and other moving parts according to hardware manufacturers' written instructions.
4. Install glazing to comply with requirements of Division 08 Section "Glazing," unless otherwise indicated.
5. Install perimeter sealant to comply with requirements of Division 07 Section "Joint Sealants," unless otherwise indicated.

3.3 FIELD QUALITY CONTROL

1. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
2. Field Quality-Control Testing: Perform the following test on representative areas of aluminum-framed entrances and storefronts.
 1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Perform a minimum of three tests in areas as directed by Architect.
 - b. Perform tests in each test area as directed by Architect. Perform at least three tests, prior to 10, 35, and 70 percent completion.
 2. Air Leakage: ASTM E783 at 1.5 times the rate specified for laboratory testing in "Performance Requirements" Article but not more than 0.09 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft..
 - a. Perform a minimum of three tests in areas as directed by Architect.
 - b. Perform tests in each test area as directed by Architect. Perform at least three tests, prior to 10, 35, and 70 percent completion.
 3. Water Penetration: ASTM E1105 at a minimum uniform and cyclic static-air-pressure differential of 0.67 times the static-air-pressure differential specified for laboratory testing in "Performance Requirements" Article, but not less than 6.24 lbf/sq. ft., and shall not evidence water penetration.
3. Structural-Sealant Adhesion: Test structural sealant according to recommendations in ASTM C1401, Destructive Test Method A, "Hand Pull Tab (Destructive)," Appendix X2.
 1. Test a minimum of four areas on each building facade.
 2. Repair installation areas damaged by testing.

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4. Aluminum-framed entrances and storefronts will be considered defective if they do not pass tests and inspections.
5. Prepare test and inspection reports.

3.4 PROTECTION

1. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure glazing systems are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 084113

SECTION 087100 - DOOR HARDWARE

GENERAL

RELATED DOCUMENTS

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

SUMMARY

2. This Section includes commercial door hardware for the following:
 1. Swinging doors.
 2. Sliding doors.
 3. Other doors to the extent indicated.
3. Door hardware includes, but is not necessarily limited to, the following:
 1. Mechanical door hardware.
 2. Electromechanical door hardware.
 3. Automatic operators.
 4. Cylinders specified for doors in other sections.
4. Related Sections:
 1. Division 08 Section "Operations and Maintenance".
 2. Division 08 Section "Door Schedule".
 3. Division 08 Section "Door Hardware Schedule".
 4. Division 08 Section "Hollow Metal Doors and Frames".
 5. Division 08 Section "Flush Wood Doors".
 6. Division 08 Section "Sound Control Wood Door Assemblies".
 7. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
 8. Division 08 Section "Automatic Door Operators".
 9. Division 28 Section "Access Control Hardware Devices".
5. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.

2. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
 3. ICC/IBC - International Building Code.
 4. NFPA 70 - National Electrical Code.
 5. NFPA 80 - Fire Doors and Windows.
 6. NFPA 101 - Life Safety Code.
 7. NFPA 105 - Installation of Smoke Door Assemblies.
 8. UL/ULC and CSA C22.2 - Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.
 9. State Building Codes, Local Amendments.
6. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
1. ANSI/BHMA Certified Product Standards - A156 Series.
 2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
 3. ANSI/UL 294 - Access Control System Units.
 4. UL 305 - Panic Hardware.

SUBMITTALS

7. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
8. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.

- g. Door and frame sizes and materials.
 - h. Warranty information for each product.
- 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- 9. Shop Drawings: Details of electrified access control hardware indicating the following:
 - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 - 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- 10. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- 11. Informational Submittals:
 - 1. Hurricane Resistant Openings (State of Florida): Within the State of Florida, provide copy of current State of Florida Product Approval as proof of compliance that doors, frames and hardware for exterior opening assemblies have been tested and approved for use at the wind load and design pressure and debris impact resistance level requirements specified for the Project.
 - a. Hurricane Resistant Components (State of Florida): Within the State of Florida, provide copy of independent, third party certified listing to ANSI A250.13.
 - 2. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

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

QUALITY ASSURANCE

14. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
15. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).
16. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
17. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
18. Integrated Wireless, and IP-Enabled Access Control Products Supplier Qualifications: Integrated access control products and accessories are required to be supplied and installed through current members of the ASSA ABLOY "Authorized Channel Partner" (ACP) and "Certified Integrator" (CI) programs. Suppliers are to be factory trained, certified prior to project bid, and a direct purchaser of the specified product. Installers are to be factory trained, certified prior to project bid, and are responsible for commissioning, servicing, and warranting the installed equipment specified for the project.
19. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

20. Hurricane Resistant Exterior Openings (State of Florida including the High Velocity Hurricane Zone (HVHZ)): Provide exterior door hardware as complete and tested assemblies, or component assemblies, including approved doors and frames specified under Section 081113 "Hollow Metal Doors and Frames", to meet the design pressures, debris impact resistance, and glass and glazing requirements as detailed in the current State of Florida building code sections applicable to the Project.
 1. Each unit to bear third party permanent label in accordance with the Florida Building Code requirements.
21. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.
22. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 1. Function of building, purpose of each area and degree of security required.
 2. Plans for existing and future key system expansion.
 3. Requirements for key control storage and software.
 4. Installation of permanent keys, cylinder cores and software.
 5. Address and requirements for delivery of keys.
23. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
24. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

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

COORDINATION

28. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
29. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
30. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

WARRANTY

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

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

MAINTENANCE SERVICE

34. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PRODUCTS

BUTT HINGES

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

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

CONTINUOUS HINGES

36. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:.

- a. Pemko (PE).

POWER TRANSFER DEVICES

37. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

- a. Securitron (SU) - EL-CEPT Series.

38. Electrified Quick Connect Data Transfer Hinges: Provide combined electrified power and Ethernet data transfer hinges with Molex™ standardized plug connectors to accommodate electrified functions with a 1-year warranty as specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Data transfer hinges feature two 6-position and two 4-position Molex connectors, 9 multi-strand wires; 2 twisted pairs (26 AWG), 4 straight conductors (28 gauge) and 1 straight conductor (22 AWG) with concealed plug connectors eliminating the need for separate or exposed wiring. Rated 350 mA continuous @ 48 volts DC nominal, the hinge is capable of two PoE wiring configurations:

- a. Power over Data (5 wire): Power and Data supplied together over the 2 twisted 26 AWG) pairs. The 22 AWG conductor is used for the earth ground connection.
- b. Data with Power over Spares (9 wire): Data over 2 twisted (26 AWG) pairs with Power over spare pairs 94 straight 28 AWG conductors). The 22 Awg conductor is used for earth ground connection.

2. Manufacturers:

- a. McKinney (MK) - PoE Series.

39. Concealed Quick Connect Electric Data Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified access control door hardware. Furnish with Molex™ or RJ-45 standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

- a. Securitron (SU) - CEPT-C5E Series.

40. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

1. Provide one each of the following tools as part of the base bid contract:

- a. McKinney (MK) - Electrical Connecting Kit: QC-R001.
b. McKinney (MK) - Connector Hand Tool: QC-R003.

2. Manufacturers:

- a. McKinney (MK) - QC-C Series.
b. McKinney (MK) - PoE Series.

41. Provide mortar guard enclosure on steel frames installed at masonry openings for each electrical hinge specified.

DOOR OPERATING TRIM

42. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.

1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
2. Furnish dust proof strikes for bottom bolts.

3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
5. Manufacturers:

- a. Rockwood (RO).

43. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls, where applicable, shall be provided with a 10" clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets. When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
6. Manufacturers:

- a. Rockwood (RO).

CYLINDERS AND KEYING

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

1. Manufacturers:

- a. Sargent Manufacturing (SA).
- b. No Substitution.

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

1. Threaded mortise cylinders with rings and cams to suit hardware application.

2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
 4. Tubular deadlocks and other auxiliary locks.
 5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 6. Keyway: Match Facility Standard.
46. Large Format Interchangeable Cores: Provide removable cores (LFIC) as specified, core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware.
47. Patented Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer's United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting.
 1. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.
 2. Manufacturers:
 - a. Sargent (SA) - Degree DG1.
 - b. No Substitution.
48. Keying System: Each type of lock and cylinders to be factory keyed.
 1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. Existing System: Field verify and key cylinders to match Owner's existing system.
49. Key Quantity: Provide the following minimum number of keys:
 1. Change Keys per Cylinder: Two (2)
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).
 4. Construction Control Keys (where required): Two (2).
 5. Permanent Control Keys (where required): Two (2).
50. Construction Keying: Provide temporary keyed construction cores.
51. Key Registration List (Bitting List):

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

KEY CONTROL

Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

Manufacturers:

Lund Equipment (LU).
MMF Industries (MM).
Telkee (TK).

CYLINDRICAL LOCKS AND LATCHING DEVICES

52. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide locksets with functions and features as follows:
 - a. Meets ANSI/BHMA A156.41 for single motion egress.
 - b. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
 - c. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
 - d. Meets Florida Building Code FL2998 and UL Certification Directory ZHEM.R21744 for latching hardware for hurricane requirements.
 - e. Exceeds ANSI/BHMA A156.2 requirements by 2.6 times for 3,100 in-lb. abusive locked lever torque with no entry while maintaining egress.
 - f. Exceeds ANSI/BHMA A156.2 requirements by 8 times for 1,600 lbs. offset lever pull with no entry for protection against attacks.
 - g. Exceeds ANSI/BHMA A156.3 requirements by 2 times for latch retraction with 100 lb. preload while maintaining operation in warped doors.
 - h. Exceeds ANSI/BHMA A156.3 requirements by 20 times for no access with minimum 100 vertical impacts for protection against vandalism attempts.
 - i. Independent return springs allow lock to exceed ANSI/BHMA A156.2 Grade 1 cycle requirements without lever sag.
 - j. Status indicators inside, outside, or on both sides of doors as specified with high visibility red/green or red/white icons to display locked or unlocked state in the rose.
 - k. Ten-year limited warranty for mechanical functions.
2. Manufacturers:

- a. Sargent Manufacturing (SA) - 10X Line.
- b. No Substitution.

LOCK AND LATCH STRIKES

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

CONVENTIONAL EXIT DEVICES

55. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
 1. Exit devices shall have a five-year warranty.
 2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
 3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
 5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 6. Flush End Caps: Provide flush end caps made of architectural metal in the same finish as the devices as in the Hardware Sets. Plastic end caps will not be acceptable.
 7. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

- a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 8. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
 9. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 10. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 11. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 12. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
 13. Hurricane and Storm Shelter Compliance: Devices to be U.L. listed for windstorm assemblies where applicable. Provide the appropriate hurricane or storm shelter products that have been independently third party tested, certified, and labeled to meet state and local windstorm building codes applicable to project.
56. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein.
1. Provide exit devices with functions and features as follows:
 - a. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
 - b. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
 - c. Meets Florida Building Code FL2998 and UL Certification Directory ZHEM.R21744 for latching hardware for hurricane requirements.
 - d. Five-year limited warranty for mechanical features.
 2. Electromechanical exit devices shall have the following functions and features:
 - a. Universal Molex plug-in connectors that have standardized color-coded wiring and are field configurable in fail safe or fail secure and operate from 12vdc to 24vdc regulated.
 - b. EcoFlex or equivalent technology that reduces energy consumption up to 92% as certified by GreenCircle.
 - c. Options to be available for request-to-exit or enter signaling, latchbolt and touchbar monitoring.
 - d. Field configurable electrified trim to fail-safe or fail-secure that operates from 12-24VDC.
 - e. Five-year limited warranty for electromechanical features.
 3. Manufacturers:

- a. Sargent Manufacturing (SA) - 80 Series.
- b. No Substitution.

DOOR CLOSERS

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

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

58. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Heavy duty surface mounted door closers shall have a 30-year warranty.
2. Manufacturers:

- a. Sargent Manufacturing (SA) - 351 Series.

59. Door Closers, Surface Mounted (Cam Action): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, high efficiency door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be of the cam and roller design, one piece cast aluminum silicon alloy body with adjustable backcheck and independently controlled valves for closing sweep and latch speed.

1. Manufacturers:

a. Sargent Manufacturing (SA) - 422 Series.

60. Door Closers, Surface Mounted (Commercial Duty): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, institutional grade door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide non-handed units standard.

1. Manufacturers:

a. Sargent Manufacturing (SA) - 1431 Series.

ELECTROMECHANICAL DOOR OPERATORS

Electromechanical Door Operators (High Traffic): Provide ANSI/BHMA A156.19 Certified Products Directory (CPD) listed low energy operators that are UL325/991 and UL10C certified and comply with requirements for the Americans with Disabilities Act (ADA). Operators shall accommodate openings up to 250 pounds and 48" wide.

Provide operators with features as follows:

Non-handed with push and pull side mounting.
Activation by push button, hands-free or radio frequency devices.
Adjustable opening force and closing power.
Two-year limited warranty.
Wi-Fi interface where the operator is a secure, password protected WiFi hot spot with no connection to building's IT required.
Simple setup with no app required.
View status and make adjustments without removing the cover.
Built-in logic to support single use restroom applications with no external relay boards, logic modules, position switches required.
Mounting backplate to simplify and speed up installation.
Integration with access control systems.

Operators shall have the following functionality:

Adjustable Hold Open: Amount of time a door will stay in the full open position after an activation.
Blow Open for Smoke Ventilation: Door opens when signal is received from alarm system allowing air or smoke to flow through opening. Door will stay open until signal from alarm system is stopped.
Emergency Interface Relay: Door closes and ignores any activation input until signal is discontinued.
Infinite Hold Open: Door will hold open at set position until power is turned off.

- Latch Assist: At closed position, after an activation, the door is pulled in. After the door has closed, the door is pulled in to assist with latch release/engagement.
- Obstruction Detection: Door closes if it hits an obstruction while opening; door will reverse to open position if it hits an obstruction while closing. Door will stop once it hits an obstruction and will rest against the obstruction until removed.
- Open Delay: Delays operator opening for locking hardware.
- Outside Wall Switch Disable: When contact is closed, outside wall switch is disabled.
- Power Assist: Senses the door is being opened manually and applies small amount of power to assist the user in opening the door with force less than 5 lbs. The door opens only as far as it is moved manually, then closes once released.
- Power Close: Additional force to assist door closing between 7° and 2°.
- Presence Detector Input: Input for external sensor to detect presence at door open or close position only.
- Push & Go: As the door is manually opened, the operator "senses" movement and opens door to the full-open position.
- Selector Mode Switch: Off disables the signal inputs unless Blow Open is activated, on activates the signal inputs, hold open activates the unit (unless Blow Closed is activated) to the hold open position.
- Vestibule Delay: When the wall switch is pressed, first door in vestibule will open. Second door will open once vestibule door delay has expired. Delay is adjustable.
- Executive Mode Feature: When the door receives an activation signal it opens and remains open until either a second signal is received, or the door is manually moved in closing direction.

Manufacturers:

ASSA ABLOY Entrance Systems (BE) - SW200 Series.

ARCHITECTURAL TRIM

61. Door Protective Trim

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

- a. Stainless Steel: 300 grade, 050-inchthick.
- 5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
- 6. Manufacturers:
 - a. Rockwood (RO).

DOOR STOPS AND HOLDERS

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

ARCHITECTURAL SEALS

- 65. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- 66. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 - 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

67. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.
68. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
69. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
70. Manufacturers:
 1. Pemko (PE).

ELECTRONIC ACCESSORIES

71. Networked Contactless Smart Card Readers: Contactless smart cards reader to securely read access control data from 13.56 MHz contactless smart cards. The contactless smart card reader is designed for use in access control applications by providing:
 1. Secure access control data exchange between the smart card and the reader utilizing key diversification and mutual authentication routines.
 2. Contactless smart card reader to be designed for low current operation to enable migration from most legacy proximity applications without the need to replace existing access control panels and/or power supplies. Operating voltage: 5-16 VDC. Current requirements: 55 mA Avg, 116 mA Peak at 12 VDC.
 3. Universal compatibility with most access control systems and backwards compatibility with legacy 125 KHz proximity access control formats.
 4. Product construction suitable for both indoor and outdoor applications.
 5. Customizable behavior for indicator lights and audible tones.
 6. Manufacturers (13.56 MHz iClass):
 - a. HID Global (HD) - RK40 Series.
72. Key Switches: Key switches furnished standard with stainless steel single gang face plate with a 12/24VDC bi-color LED indicator. Integral backing bracket permits integration with any 1 1/4" or 1 1/2" mortise type cylinder. Key switches available as momentary or maintained action and in narrow face plate options.
 1. Manufacturers:

- a. Securitron (SU) - MK Series.

73. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.

1. Manufacturers:

- a. Sargent Manufacturing (SA) - 3280 Series.
- b. Securitron (SU) - DPS Series.

74. Intelligent Switching Power Supplies: Provide power supplies with single, dual or multi-voltage configurations at 12 and/or 24VDC. Power Supply shall have battery backup function with an integrated battery charging circuit. The power supply shall have a standard, integrated Fire Alarm Interface (FAI). The power supply shall provide capability for secondary voltage, power distribution, direct lock control and network monitoring through add on modules. The power supply shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs. Network modules shall provide remote monitoring functions such as status reporting, fault reporting and information logging.

1. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
2. Manufacturers:

- a. Securitron (SU) - AQL Series.

FABRICATION

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

FINISHES

76. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
77. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

78. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

EXECUTION

EXAMINATION

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

PREPARATION

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

INSTALLATION

83. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
84. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
85. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work

specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

86. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
87. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
88. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

FIELD QUALITY CONTROL

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

ADJUSTING

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

CLEANING AND PROTECTION

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

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

DOOR HARDWARE SETS

95. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 1. Quantities listed are for each pair of doors, or for each single door.
 2. The supplier is responsible for handing and sizing all products.
 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.
96. Manufacturer's Abbreviations:
 1. MK - McKinney
 2. PE - Pemko
 3. SU - Securitron
 4. RU - Corbin Russwin
 5. RO - Rockwood
 6. SA - SARGENT
 7. RF - Rixson
 8. BM - Besam
 9. HG - HID Global
 10. OT - Other

Hardware Sets

Set: 1.0

Doors: F0100A, F0100B

Description: Ext Alum Pair-(Auto Op & Access Control)

2	Continuous Hinge	CFMxxSLF-HD1 PT		PE
2	Electric Power Transfer	EL-CEPT	630	SU
1	CVR Exit Dev, ELR	DG164 43 55 56 AD8410 106 x 863	US32D	SA
1	CVR Exit Dev, ELR Dummy	43 55 56 AD8410 863	US32D	SA
1	Cylinder Housing	as required for keyswitch	US32D	SA
2	Core	DG1 6300	US15	SA
1	Pair Door Operators	SW200i (surface pair)	689	BM
1	Gasketing	By aluminum door supplier		PE
1	Threshold	2005AV x door width		PE
2	ElectroLynx Harness	QC-C x L.A.R.		MK
2	ElectroLynx Harness	QC-C1500		MK
1	Reader	RK40 (Provided by Div. 28)	BLK	HG
2	Position Switch	DPS		SU
1	Keyswitch	MKA		SU
2	Door Swith (actuator)	BEA MS21H Series		BM
1	Power Supply	AQL4-E1-D8PR8 X TM-9		SU
1	Exterior Bollard	Pedestal Pro ADA-SS-TWR-47x4x6-2	Black	OT

Notes: -Weather seals to be provided by door manufacturer.
-Provide necessary drop plates and fillers for proper installation of door closers
-Exterior doors and hardware to comply with FBC windstorm requirements.

Operational Narrative:

1. Doors normally closed and secure.
2. Authorized access by card reader retracting exit device latch.
3. Exit device latch can be electrically held retracted for open access.
4. ADA access by actuator switch.
5. In locked condition, actuator energized only upon valid card reader presentation.
6. Egress free for immediate exit. ADA egress by actuator switch.
7. REX switch in push rail allows authorized exit without alarm condition.
8. Door position switch monitor open/closed status.
9. Exit device latch releases (fail secure) in event of power loss.
10. Keyed cylinder override for emergency access.
11. Keyswitch to power operator on/off.

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Set: 2.0

Doors: F0143

Description: Ext Alum Pair-(Access Control)

2	Continuous Hinge	CFMxxSLF-HD1 PT		PE
2	Electric Power Transfer	EL-CEPT	630	SU
1	CVR Exit Dev, ELR	DG164 43 55 56 AD8410 106 x 863	US32D	SA
1	CVR Exit Dev, Dummy	43 55 AD8410 863	US32D	SA
1	Core	DG1 6300	US15	SA
2	Surface Closer	351 P9	EN	SA
2	Door Stop	483 EXP	US26D	RO
1	Threshold	2005AV x door width		PE
2	ElectroLynx Harness	QC-C x L.A.R.		MK
2	ElectroLynx Harness	QC-C1500		MK
1	Reader	RK40 (Provided by Div. 28)	BLK	HG
2	Position Switch	DPS		SU
1	Power Supply	AQL Series		SU

Notes: -Weather seals to be provided by door manufacturer.
-Provide necessary drop plates and fillers for proper installation of door closers
-Exterior doors and hardware to comply with FBC windstorm requirements.

Operational Narrative:

1. Doors normally closed and secure.
2. Authorized access by card reader retracting exit device latch at the active leaf.
3. Exit device latch can be electrically held retracted for open access.
4. Egress free for immediate exit.
5. REX switch in push rail allows authorized exit without alarm condition.
6. Door position switches monitor open/closed status.
7. Exit device latches release (fail secure) in event of power loss.
8. Keyed cylinder override for emergency access.

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Set: 3.0

Doors: F0100D, F0100E

Description: Int Alum Pair-(Auto Op & Access Control)

2	Continuous Hinge	CFMxxSLF-HD1 PT		PE
2	Electric Power Transfer	EL-CEPT	630	SU
1	CVR Exit Dev, ELR	DG164 NB 43 55 56 AD8410 106 x 863	US32D	SA
1	CVR Exit Dev, ELR Dummy	NB 43 55 56 AD8410 863	US32D	SA
1	Cylinder Housing	as required for keyswitch	US32D	SA
2	Core	DG1 6300	US15	SA
1	Pair Door Operators	SW200i (surface pair)	689	BM
1	Gasketing	By aluminum door supplier		PE
2	ElectroLynx Harness	QC-C x L.A.R.		MK
2	ElectroLynx Harness	QC-C1500		MK
1	Reader	RK40 (Provided by Div. 28)	BLK	HG
2	Position Switch	DPS		SU
1	Keyswitch	MKA		SU
2	Door Swith (actuator)	BEA MS21H Series		BM
1	Power Supply	AQL4-E1-D8PR8 X TM-9		SU

Notes: Operational Narrative:

1. Doors normally closed and secure.
2. Authorized access by card reader retracting exit device latch.
3. Exit device latch can be electrically held retracted for open access.
4. ADA access by actuator switch.
5. In locked condition, actuator energized only upon valid card reader presentation.
6. Egress free for immediate exit. ADA egress by actuator switch.
7. REX switch in push rail allows authorized exit without alarm condition.
8. Door position switch monitor open/closed status.
9. Exit device latch releases (fail secure) in event of power loss.
10. Keyed cylinder override for emergency access.
11. Keyswitch to power operator on/off.

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Set: 4.0

Doors: F0085A

Description: Int Lobby Pair-(Auto Op & Access Control) - rated

6	Hinge (heavy weight)	T4A3786	US26D	MK
2	Electric Power Transfer	EL-CEPT	630	SU
1	SVR Exit Dev, ELR	DG160 12 43 55 56 NB8710 306 x 863	US32D	SA
1	SVR Exit Dev, ELR Dummy	12 43 55 56 NB8710 863	US32D	SA
1	Cylinder Housing	as required for keyswitch	US32D	SA
2	Core	DG1 6300	US15	SA
1	Pair Door Operators	SW200i (surface pair)	689	BM
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Wall Stop	409	US26D	RO
2	Astragal	303ASTST		PE
1	Gasketing	S773BL		PE
2	ElectroLynx Harness	QC-C x L.A.R.		MK
2	ElectroLynx Harness	QC-C1500		MK
1	Reader	RK40 (Provided by Div. 28)	BLK	HG
2	Position Switch	DPS		SU
1	Keyswitch	MKA		SU
2	Door Swith (actuator)	BEA MS21H Series		BM
1	Power Supply	AQL4-E1-D8PR8 X TM-9		SU

Notes: Operational Narrative:

1. Doors normally closed and secure.
2. Authorized access by card reader retracting exit device latch.
3. Exit device latch can be electrically held retracted for open access.
4. ADA access by actuator switch.
5. In locked condition, actuator energized only upon valid card reader presentation.
6. Egress free for immediate exit. ADA egress by actuator switch.
7. REX switch in push rail allows authorized exit without alarm condition.
8. Door position switch monitor open/closed status.
9. Exit device latch releases (fail secure) in event of power loss.
10. Keyed cylinder override for emergency access.
11. Keyswitch to power operator on/off.

Set: 5.0

Doors: F0122

Description: Ext Alum Pair-(Access Control)

2	Door Stop	483 EXP	US26D	RO
1	Reader	RK40 (Provided by Div. 28)	BLK	HG
1	Existing Door	All existing hardware to remain		OT

Notes:

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

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Set: 6.0

Doors: F0100C

Description: Ext Alum-(Card Access - PoE)

1	Continuous Hinge	CFMxxSLF-HD1 PT		PE
1	Electric Power Transfer	CEPT-NW	630	SU
1	Access Control Exit Dev(PoE)	DG160 43 IN220-HC8877 BIKPS ETL		
	(Provided by Div. 28)	US32D	SA	
1	Core	DG1 6300	US15	SA
1	Conc Overhead Stop	6ADJ-x36	630	RF
1	Surface Closer	351 P9	EN	SA
1	Gasketing	By aluminum door supplier		PE
1	Threshold	2005AV x door width		PE
1	ElectroLynx Harness	PoE-CEPT30RJ (Provided by Div. 28)		MK
1	ElectroLynx Harness (door)	PoE-C**** x Length Required		MK
1	ElectroLynx Harness (frame)	PoE-C1500P		MK

Notes: -Weather seals to be provided by door manufacturer.
-Provide necessary drop plates and fillers for proper installation of door closers
-Exterior doors and hardware to comply with FBC windstorm requirements.

Operational Narrative:

1. Door normally closed and secure.
2. Outside lever rigid except when valid credential presented to integrated card reader.
3. Egress free for immediate exit.
4. Integral REX switch allows authorized exit without alarm condition.
5. Door position switch (included) monitors open/closed status.
6. Lever remains locked (fail secure) in event of power loss.
7. Keyed cylinder override for emergency access.

Set: 7.0

Doors: F0105A, F0105B

Description: Ext Alum Single

1	Position Switch	DPS		SU
1	Existing Door	All existing hardware to remain		OT

Notes: Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

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Set: 8.0

Doors: [F0065A](#)

Description: Ext Pair - Access Control (rated)

6	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
2	Electric Power Transfer	EL-CEPT	630	SU
1	SVR Exit Dev, ELR	DG164 12HC 43 55 56 8706 ETL	US32D	SA
1	SVR Exit Dev, Exit Only	12HC 43 55 8710 EO	US32D	SA
1	Core	DG1 6300	US15	SA
2	Surface Closer	351 CPS	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Astragal	303ASTST		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Gasketing	303AS		PE
1	Gasketing	ACP112BL/2		PE
2	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
2	ElectroLynx Harness	QC-C x L.A.R.		MK
2	ElectroLynx Harness	QC-C1500		MK
1	Reader	RK40 (Provided by Div. 28)	BLK	HG
2	Position Switch	DPS		SU
1	Power Supply	AQL Series		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Operational Narrative:

1. Doors normally closed and secure.
2. Authorized access by card reader retracting exit device latch at the active leaf.
3. Exit device latch can be electrically held retracted for open access.
4. Egress free for immediate exit.
5. REX switch in push rail allows authorized exit without alarm condition.
6. Door position switches monitor open/closed status.
7. Exit device latches release (fail secure) in event of power loss.
8. Keyed cylinder override for emergency access.

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Set: 9.0

Doors: **F0015B**

Description: Ext Single (Card Access - PoE)

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Electric Power Transfer	CEPT-NW	630	SU
1	Access Control Exit Dev(PoE) (Provided by Div. 28)	DG160 43 IN220-HC8877 BIKPS ETL	US32D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	351 P9	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	483 EXP	US26D	RO
1	Rain Guard	346C x door width plus 4"		PE
1	Gasketing	303AS		PE
1	Gasketing	ACP112BL/2		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	ElectroLynx Harness	PoE-CEPT30RJ (Provided by Div. 28)		MK
1	ElectroLynx Harness (door)	PoE-C**** x Length Required		MK
1	ElectroLynx Harness (frame)	PoE-C1500P		MK

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Operational Narrative:

1. Door normally closed and secure.
2. Outside lever rigid except when valid credential presented to integrated card reader.
3. Egress free for immediate exit.
4. Integral REX switch allows authorized exit without alarm condition.
5. Door position switch (included) monitors open/closed status.
6. Lever remains locked (fail secure) in event of power loss.
7. Keyed cylinder override for emergency access.

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Set: 10.0

Doors: F0107A, F0110, F0146B

Description: Ext Single (Exit Only) - rated

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Rim Exit Device, Exit Only	12HC 43 8810 EO	US32D	SA
1	Surface Closer	351 CPS	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	483 EXP	US26D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Set: 11.0

Doors: F0072B, F0103C

Description: Ext Alum @ Classroom (Exit Only)

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Rim Exit Device, Exit Only	LD 43 WS AD8510 EO	US32D	SA
1	Surface Closer	351 P9	EN	SA
1	Door Stop	483 EXP	US26D	RO
1	Gasketing	By aluminum door supplier		PE
1	Threshold	2005AV x door width		PE
1	Position Switch	DPS		SU

Notes: -Weather seals to be provided by door manufacturer.
-Provide necessary drop plates and fillers for proper installation of door closers
-Exterior doors and hardware to comply with FBC windstorm requirements.

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Set: 12.0

Doors: F0087

Description: Ext Pair (Exit Only)

6	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
2	Surface Vert Rod Exit, Exit Only	HC 43 8710 EO	US32D	SA
2	Surface Closer	351 CPS	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Door Stop	483 EXP	US26D	RO
2	Astragal	303ASTST		PE
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
2	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
2	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

Set: 13.0

Doors: F0106C

Description: Ext @ Lighting Lab (Exit Only)

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Rim Exit Device, Exit Only	HC LD 43 8810 EO	US32D	SA
1	Surface Closer	351 P9	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	483 EXP	US26D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

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Set: 14.0

Doors: F0015A, F0140B

Description: Ext Single (Exit Only)

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Rim Exit Device, Exit Only	HC LD 43 8810 EO	US32D	SA
1	Surface Closer	351 P9	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	483 EXP	US26D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Set: 15.0

Doors: F0104B, F0125B, F0126B

Description: Ext Single (Lock,DPS)

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Storeroom Lock	DG164 10XG04 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	351 CPS	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

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Set: 16.0

Doors: 111A, 111B

Description: Ext Single @ Mech (Lock,DPS) F0054

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Storeroom Lock	DG164 10XG04 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	351 CPS	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

Set: 17.0

Doors: F0047

Description: Ext Supply Room

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Storeroom Lock	DG164 10XG04 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	1431 O	EN	SA
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	172A		PE
1	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

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Set: 18.0

Doors: F0145

Description: Ext Fire Riser

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Storeroom Lock	DG164 10XG04 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	351 P9	EN	SA
1	Door Stop	483 EXP	US26D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Set: 19.0

Doors: 110

Description: Ext Pair Cooling Tower F0046

8	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
2	Surface Bolt	988CR		RU
1	Storeroom Deadbolt Lock	DG164 8251 LNL	US26D	SA
1	Core	DG1 6300	US15	SA
2	Surface Closer	351 CPS	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Door Stop	483 EXP	US26D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
2	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
2	Position Switch	DPS		SU

Notes: -Astragal by door manufacturer.

-Exterior doors and hardware to comply with FBC windstorm requirements.

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

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Set: 20.0

Doors: F0009

Description: Ext Pair Outdoor Patio to Stage

10 Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
2 Surface Bolt	988CR		RU
1 Storeroom Deadbolt Lock	DG164 8251 LNL	US26D	SA
1 Core	DG1 6300	US15	SA
2 Conc Overhead Stop	6ADJ-x36	630	RF
2 Surface Closer	1431 O	EN	SA
2 Astragal	303ASTST		PE
1 Gasketing	S773BL		PE
1 Rain Guard	346C x door width plus 4"		PE
2 Sweep	315CN x door width		PE
1 Threshold	172A		PE

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Maximum approved height allowed is 8'. 12' door height will not comply with Florida building codes windstorm requirements and would require an engineers analysis and approval.

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Phase: Bid Documents
Bid Number: BID-SJR-06-2024

Set: 21.0

Doors: F0129A, F0133B

Description: Ext Single (Card Access - PoE)

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Electric Power Transfer	CEPT-NW	630	SU
1	Access Control Cyl Lock (PoE)	DG160 IN220-10XG77 BIKPS LL (Provided by Div. 28)	US26D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	351 CPS	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	483 EXP	US26D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	ElectroLynx Harness	PoE-CEPT30RJ (Provided by Div. 28)		MK
1	ElectroLynx Harness (door)	PoE-C**** x Length Required		MK
1	ElectroLynx Harness (frame)	PoE-C1500P		MK

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Operational Narrative:

1. Door normally closed and secure.
2. Outside lever rigid except when valid credential presented to integrated card reader.
3. Egress free for immediate exit.
4. Integral REX switch allows authorized exit without alarm condition.
5. Door position switch (included) monitors open/closed status.
6. Lever remains locked (fail secure) in event of power loss.
7. Keyed cylinder override for emergency access.

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

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Set: 22.0

Doors: **F0129C**

Description: Ext Single Scene Shop(Card Access - PoE)

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Electric Power Transfer	CEPT-NW	630	SU
1	Access Control Cyl Lock (PoE)	DG160 IN220-10XG77 BIKPS LL (Provided by Div. 28)	US26D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	351 CPS	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	483 EXP	US26D	RO
1	Gasketing	S773BL		PE
1	Rain Guard	346C x door width plus 4"		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	ElectroLynx Harness	PoE-CEPT30RJ (Provided by Div. 28)		MK
1	ElectroLynx Harness (door)	PoE-C**** x Length Required		MK
1	ElectroLynx Harness (frame)	PoE-C1500P		MK

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Operational Narrative:

1. Door normally closed and secure.
2. Outside lever rigid except when valid credential presented to integrated card reader.
3. Egress free for immediate exit.
4. Integral REX switch allows authorized exit without alarm condition.
5. Door position switch (included) monitors open/closed status.
6. Lever remains locked (fail secure) in event of power loss.
7. Keyed cylinder override for emergency access.

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

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Set: 23.0

Doors: **F0051B**

Description: Ext Single Student Lounge (Exit Only)

3	Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1	Rim Exit Device, Exit Only	HC LD 43 8810 EO	US32D	SA
1	Surface Closer	351 P9	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	483 EXP	US26D	RO
1	Rain Guard	346C x door width plus 4"		PE
1	Gasketing	303AS		PE
1	Gasketing	ACP112BL/2		PE
1	Sweep	315CN x door width		PE
1	Threshold	2005AV x door width		PE
1	Position Switch	DPS		SU

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

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Set: 24.0

Doors: F0028A, F0028B

Description: Interior Alum @ Gallery

1	Continuous Hinge	CFMxxSLF-HD1		PE
1	Rim Exit Device, Classroom	DG164 43 AD8513 ETL	US32D	SA
1	Core	DG1 6300	US15	SA
1	Conc Overhead Stop	6ADJ-x36	630	RF
1	Surface Closer	1431 P9	EN	SA
1	Gasketing	By aluminum door supplier		PE

Notes: **Provide access control add alternate.

Set: 24.ALT

Description: Interior Alum @ Gallery (Alternate)

1	Access Control Exit Dev(PoE)	DG160 43 IN100-8877-BIKPS ETL (Provided by Div. 28)	US32D	SA
-1	Rim Exit Device, Classroom	DG164 43 AD8513 ETL	US32D	SA

Notes: **Provide access control add alternate.

Set: 25.0

Doors: F0222C

Description: Double Egress Pair 2nd Floor

6	Hinge (heavy weight)	T4A3786	US26D	MK
2	Push Plate	70F	US32D	RO
2	Surface Closer	1431 ODB	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Wall Stop	409	US26D	RO
1	Astragal	375CR		PE
1	Gasketing	S773BL		PE

Set: 26.0

Doors: F0222B

Description: Circulation to Vest 2nd Floor

3	Hinge (heavy weight)	T4A3786	US26D	MK
1	Rim Exit Device, Passage	43 8815 ETL	US32D	SA
1	Door Closer	1431 CPS	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Gasketing	S773BL		PE

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Set: 27.0

Doors: F0146A, F0201B, F0232

Description: Stair (rated)

3	Hinge (heavy weight)	T4A3786	US26D	MK
1	Rim Exit Device, Passage	12 43 8815 ETL	US32D	SA
1	Surface Closer	422 CTB2	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	442 or 409 as required	US26D	RO
1	Gasketing	S773BL		PE
1	Sweep	315CN x door width		PE
1	Threshold	172A		PE

Notes: Install closer inside stairwell.

Set: 28.0

Doors: F0101C, F0102C

Description: Lobby Single (exit only - rated)

3	Hinge (heavy weight)	T4A3786	US26D	MK
1	Rim Exit Device, Exit Only	12 43 8810 EO	US32D	SA
1	Door Closer	1431 CPS	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	442 or 409 as required	US26D	RO
1	Gasketing	S773BL		PE
1	Position Switch	DPS		SU

Set: 29.0

Doors: F0142

Description: Circulation Pair STC50

6	Hinge (heavy weight)	T4A3786	US26D	MK
2	Surface Vert Rod Exit, Classroom	DG160 43 NB8713 ETL	US32D	SA
2	Core	DG1 6300	US15	SA
2	Door Closer	1431 CPS	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Door Stop	442 or 409 as required	US26D	RO
1	STC Seal System	Pemko Seal Set #4 Included with door		PE

Notes: STC Rated Doors will have the Gasketing, Seals, Door Bottoms furnished by the Door Mfg's
The hardware specified is listed as a basis of design. Coordinate with STC door manufacturer.

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Set: 30.0

Doors: F0140A, F0141

Description: Circulation Single

3	Hinge (heavy weight)	T4A3786	US26D	MK
1	Rim Exit Device, Classroom	DG160 43 8813 ETL	US32D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	1431 P9	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Wall Stop	409	US26D	RO
1	Acoustic Seal Set	PEMKOSTCSET-3A	BL	PE

Notes: **Provide access control add alternate at opening F0140A

Set: 30.ALT

Description: Circulation Single (Alternate)

1	Access Control Exit Dev(PoE)	DG160 43 IN100-8877-BIKPS ETL (Provided by Div. 28)	US32D	SA
-1	Rim Exit Device, Classroom	DG160 43 8813 ETL	US32D	SA

Notes: **Provide access control add alternate at opening F0140A

Set: 31.0

Doors: F0024, F0076, F0078, F0082, F0083, F0087A, F0088A, F0101A, F0102A, F0104A, F0106B, F0111, F0123, F0125A, F0126A, F0127, F0129, F0131, F0136B, F0139B, F0139D, F0201A, F0208, F0209, F0210, F0224A, F0224B

Description: Various Single

3	Hinge	TA2714	US26D	MK
1	Classroom Lock	DG160 10XG37 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Door Closer	1431 O or P9 as required	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	442 or 409 as required	US26D	RO
1	Gasketing	S773BL		PE

Notes: Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

**Provide access control add alternate.

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Set: 31.ALT

Description: Various Single (Alternate)

1	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA
-1	Classroom Lock	DG160 10XG37 LL	US26D	SA

Notes: **Provide access control add alternate.

Set: 32.0

Doors: F0067, F0070, F0071, F0112, F0130, F0136A, F0202, F0203, F0205, F0206, F0207, F0225, F0226, F0227, F0228, F0229

Description: Various Single

3	Hinge	TA2714	US26D	MK
1	Classroom Lock	DG160 10XG37 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Door Closer	1431 O or P9 as required	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	442 or 409 as required	US26D	RO
3	Silencer	608		RO

Notes: **Provide access control add alternate.

Set: 32.ALT

Description: Various Single (Alternate)

1	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA
-1	Classroom Lock	DG160 10XG37 LL	US26D	SA

Notes: **Provide access control add alternate.

Set: 33.0

Doors: F0072A, F0223, F0236

Description: Various Single

3	Hinge	TA2714	US26D	MK
1	Classroom Lock	DG160 10XG37 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Door Closer	1431 O or P9 as required	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Wall Stop	409	US26D	RO
1	Acoustic Seal Set	PEMKOSTCSET-3A	BL	PE

Notes: **Provide access control add alternate.

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Set: 33.ALT

Description: Various Single (Alternate)

1	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA
-1	Classroom Lock	DG160 10XG37 LL	US26D	SA

Notes: **Provide access control add alternate.

Set: 34.0

Doors: F0102B

Description: Drawing Studio Pair

6	Hinge	TA2714	US26D	MK
1	Dust Proof Strike	570	US26D	RO
2	Flush Bolt	555	US26D	RO
1	Classroom Lock	DG160 10XG37 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Surface Overhead Stop	9-X36	652	RF
1	Door Closer	1431 CPS	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Astragal	303ASTST		PE
1	Gasketing	S773BL		PE

Notes: Install overhead stop at the inactive leaf

**Provide access control add alternate.

Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

Set: 34.ALT

Description: Drawing Studio Pair (Alternate)

1	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA
-1	Classroom Lock	DG160 10XG37 LL	US26D	SA

Notes: **Provide access control add alternate.

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Set: 35.0

Doors: **F0108**

Description: Piano Room Pair STC50

6	Hinge (heavy weight)	T4A3786	US26D	MK	
1	Dust Proof Strike	570	US26D	RO	
2	Flush Bolt	555	US26D	RO	
1	Classroom Lock	DG160 10XG37 LL	US26D	SA	
1	Core	DG1 6300	US15	SA	
1	Conc Overhead Stop	6ADJ-x36	630	RF	
1	Surface Closer	1431 O	EN	SA	
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO	
1	STC Seal System	Pemko Seal Set #4 Included with door			PE

Notes: Install overhead stop at the inactive leaf

**Provide access control add alternate.

STC Rated Doors will have the Gasketing, Seals, Door Bottoms furnished by the Door Mfg's
The hardware specified is listed as a basis of design. Coordinate with STC door manufacturer.

Set: 35.ALT

Description: Piano Room Pair STC50 (Alternate)

1	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL			
		(Provided by Div. 28)	US26D	SA	
-1	Classroom Lock	DG160 10XG37 LL	US26D	SA	

Notes: **Provide access control add alternate.

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Set: 36.0

Doors: F0103A, F0103B, F0107B, F0124
Description: Existing Studio Pair

6	Hinge	TA2714	US26D	MK
1	Dust Proof Strike	570	US26D	RO
2	Flush Bolt	555	US26D	RO
1	Classroom Lock	DG160 10XG37 LL	US26D	SA
1	Core	DG1 6300	US15	SA
2	Door Closer	1431 O or P9 as required	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Door Stop	442 or 409 as required	US26D	RO
2	Astragal	303ASTST		PE
1	Acoustic Seal Set	PEMKOSTCSET-3A	BL	PE

Notes: Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

**Provide access control add alternate.

Set: 36.ALT

Description: Existing Studio Pair (Alternate)

1	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA
-1	Classroom Lock	DG160 10XG37 LL	US26D	SA

Notes: **Provide access control add alternate.

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Set: 37.0

Doors: F0133A

Description: Existing Costume Shop Pair

6	Hinge	TA2714	US26D	MK
1	Dust Proof Strike	570	US26D	RO
2	Flush Bolt	555	US26D	RO
1	Classroom Lock	DG160 10XG37 LL	US26D	SA
1	Core	DG1 6300	US15	SA
2	Surface Closer	1431 P9	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Wall Stop	409	US26D	RO
2	Astragal	303ASTST		PE
1	Gasketing	S773BL		PE

Notes: Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

**Provide access control add alternate.

Set: 37.ALT

Description: Existing Costume Shop Pair (Alternate)

1	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA
-1	Classroom Lock	DG160 10XG37 LL	US26D	SA

Notes: **Provide access control add alternate.

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Set: 38.0

Doors: [F0236A](#)

Description: Catwalk

3 Hinge	TA2714	US26D	MK
1 Classroom Lock	DG160 10XG37 LL	US26D	SA
1 Core	DG1 6300	US15	SA
1 Surface Closer	1431 P9	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Wall Stop	409	US26D	RO
3 Silencer	608		RO

Set: 39.0

Doors: [F0222A](#), [F0231](#), [F0237](#)

Description: Mechanical / Storage

3 Hinge	TA2714	US26D	MK
1 Storeroom Lock	DG160 10XG04 LL	US26D	SA
1 Core	DG1 6300	US15	SA
1 Door Closer	1431 O or P9 as required	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 40.1

Doors: [F0016](#), [F0017](#)

Description: Auditorium Pair

6 Hinge (heavy weight)	T4A3786	US26D	MK
2 Push Plate	70F	US32D	RO
2 Pull	RM202	US32D	RO
2 Door Closer	1431 P10	EN	SA
2 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2 Door Stop & Holder	494S	US26D	RO
2 Astragal	303ASTST		PE
1 Acoustic Seal Set	PEMKOSTCSET-3A	BL	PE

Set: 40.2

Doors: [F0016A](#), [F0017A](#)

Description: Auditorium Pair STC50

6 Hinge (heavy weight)	T4A3786	US26D	MK
2 Push Plate	70F	US32D	RO
2 Pull	RM202	US32D	RO
2 Door Closer	1431 P10	EN	SA
2 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2 Door Stop & Holder	494S	US26D	RO
1 STC Seal System	Pemko Seal Set #4 Included with door		PE

Notes: STC Rated Doors will have the Gasketing, Seals, Door Bottoms furnished by the Door Mfg's
The hardware specified is listed as a basis of design. Coordinate with STC door manufacturer.

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Set: 41.0

Doors: [F0011](#), [F0012](#)

Description: Stage

3	Hinge	TA2714	US26D	MK
1	Passage Latch	10XU15 LL	US26D	SA
1	Surface Closer	1431 O	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Wall Stop	409	US26D	RO
3	Silencer	608		RO

Set: 42.0

Doors: [F0002](#), [F0004](#)

Description: Dressing Room (rated)

3	Hinge	TA2714	US26D	MK
1	Classroom Lock	DG160 10XG37 LL	US26D	SA
1	Core	DG1 6300	US15	SA
1	Surface Closer	1431 O	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Wall Stop	409	US26D	RO
1	Gasketing	S773BL		PE

Set: 43.0

Doors: [F0135](#)

Description: Single Dressing Room

3	Hinge	TA2714	US26D	MK
1	Privacy Lock w/ Indicator	10XU65 VSLL V33	US26D	SA
1	Wall Stop	409	US26D	RO
3	Silencer	608		RO

Set: 44.0

Doors: [F0020](#), [F0021](#), [F0049](#), [F0050](#)

Description: Restroom

3	Hinge (heavy weight)	T4A3786	US26D	MK
1	Passage Latch	10XU15 LL	US26D	SA
1	Door Closer	1431 P10	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	442 or 409 as required	US26D	RO
3	Silencer	608		RO

Notes: Provide CPS closer arm at F0021

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Set: 45.0

Doors: [F0051A](#)

Description: Student Lounge

3	Hinge	TA2714	US26D	MK
1	Passage Latch	10XU15 LL	US26D	SA
1	Surface Closer	1431 O	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Wall Stop	409	US26D	RO
3	Silencer	608		RO

Set: 46.0

Doors: [F0001](#), [F0005](#), [F0048A](#), [F0048B](#), [F0144](#), [F0233](#)

Description: Toilet

3	Hinge	TA2714	US26D	MK
1	Privacy Lock w/ Indicator	10XU65 VSLL V33	US26D	SA
1	Door Closer	1431 O or P9 as required	EN	SA
1	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1	Door Stop	442 or 409 as required	US26D	RO
3	Silencer	608		RO

Set: 47.0

Doors: [F0129B](#), [F0129D](#), [F0139A](#), [F0139C](#)

Description: Overhead Door

1	Overhead Door	All hardware by door manufacturer	OT

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Set: 48.0

Doors: F0025, F0063

Description: Existing Storage Pair

6	Hinge	TA2714	US26D	MK
1	Dust Proof Strike	570	US26D	RO
2	Flush Bolt	555	US26D	RO
1	Storeroom Lock	DG160 10XG04 LL	US26D	SA
1	Core	DG1 6300	US15	SA
2	Door Closer	1431 O or P9 as required	EN	SA
2	Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2	Door Stop	442 or 409 as required	US26D	RO
1	Gasketing	S773BL		PE

Notes: Survey required to review existing hardware. Reuse as much hardware as possible. Provide feedback to architect for hardware that will need to be replaced with new hardware.

**Provide access control add alternate.

Set: 48.ALT

Description: Existing Storage Pair (Alternate)

-1	Storeroom Lock	DG160 10XG04 LL	US26D	SA
1	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA

Notes: **Provide access control add alternate.

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Set: 49.0

Doors: F0106D

Description: Lighting Lab STC50

3 Hinge (heavy weight)	T4A3786	US26D	MK	
1 Classroom Lock	DG160 10XG37 LL	US26D	SA	
1 Core	DG1 6300	US15	SA	
1 Door Closer	1431 CPS	EN	SA	
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO	
1 STC Seal System	Pemko Seal Set #6 Included with door			PE

Notes: **Provide access control add alternate.

STC Rated Doors will have the Gasketing, Seals, Door Bottoms furnished by the Door Mfg's
The hardware specified is listed as a basis of design. Coordinate with STC door manufacturer.

Set: 49.ALT

Description: Lighting Lab STC50 (Alternate)

1 Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA	
-1 Classroom Lock	DG160 10XG37 LL	US26D	SA	

Notes: **Provide access control add alternate.

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Set: 50.0

Doors: [F0106A](#)

Description: Lighting Lab Pair STC50

6 Hinge (heavy weight)	T4A3786	US26D	MK	
1 Dust Proof Strike	570	US26D	RO	
1 Flush Bolt	555	US26D	RO	
1 Classroom Lock	DG160 10XG37 LL	US26D	SA	
1 Core	DG1 6300	US15	SA	
2 Surface Closer	1431 O	EN	SA	
2 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO	
2 Door Stop	442 or 409 as required	US26D	RO	
1 STC Seal System	Pemko Seal Set #4 Included with door			PE

Notes: **Provide access control add alternate.

STC Rated Doors will have the Gasketing, Seals, Door Bottoms furnished by the Door Mfg's
The hardware specified is listed as a basis of design. Coordinate with STC door manufacturer.

Set: 50.ALT

Description: Lighting Lab Pair STC50 (Alternate)

1 Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL			
	(Provided by Div. 28)	US26D	SA	
-1 Classroom Lock	DG160 10XG37 LL	US26D	SA	

Notes: **Provide access control add alternate.

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Set: MISC

3	Electric Hinge, Hvy Wt	T4A3386-PoE ***	US32D	MK
2	Access Control Cyl Lock (PoE)	DG160 IN220-10XG77 BIKPS LL (Provided by Div. 28)	US26D	SA
2	Access Control Cyl Lock (PoE)	DG160 IN100-10XG77-BIKPS LL (Provided by Div. 28)	US26D	SA
1	Access Control Exit Dev(PoE)	DG160 43 IN100-8877-BIKPS ETL (Provided by Div. 28)	US32D	SA
2	ElectroLynx Harness	PoE-CEPT30RJ (Provided by Div. 28)		MK
15	Hub**	AH series (Provided by Div. 28)		SA
15	Antenna**	EXT-10-ANT (Provided by Div. 28)		SA
1	Aperio Programming Kit	APA-10-PC (Provided by Div. 28)		SA
1	DHTA	Data Hinge Test Adapter for IN220 (Provided by Div. 28)		SA
1	LCT Software	WFCD1 (Provided by Div. 28)		SA
1	Software	WFCD Lock Management Tool (LMT) (Provided by Div. 28)		SA

500 Cards

(Provided by Div. 28)

Notes: **Provide access control add alternate for Aperio Hub and Antenna.

Existing openings specified with the CEPT-NW with require an additional prep. The hinge option T4A3386-PoE *** may be used. Review and coordinate with the certified security integrator.

END OF SECTION 08 71 00

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Glass for doors, storefront, and curtain wall framing.
2. Glazing sealants and accessories.

1.2 COORDINATION

1. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.3 ACTION SUBMITTALS

1. Product Data: For each type of product.
2. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.
3. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
4. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Preconstruction adhesion and compatibility test report.

1.5 QUALITY ASSURANCE

1. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.

1.6 PRECONSTRUCTION TESTING

1. Preconstruction Adhesion and Compatibility Testing: Test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.

1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.

1.7 WARRANTY

1. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 1. Warranty Period: [10] years from date of Substantial Completion.
2. Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
 1. Warranty Period: [10] years from date of Substantial Completion.
3. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
 1. Warranty Period: [10] years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Guardian Glass; SunGuard.
 2. Trulite Glass & Aluminum Solutions, LLC.
 3. Viracon, Inc.
 4. Vitro.
 5. Oldcastle Building Envelope

2.2 PERFORMANCE REQUIREMENTS

1. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazing.

2. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the International Building Code and ASTM E1300.
 1. Design Wind Pressures: As indicated on Drawings.
3. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
4. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
 1. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
 2. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
 3. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

1. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 1. GANA Publications: ["Laminated Glazing Reference Manual" and]"Glazing Manual."
 2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR A7, "Sloped Glazing Guidelines."
 3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
 4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.

Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass[as needed to comply with "Performance Requirements" Article]. Where fully tempered float glass is indicated, provide fully tempered float glass.

2.4 LAMINATED GLASS

1. Laminated Glass: ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.

1. Construction: Laminate glass with [polyvinyl butyral interlayer] [ionomeric polymer interlayer] [or] [cast-in-place and cured-transparent-resin interlayer] to comply with interlayer manufacturer's written instructions.
2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
3. Interlayer Color: Clear unless otherwise indicated.

2.5 INSULATING GLASS

1. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E2190.
 1. Sealing System: Dual seals.
2. Perimeter Spacer: Manufacturer's standard spacer material and construction.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Technoform Glass Insulation NA, Inc. 2) Thermix; a brand of Ensinger USA.

2.6 MISCELLANEOUS GLAZING MATERIALS

1. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer. B. Setting Blocks:
 1. EPDM Silicone Neoprene Santoprene Insert type with a Shore A durometer hardness of 85, plus or minus 5.
 2. Type recommended by sealant or glass manufacturer.
 - a. Spacers:
2. [Neoprene] <Insert type> blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
3. Type recommended by sealant or glass manufacturer.
Edge Blocks:
4. EPDM Silicone Neoprene Santoprene Insert type with a Shore A durometer hardness per manufacturer's written instructions.
5. Type recommended by sealant or glass manufacturer.
Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

PART 3 - EXECUTION

3.1 GLAZING, GENERAL

1. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

2. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
3. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
4. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
5. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
6. Provide spacers for glass lites where length plus width is larger than 50 inches.
7. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

3.2 CLEANING AND PROTECTION

1. Immediately after installation remove nonpermanent labels and clean surfaces.
2. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
 1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

Remove and replace glass that is damaged during construction period.

3.3 INSULATING-LAMINATED-GLASS SCHEDULE

- A. Glass Type: as indicated on the drawings

END OF SECTION 08 80 00

SECTION 092116.33 - GYPSUM BOARD AREA SEPARATION WALL ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section Includes:
 1. Gypsum board area separation wall assemblies

1.3 ACTION SUBMITTALS

1. Product Data: For each component of gypsum board shaft wall assembly.

1.4 DELIVERY, STORAGE, AND HANDLING

1. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and support them on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

1. Environmental Limitations: Comply with gypsum-shaftliner-board manufacturer's written instructions.
2. Do not install finish panels until installation areas are enclosed and conditioned.
3. Do not install panels that are wet, moisture damaged, or mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.
2. STC-Rated Assemblies: Provide materials and construction identical to those of assemblies tested according to ASTM E90 and classified according to ASTM E413 by a testing and inspecting agency.

2.2 GYPSUM BOARD SHAFT WALL ASSEMBLIES

1. Fire-Resistance Rating: 2 hours based on UL 347, refer to Life Safety drawings for more information.
2. STC Rating: 51, minimum.
3. Gypsum Shaftliner Board:
 1. Type X: ASTM C1396/C1396M; manufacturer's proprietary fire-resistive liner panels with paper faces, 1 inch thick, with double beveled long edges.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Georgia-Pacific Gypsum LLC.
 - 2) National Gypsum Company.
 - 3) USG Corporation.
4. Non-Load-Bearing Steel Framing, General: Complying with ASTM C645 requirements for metal unless otherwise indicated and complying with requirements for fire-resistance-rated assembly indicated.
 1. Protective Coating: ASTM A653/A653M, G40, hot-dip galvanized unless otherwise indicated.
5. Studs: 'H' Shaped Studs
 1. Depth: 2 inches.
 2. Minimum Base-Metal Thickness: 0.018 inch.
 3. Spaced 24". Max OC
6. Runner Tracks: Manufacturer's standard C-profile track with manufacturer's standard long-leg length, but at least Insert dimension long and matching studs in depth.
 1. Minimum Base-Metal Thickness: 0.018 inch.
7. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CEMCO; California Expanded Metal Products Co.
 - b. ClarkDietrich.

2.3 | AUXILIARY MATERIALS

1. Provide auxiliary materials that comply with shaft wall manufacturer's written instructions.
2. Trim Accessories: Cornerbead, edge trim, and control joints of material and shapes as specified in Section 092900 "Gypsum Board" that comply with gypsum board shaft wall assembly manufacturer's written instructions for application indicated.
3. Track Fasteners: Power-driven fasteners of size and material required to withstand loading conditions imposed on shaft wall assemblies without exceeding allowable design stress of track, fasteners, or structural substrates in which anchors are embedded.
4. Reinforcing: Galvanized-steel reinforcing strips with [0.033-inch] minimum thickness of base metal (uncoated).

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
2. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Sprayed Fire-Resistive Materials: Coordinate with gypsum board shaft wall assemblies so both elements of Work remain complete and undamaged. Patch or replace sprayed fire-resistive materials removed or damaged during installation of shaft wall assemblies to comply with requirements specified in Section 078100 "Applied Fire Protection."
2. After sprayed fire-resistive materials are applied, remove only to extent necessary for installation of gypsum board shaft wall assemblies and without reducing the fire-resistive material thickness below that which is required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

3.3 INSTALLATION

1. General: Install gypsum board shaft wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated and manufacturer's written installation instructions.
2. Do not bridge building expansion joints with **shaft wall assemblies**; frame both sides of expansion joints with furring and other support.
3. Install supplementary framing in gypsum board shaft wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, wall-mounted door stops, and similar items that cannot be supported directly by shaft wall assembly framing.
 1. **Reinforcing: Provide where items attach directly to shaft wall assembly as indicated on Drawings; accurately position and secure behind at least one layer of face panel.**
4. Penetrations: At penetrations in shaft wall, maintain fire-resistance rating of shaft wall assembly by installing supplementary steel framing around perimeter of penetration and fire protection behind boxes containing wiring devices, elevator call buttons and floor indicators, and similar items.
5. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels while maintaining continuity of fire-rated construction.
6. **Firestop Tracks: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.**
7. Control Joints: Install control joints according to ASTM C840 and in specific locations approved by Architect while maintaining fire-resistance rating of gypsum board shaft wall assemblies.
8. Sound-Rated Shaft Wall Assemblies: Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it abuts other work and at joints and penetrations within each assembly.
9. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.4 PROTECTION

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

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END OF SECTION 092116.23

SECTION 091116 – NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section Includes:

1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
2. Suspension systems for interior gypsum ceilings and soffits.

1.3 SUBMITTALS

1. Product Data: For each type of product.
 1. Studs and Runners: Provide documentation that framing members' certification is according to SFIA's "Code Compliance Certification Program for Cold-Formed Steel Structural and Non-Structural Framing Members". SFIA's program certifies that studs and runners comply with the IBC, ASTM C 645, AISI S100, and AISI S220. Mechanical properties, coatings, dimensions, and labeling are checked.
 2. Manufacturers' limiting tables indicating products provided.
 3. Manufacturer's Certification: Submit manufacturer's certification of product compliance with codes and standards along with product literature and data sheets for specified products.
 4. Evaluation Reports: For Metal Framing, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

Delegated-Design by Specialty Structural Engineer (SSE) Delegated-Design Submittal: For steel framing, fasteners, accessories and support. The design professional, individual or organization having responsibility for the design of the specialty items. This responsibility shall be in accordance with the state's statutes and regulations governing the professional registration and certification of architects or engineers.

1.4 QUALITY ASSURANCE

1. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Delegated Design: Engage a qualified professional engineer to design steel framing systems.

1. Design framing systems in accordance with American Iron and Steel Institute Publication S220 "North American Specification for the Design of Cold-Formed Steel Framing - Non-Structural Members", except as otherwise shown or specified.

2. Design loads: As indicated on the Architectural Drawings or 5 PSF minimum as required by the Building Code.

3. Design framing systems to accommodate deflection of primary building structure and construction tolerances and to withstand design loads with a maximum deflection of 1/240 inches and including finish material.

Fire-Test-Response Characteristics: Provide materials and construction identical to those tested according to ASTM E 119.

STC-Rated Assemblies: Provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413.

2.2 NON-LOAD-BEARING STEEL FRAMING, GENERAL

1. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.

2. Protective Coating: ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.

3. Maximum Deflection: L/240 at 5 pound-foot per square foot.

Studs and Runners: ASTM C 645. Use either steel studs and runners or embossed steel studs and runners.

4. Steel Studs and Runners:

2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

CEMCO; California Expanded Metal Products Co.

Custom Stud.

MRI Steel Framing, LLC.

Steel Network, Inc. (The).

3. Minimum Base-Metal Thickness: As indicated, but not less than as required by performance requirements for horizontal deflection.

4. Depth: As indicated.

1. Embossed Steel Studs and Runners:

5. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

CEMCO; California Expanded Metal Products Co.

ClarkDietrich Building Systems.

Marino\WARE.

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Steel Network, Inc. (The). Minimum Base-Metal Thickness: As required by horizontal deflection performance requirements.

6. Depth: As indicated.
Slip-Type Head Joints: Where indicated, provide one of the following:
 1. Clip System: Clips designed for use in head-of-wall deflection conditions that provide a positive attachment of studs to runners while allowing 1-1/2-inch minimum vertical movement.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) ClarkDietrich Building Systems. 3) Steel Network, Inc. (The).
7. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
8. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch-deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
9. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 1. CEMCO; California Expanded Metal Products Co.
 2. ClarkDietrich Building Systems. 3) Steel Network, Inc. (The).

Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.

10. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 1. CEMCO; California Expanded Metal Products Co.
 2. ClarkDietrich Building Systems.
 3. Steel Network, Inc. (The).

Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated, minimum thickness 14 gauge.

11. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 1. ClarkDietrich Building Systems.
 2. MRI Steel Framing, LLC.

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12. Minimum Base-Metal Thickness: 0.0329 inch.
Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.

13. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. ClarkDietrich Building Systems.
 2. MRI Steel Framing, LLC.

14. Depth: 1-1/2 inches.

15. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel. G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

16. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
ClarkDietrich Building Systems.
MRI Steel Framing, LLC.

17. Minimum Base-Metal Thickness: 0.0329 inch.

18. Depth: As indicated on Drawings.
Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission.

19. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
ClarkDietrich Building Systems.
MRI Steel Framing, LLC.

20. Configuration: Asymmetrical or hat shaped.
Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2inch-wide flanges.

21. Depth: 3/4 inch.

22. Furring Brackets: Adjustable, corrugated-edge-type steel sheet with minimum uncoated-steel thickness of 0.0329 inch.

23. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inchdiameter wire, or double strand of 0.048-inch-diameter wire.
Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.

24. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

ClarkDietrich Building Systems.
MRI Steel Framing, LLC.

2.3 SUSPENSION SYSTEMS

1. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire. B. Hanger Attachments to Concrete:
 1. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E 488/E 488M conducted by a qualified testing agency.
 2. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.
 - a. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
 - b. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated.
 - c. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of

2.4 inch and minimum 1/2-inch-wide flanges.

1. Depth: 2-1/2 inches.
Furring Channels (Furring Members):
2. Cold-Rolled Channels: 0.0538-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
3. Steel Studs and Runners: ASTM C 645.
 1. Minimum Base-Metal Thickness: 0.0329 inch.
 2. Depth: 2-1/2 inches.
4. Embossed Steel Studs and Runners: ASTM C 645.
Minimum Base-Metal Thickness: 0.0190 inch.
Depth: 2-1/2 inches.
5. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
 - a. Minimum Base-Metal Thickness: 0.0329 inch.
6. Resilient Furring Channels: 1/2-inch-deep members designed to reduce sound transmission.
 - a. Configuration: Asymmetrical or hat shaped.

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Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

7. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - Armstrong World Industries, Inc.
 - Chicago Metallic Corporation.
 - United States Gypsum Company.

2.5 AUXILIARY MATERIALS

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates. B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

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

D. At locations indicated install sound isolation clips.

5. Basis of Design Product and Manufacturer; Pac-International RSIC-1, or a comparable product by one of the following:
 1. Clark Dietrich.
 2. Marinoware.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

Installation Standard: ASTM C 754.

1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
3. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

4. Install bracing at terminations in assemblies.
5. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.2 INSTALLING FRAMED ASSEMBLIES

Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types and other assembly components indicated.

Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

Install studs so flanges within framing system point in same direction.

Stud Spacing: 16-inches on center unless otherwise indicated.

Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 1. Install two studs at each jamb unless otherwise indicated.
 2. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 3. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 1. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
6. Curved Partitions:
 1. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
 2. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c. F. Direct Furring:

7. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c. G. Z-Furring Members:
 8. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches o.c.
 9. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
 10. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
- H. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.3 INSTALLING SUSPENSION SYSTEMS

Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 3. Do not attach hangers to steel roof deck.
 4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 6. Do not connect or suspend steel framing from ducts, pipes, or conduit. D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092400 - CEMENT PLASTERING

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Accessories.
 2. Base-coat cement plaster.
 3. Cement plaster finish coats.

1.2 ACTION SUBMITTALS

1. Product Data:
 1. For each type of product.
2. Shop Drawings: Locations and installation of control and expansion joints, including plans, elevations, sections, and attachment details.
3. Samples for Initial Selection: For each type of factory-prepared finish coat and for each color and finish texture specified.
4. Samples for Verification: For each type of factory-prepared finish coat and for each color and finish texture specified, 12 by 12 inches, and prepared on rigid backing.

1.3 DELIVERY, STORAGE AND HANDLING

1. Store materials inside under cover, and keep them dry and protected against damage from weather, moisture, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

1.4 FIELD CONDITIONS

1. Comply with ASTM C926 requirements.
2. Exterior Plasterwork:
 1. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
 2. Apply plaster when ambient temperature is greater than 40 deg F.
 3. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.
3. Interior Plasterwork: Maintain room temperatures at greater than 40 deg F for at least 48 hours before plaster application, and continuously during and after application.

1. Avoid conditions that result in plaster drying out during curing period. Distribute heat evenly; prevent concentrated or uneven heat on plaster.
2. Ventilate building spaces as required to remove water in excess of that required for hydrating plaster in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.
4. Factory-Prepared Finish Coats: Comply with manufacturer's written instructions for environmental conditions for applying finish coats.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Fire-Resistance Ratings: Where indicated on Drawings, provide cement plaster assemblies identical to those of assemblies tested for fire resistance in accordance with ASTM E119 by a qualified testing agency.

2.2 ACCESSORIES

1. Plastic Accessories: Manufactured from high-impact PVC.
 1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
 - a. ClarkDietrich.
 - b. AMICO, a Gibraltar Industries Company
 - c. Plastic Components, Inc.
 2. Casing Beads: E-Flange Style from Clark Dietrich or approved equal to suit plaster base indicated and flange length required to suit applications as indicated.

2.3 CEMENT PLASTER FINISH COATS

1. Job-Mixed Finish-Coat Mix: Comply with requirements in ASTM C926.

2.4 PLASTER MATERIALS

1. Portland Cement: ASTM C150/C150M, Type I.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
2. Reject plaster materials that are wet or moisture damaged.

3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
2. Prepare smooth, solid substrates for plaster in accordance with ASTM C926.

3.3 INSTALLATION, GENERAL

1. Fire-Resistance-Rated Assemblies: Install components in accordance with requirements for design designations from listing organization and publication indicated on Drawings.
2. Sound-Attenuation Blankets: Where indicated on Drawings, install blankets before installing lath unless blankets are readily installed after lath has been installed on one side.
3. Acoustical Sealant: Where indicated on Drawings, seal joints between edges of plasterwork and abutting construction with acoustical sealant.

3.4 INSTALLATION OF ACCESSORIES

1. Install in accordance with ASTM C1063 and at locations indicated on Drawings.
2. Reinforcement for External (Outside) Corners:
 1. Install **[lath-type, external-corner reinforcement] [cornerbead]** at exterior locations.
 2. Install cornerbead at interior locations.

3.5 APPLICATION OF BASE-COAT CEMENT PLASTER

1. Wall/Vertical Base Coats:
 1. Two-Coat Plasterwork Over Solid Plaster Bases: Install base-coat mix for use over solid plaster bases in **[3/8-inch thickness on masonry] [1/4-inch thickness on concrete]**.
2. Ceiling/Horizontal Base Coats:
 1. Three-Coat Plasterwork Over Metal Lath: Install base-coat mixes for use over metal lath to produce scratch and brown coats with **[1/2-inch total thickness] [3/4-inch total thickness for metal lath on concrete]**.
 2. Two-Coat Plasterwork Over Solid Plaster Bases: Install base-coat mix for use over solid plaster bases in **1/4-inch thickness on concrete**.

3.6 APPLICATION OF CEMENT PLASTER FINISH COATS

1. General: Comply with ASTM C926.

1. Do not deviate more than plus or minus 1/4 inch in 10 ft. from a true plane in finished plaster surfaces when measured by a 10-ft. straightedge placed on surface.
2. Provide plaster surfaces that are ready to receive field-applied finishes indicated.
2. Plaster Finish Coats: Apply to provide finish to match Architect's sample.
3. Concealed Exterior Plasterwork: Where plaster application is used as a base for adhered finishes, omit finish coat.
4. Concealed Interior Plasterwork:
 1. Where plaster application is concealed behind built-in cabinets, similar furnishings, and equipment, apply finish coat.
 2. Where plaster application is concealed above suspended ceilings and in similar locations, omit finish coat.
 3. Where plaster application is used as a base for adhesive application of tile and similar finishes, omit finish coat.

3.7 REPAIR

1. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

3.8 CLEANING

1. Remove temporary protection and enclosure of other work after plastering is complete.
2. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered.
3. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

END OF SECTION 092400

SECTION 092816 - GLASS-MAT FACED GYPSUM BACKING BOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. This Section includes the following:

1.3 ACTION SUBMITTALS

1. Product Data: For each type of door and frame indicated. Include construction details relative to materials, individual components and profiles, finishes, and fire ratings (if required) for access doors and frames.
2. Shop Drawings: Show fabrication and installation details of customized doors and frames. Include plans, elevations, sections, details, and attachments to other Work.
3. Samples: For each door face material, at least 3 by 5 inches in size, in specified finish.
4. Schedule: Provide complete door and frame schedule, including types, general locations, sizes, construction details, latching or locking provisions, and other data pertinent to installation.
5. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items with concealed framing, suspension systems, piping, ductwork, and other construction. Show the following:
 1. Method of attaching door frames to surrounding construction.
 2. Ceiling-mounted items including access doors and frames, lighting fixtures, diffusers, grilles, speakers, sprinklers, and special trim.

1.4 INFORMATIONAL SUBMITTALS

1. Qualification Data: For each type of
2. Product Certificates:
3. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

1. Maintenance Data: ... maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials...

1.7 QUALITY ASSURANCE

1. Source Limitations: Obtain doors and frames through one source from a single manufacturer.
2. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to access door and frame assemblies tested for fire-test-response characteristics per the following test method and that are labeled and listed by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction:
 1. NFPA 252 or UL 10B for vertical access doors.
 2. ASTM E 119 or UL 263 for horizontal access doors and frames.
3. Size Variations: Obtain Architect's acceptance of manufacturer's standard-size units, which may vary slightly from sizes indicated.

1.8 COORDINATION

1. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment, and indicate on schedule specified in "Submittals" Article.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Available Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
 1. USG
 2. CERTAINTEED
 3. Georgia Pacific

2.2 MATERIALS

PART 3 - EXECUTION

3.1 PREPARATION

1. Advise installers of other work about specific requirements relating to access door and floor door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices.

3.2 INSTALLATION

1. Comply with manufacturer's written instructions for installing access doors and frames.
- 2.

3.3 ADJUSTING AND CLEANING

1. Adjust for proper operation.
2. Remove and replace warped, bowed, or otherwise damaged.

END OF SECTION 092816

SECTION 092900 - GYPSUM BOARD

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

Section Includes:

1. Interior gypsum board.
2. Tile backing panels.
3. Partition closure.

1.3 ACTION SUBMITTALS

1. Product Data: For each type of product.
2. Samples for Initial Selection: For each type of trim accessory and textured finish indicated.
3. Samples for Verification: For the following products:
 1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.
 2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

1.4 QUALITY ASSURANCE

1. Mockups: Build mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.
 1. Build mockups for the following:
 1. Each level of gypsum board finish indicated for use in exposed locations.
2. Each level of gypsum board finish indicated for use in exposed locations.
3. Each texture finish indicated.
 1. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
 2. Simulate finished lighting conditions for review of mockups.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

1. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

1. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.
2. Provide gypsum wall board that has been manufactured using synthetic gypsum to the fullest extent possible.
3. Provide gypsum board of types indicated in standard lengths available, minimizing waste.

2.3 INTERIOR GYPSUM BOARD

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Gypsum Board and Related Products:
 2. Georgia-Pacific Corp.

3. Fry Reglet.
4. Pittcon Industries.
5. United States Gypsum Company.
6. National Gypsum Co.
7. CertainTeed Corp.

Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: As indicated.
2. Long Edges: Tapered.

Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.

3. Core: As indicated.
4. Long Edges: Tapered.
5. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

Acoustically Enhanced Gypsum Board: ASTM C1766. Multilayer products constructed of two layers of gypsum boards sandwiching a viscoelastic sound-absorbing polymer core.

6. Subject to compliance with requirements provide Basis of Design Product and Manufacturer; Gold Bond Building Products, LLC provided by National Gypsum Company, SoundBreak XP Gypsum Board, or a comparable product by one of the following:
 - a. CertainTeed; SAINT-GOBAIN.
 - b. PABCO Gypsum.
 - c. Panel Rey.

8. Core: As indicated on Drawings.

9. Long Edges: Tapered.

Abuse-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.

10. Core: 5/8 inch, Type X.
11. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
12. Indentation: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
13. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
14. Long Edges: Tapered.
15. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
Impact-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
16. Core: 5/8 inch, Type X.

17. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.

18. Indentation: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.

19. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.

20. Hard-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements according to test in Annex A1.

21. Long Edges: Tapered.

22. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.4 TILE BACKING PANELS

1. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- a. American Gypsum.
- b. CertainTeed Corporation.
- c. Georgia-Pacific Building Products.
- d. National Gypsum Company.

2. Core: As indicated on Drawings.

3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

B. Cementitious Backer Units: ANSI A118.9 and ASTM C1288 or ASTM C1325, with manufacturer's standard edges.

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

Custom Building Products.
National Gypsum Company.
USG Corporation.

5. Core: As indicated on Drawings.

6. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.5 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Formed metal, Zinc Alloy.

2. Shapes:

1. Cornerbead.
2. LC-Bead: J-shaped; exposed long flange receives joint compound.

3. L-Bead: L-shaped; exposed long flange receives joint compound.
 4. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 5. Expansion (control) joint.
3. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B221, Alloy 6063-T5.
 4. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.6 PARTITION CLOSURE

1. Basis of design product and Manufacturer; Mull-It-Over Classic Sound Barrier Mullion Trim Cap STC 55 and Wide Sound Barrier Mullion Trim Cap STC 55, or subject to compliance with requirements a comparable product by the following:
 1. Mullion Mate by Gordon Interior Specialties Division.
 2. Model and size; as required for configuration.
 3. Finish: Clear anodized to match curtain wall and storefront.

2.7 JOINT TREATMENT MATERIALS

1. General: Comply with ASTM C 475/C 475M.
2. Joint Tape:
 1. Interior Gypsum Board: Paper.
 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
- D. Joint Compound for Tile Backing Panels:
 3. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
 4. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.8 AUXILIARY MATERIALS

1. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
2. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
3. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION AND FINISHING OF PANELS, GENERAL A. Comply with ASTM C840.

1. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
2. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
3. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
4. Form control and expansion joints with space between edges of adjoining gypsum panels.
5. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 2. Fit gypsum panels around ducts, pipes, and conduits.
 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.

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

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

STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install

acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 INSTALLATION OF INTERIOR GYPSUM BOARD A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 1. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 2. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
 3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws. B. Multilayer Application:
 5. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
 6. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 7. On Z-shaped furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
 8. Fastening Methods: Fasten base layers with screws; fasten face layers with adhesive and supplementary fasteners.
- C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written instructions and temporarily brace or fasten gypsum panels until fastening adhesive has set. D. Curved Surfaces:

9. Install panels horizontally (perpendicular to supports) and unbroken, to extent possible, across curved surface plus 12-inch-long straight sections at ends of curves and tangent to them.
10. For double-layer construction, fasten base layer to studs with screws 16 inches o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 12 inches o.c.

3.4 INSTALLATION OF TILE BACKING PANELS

1. Glass-Mat, Water-Resistant Backing Panels: Comply with manufacturer's written installation instructions and install at locations indicated to receive tile. Install with 1/4inch gap where panels abut other construction or penetrations.
2. Cementitious Backer Units: ANSI A108.11, at showers, tubs, and where indicated.
3. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 INSTALLATION OF TRIM ACCESSORIES

1. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
2. Control Joints: Install control joints at locations indicated on Drawings and according to ASTM C840 and in specific locations approved by Architect for visual effect. C.
Interior Trim: Install in the following locations:
 1. Cornerbead: Use at outside corners unless otherwise indicated.
 2. Bullnose Bead: Use where indicated.
 3. LC-Bead: Use at exposed panel edges.
 4. L-Bead: Use where indicated.
 5. U-Bead: Use at exposed panel edges.
 6. Curved-Edge Cornerbead: Use at curved openings. D. Aluminum Trim: Install in locations indicated on Drawings.

3.6 FINISHING GYPSUM BOARD

1. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
2. Prefill open joints, rounded or beveled edges, and damaged surface areas.
3. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

4. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 1. Level 0: No taping, finishing, or accessories required. This level of finish shall be used in temporary construction only.
 2. Level 1: Joints and interior angles shall have tape embedded in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. This finish level shall be used in plenum areas above ceilings, in attics, in areas where the assembly is concealed.
 3. Level 2: Joints and interior angles shall have tape embedded in joint compound and one separate coat of joint compound applied over joints, angles, fastener heads, and accessories. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. This finish level shall be used where water resistant gypsum backing board (ASTM C630) is used as a substrate for tile only.
 4. Level 3: Joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound over joints, angles, fastener heads, and accessories. Joint compound shall be smooth and free of tool marks and ridges. Note: It is recommended that the prepared surface be coated with a primer/sealer prior to the application of final finishes. See painting/wall covering specification in this regard. This final level shall be used in areas that are to receive heavy textured, thick (1/8 inch or greater) wall coverings.
 5. Level 4: Joints and interior angles shall have tape embedded in joint compound and three separate coats of joint compound applied over joints, angles, fastener heads, and accessories. Joint compound shall be smooth and free of tool marks and ridges. Note: Prepare surface to be coated with a primer/sealer prior to the application of final finishes. This finish level shall be used where textured finishes, wall coverings, and painted finishes are to be applied.
 6. Level 5: Where indicated on Drawings.

Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.

Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.7 INSTALLATION OF TEXTURE FINISHES

1. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.
2. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture matching approved mockup and free of starved spots or other evidence of thin application or of application patterns.
3. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written instructions.

3.8 PROTECTION

1. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
2. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
3. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093013 - TILING

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

Section Includes:

1. Tile.
2. Waterproofing and crack isolation membrane.
3. Metal edge strips.

1.3 SUBMITTALS

1. Product Data: For each type of product indicated.
2. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces. C. Samples for Verification:
 1. Full-size units of each type and composition of tile and for each color and finish require
 2. Metal edge strips in 6-inch lengths.

1.4 QUALITY ASSURANCE

1. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.
 1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.
- Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:
2. Joint sealants.
2. Preinstallation Conference: Conduct conference at Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

1. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
2. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
3. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
4. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.6 PROJECT CONDITIONS

1. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.7 EXTRA MATERIALS

1. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Floor Tile Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for the following designated paint types:
 - a. T1.
 2. Wall Tile Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for the following designated paint types:
 - WT1.
 - WT2.
 3. Tile Base Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for the following designated paint types:
 4.
 - a. As indicated in drawings where required. Grout: Furnish quantity of grout equal to 3 percent of amount installed, for the following designated paint types:
 - G1.
 - G2.
 - G3.

All extra materials shall be in original manufacturers' containers, sealed, marked with stock number, color number, tile name, etc. Deliver to Owner with a transmittal sheet indicating each item and quantity.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

1. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
 2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.

2.2 TILE

1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 1. American Olean; a division of Dal-Tile Corporation.
 2. Crossville, Inc.
 3. Interceramic.Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 4. Base: Coved with surface bullnose top edge, face size as Indicated.
 5. Wainscot Cap: Surface bullnose, face size module size same as adjoining flat tile.
 6. External Corners: Surface bullnose, module size same as adjoining flat tile.
 7. Internal Corners: Cove, module size module size same as adjoining flat tile.

2.3 TILE ACCESSORIES

1. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, anodized aluminum.
 1. Subject to requirement, other manufacturers offering products which may be incorporated into the work are but not limited to the following:
 - a. Blanke Corporation.
 - b. Ceramic Tool Company, Inc.
 - c. Schluter Systems.

2.4 SETTING MATERIALS

1. Subject to compliance with requirements, provide product by one of the following:
 1. Mapei
 2. Custom Building Products.
 3. Laticrete International, Inc.Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
Modified Dry-Set Mortar (Thinset): ANSI A118.4 and 118.11..
 4. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.

5. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

2.5 GROUT MATERIALS

1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer(Mapei) indicated or a comparable product by one of the following:
 1. Bostik, Inc.
 2. Custom Building Products.
 3. Laticrete International, Inc.
Water-Cleanable Epoxy Grout: ANSI A118.3, with a VOC content of 65 g/L or less.
 4. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F, respectively, and certified by manufacturer for intended use.

2.6 WATERPROOFING AND CRACK SUPPRESSION MEMBRANE

1. Thin Set Applications: Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include:
 - a. Custom Building Products; Redgard Waterproofing and Crack Prevention Membrane.
 - b. Laticrete International, Inc.; Hydro Ban.
 - c. MAPEI Corporation; Mapelastic HPG.

2.7 SEALANTS

1. Products and Manufacturers: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to, the following:
 1. Keracaulk S (sanded); MAPEI Corporation
 - a. Colors: To be selected by the Architect from manufacturer's full line.

2.8 MISCELLANEOUS MATERIALS

1. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
2. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.9 MIXING MORTARS AND GROUT

1. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

2. Add materials, water, and additives in accurate proportions.
3. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect. B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
2. Provide concrete substrates for tile walls installed with thin-set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
 2. Remove protrusions, bumps, and ridges by sanding or grinding.

Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing. For all thin-set tile applications prepare substrates to receive waterproofing and fracture membrane materials in accordance with manufacturer's instructions and recommendations. Field-Applied Temporary Protective Coating: Where recommended by the tile manufacturer or as needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION, GENERAL

1. Workmanship and Visual Appearance: All tile shall be installed with zero-lippage, with straight and even joints, and smooth and flat. The intent is that all tile installations are to be installed using the best of techniques. Any tile that does not meet or exceed the requirements indicated shall be removed and replaced in accordance with specified requirements.
2. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated.
3. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods for applications indicated.
4. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
5. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
6. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles so walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.

Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

2. Locate joints in tile surfaces directly above joints in concrete substrates.
3. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

Metal Edge Strips: Install at locations indicated.

3.4 WATERPROOFING AND CRACK ISOLATION MEMBRANE INSTALLATION

1. Install waterproofing to comply with manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.
2. Do not install tile or setting materials until membrane has cured and been tested to determine that it is watertight.

3.5 FLOOR TILE INSTALLATION

1. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.
2. Joint Widths: Install tile with the following joint widths:
 1. Tile: 1/8 inch, unless otherwise noted.

3.6 WALL TILE INSTALLATION

1. General: Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
2. Joint Widths: Install tile on walls with the following joint widths:
 1. Tile: 1/8 inch, unless otherwise noted.

3.7 CLEANING AND PROTECTING

1. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 1. Remove latex-portland cement grout residue from tile as soon as possible.
 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
 3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.
When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 093013

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

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. Acoustical Lay-in ceiling panels.
2. Exposed suspension systems for interior ceilings.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

1. Product Data: For each type of product.
2. Samples for Initial Selection: For components with factory-applied finishes.
3. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:
 1. Acoustical Panels: Set of 6-inch-square Samples of each type, color, pattern, and texture.
 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch-long Samples of each type, finish, and color.
 3. Clips: Full-size hold-down clips.

1.5 INFORMATIONAL SUBMITTALS

1. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 1. Ceiling suspension-system members.
 2. Structural members to which suspension systems will be attached.
 3. Method of attaching hangers to building structure.
 - a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
2. Carrying channels or other supplemental support for hanger-wire attachment where conditions do not permit installation of hanger wires at required spacing.

3. Size and location of initial access modules for acoustical panels.
4. Items penetrating finished ceiling and ceiling-mounted items.
5. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
6. Minimum Drawing Scale: 1/4 inch = 1 foot.

Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Acoustical Ceiling Units: Full-size tiles equal to 2 percent of quantity installed.

1.8 QUALITY ASSURANCE

1. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 1. Build mockup of typical ceiling area as shown on Drawings.
 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.

1.9 DELIVERY, STORAGE, AND HANDLING

1. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
2. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.10 FIELD CONDITIONS

1. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

1. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: Class A according to ASTM E 1264.
 2. Smoke-Developed Index: 450 or less.

Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

3. Indicate design designations from UL or from the listings of another qualified testing agency.

2.3 ACOUSTICAL PANELS

1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 1. Certainteed Corporation.
 2. USG Interior Systems.

Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.

Antimicrobial Treatment: Manufacturer's standard broad spectrum, antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D3273, ASTM D3274, or ASTM G21 and evaluated according to ASTM D3274 or ASTM G21.

2.4 EXPOSED METAL SUSPENSION SYSTEM

1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 1. Certainteed Corporation.
 2. USG Interior Systems.

Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M and designated by type, structural classification, and finish indicated.

3. High-Humidity Finish: Where indicated, provide coating tested and classified for "severe environment performance" according to ASTM C635/C635M.

Aluminum-Capped, Double-Web, Hot-Dip Galvanized, G60, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; hot-dip galvanized, G60 coating designation; with prefinished, 15/16-inch- wide aluminum caps on flanges.

4. Structural Classification: Heavy-duty system.

5. End Condition of Cross Runners: Override (stepped) or butt-edge type.

6. Face Design: Flat, flush.

7. Cap Material: Cold-rolled steel or aluminum.

8. Cap Finish: Painted to match color of acoustical unit.

2.5 ACCESSORIES

A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated.

1. Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing according to ASTM E 488/E 488M or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

1. Type: Postinstalled expansion anchors.

2. Corrosion Protection: Carbon-steel components zinc plated according to ASTM B 633, Class SC 1 (mild) service condition.

3. Corrosion Protection: Stainless-steel components complying with ASTM F 593 and ASTM F 594, Group 1 Alloy 304 or 316.

4. Corrosion Protection: Components fabricated from nickel-copper-alloy rods complying with ASTM B 164 for UNS No. N04400 alloy.

2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing according to ASTM E 1190, conducted by a qualified testing and inspecting agency. B. Wire Hangers, Braces, and Ties: Provide wires as follows:

3. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

4. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.135-inch- diameter wire.

1. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.

2. Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

3. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch-thick, galvanized-steel sheet complying with ASTM A 653/A 653M, G90 coating designation; with bolted connections and 5/16-inch-diameter bolts. F. Hold-Down Clips: Manufacturer's standard hold-down.

2.6 METAL EDGE MOLDINGS AND TRIM

1. Manufacturers: Subject to compliance with requirements, provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:

1. CertainTeed Corporation.
2. USG Corporation.

Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

3. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners unless otherwise indicated.
4. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly. C. Specialty Suspension System:
5. "360 degree Painted" by Armstrong.
6. Color as selected by the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
2. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
2. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION

1. Install acoustical panel ceilings according to ASTM C 636/C 636M, and manufacturer's written instructions.

1. Fire-Rated Assembly: Install fire-rated ceiling systems according to tested fire-rated design.
Suspend ceiling hangers from building's structural members and as follows:
2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
3. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
4. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
5. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
6. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
7. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
8. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
9. Do not attach hangers to steel deck tabs.
10. Do not attach hangers to steel roof deck. Attach hangers to structural members.
11. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
12. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
13. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
14. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
15. Do not use exposed fasteners, including pop rivets, on moldings and trim.
Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
16. Hanger wire spacing surrounding plank and large panels weighing more than 2lbs./SF shall not exceed 4ft. oc.

Install Stabilizer bar for large format Ceiling Tile.

17. Apply the the stabilizer bar perpendicular to the perimeter tees. 2. Fit stabilizer bar onto the tee bulbs through notches
18. Fold locking tabs to secure stabilizer bar in place.
2. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
 1. Arrange directionally patterned acoustical panels as follows:
3. As indicated on reflected ceiling plans.
4. Install panels in a basket-weave pattern.
 1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
 2. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 3. For reveal-edged panels on suspension-system members with box-shaped flanges, install panels with reveal surfaces in firm contact with suspension-system surfaces and panel faces flush with bottom face of runners.
 4. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
 5. Install hold-down clips for acoustical panels located in vestibules, space in accordance with panel manufacturer's written instructions unless otherwise indicated.

3.4 ERECTION TOLERANCES

1. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet, non-cumulative.
2. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet, non-cumulative.

3.5 CLEANING

1. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
2. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 095426 - WOOD CEILINGS

GENERAL

3.1 SUMMARY

1. Section includes:
 1. Concealed suspension system for Acoustic Plank Wood Members.
 2. Acoustic Plank Wood Members for concealed suspension system.
 3. Trim and accessories.

3.2 RELATED WORK IN OTHER SECTIONS:

1. Division 1 – "General Conditions" for substitution requests, submittals, etc.
2. Division 9 – "Acoustic Ceilings."
3. Division 13 – "Integrated Assemblies."
4. Division 15 – "Mechanical" for work to be coordinated with ceiling.
5. Division 16 – "Electrical" for light fixture coordination.

3.3 REFERENCES

1. ASTM A 641: Standard Specification for Zinc Coated (Galvanized) Carbon Steel Wire; 1992.
2. ASTM C 423: Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 1990.
3. ASTM C 635: Standard Specifications for Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
4. ASTM C 636: Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 1992.
5. ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials; 1991.
6. ASTM E 580: Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint; 1991.
7. AWI (QSI): Architectural Woodwork Quality Standards Illustrated; 2003.
8. CISCA: Ceiling Systems Handbook.

3.4 QUALITY ASSURANCE

1. Manufacturer Qualifications: Manufacturers other than those listed in Paragraph 2.1 are required to submit for approval prior to bidding per Section One.
2. Installer Qualifications: Engage an experienced Installer, approved by wood ceiling manufacturer, who has completed panel ceilings similar in species, design, and extent to that indicated for this Project and with a record of successful in-service performance.
3. Inspection: All work must pass inspection and approval of architect, as well as the local codes and regulations or authorities having jurisdiction.
4. Single-Source Responsibility for Wood Ceiling System: Obtain each type of Acoustic Plank Wood Members from a single fabricator, with in-house Shop Drawing capabilities, in-house assembly and finishing capabilities, and with resources to provide products of consistent quality in appearance and physical properties without delaying the project.
5. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying project.
6. Pre-Installation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

3.5 SUBMITTALS

1. General: Submit each item in this Section according to the Conditions of the Contract and Division 1 Specification Sections.
2. Product Data: For each type of product specified.
3. Samples: For verification of each type of exposed finish required, prepared on samples of size indicated below. Where finishes involve normal color and texture variations, include sample sets showing the range of variations expected.
 1. 12" x 18" samples of each panel type, pattern, and color.

3.6 SHOP DRAWINGS & COORDINATION WITH OTHER TRADES

1. Shop Drawings: Provide Shop Drawings/Coordination Drawings for all ceilings, which should include RCP and product details. Coordinate Acoustic Plank Wood ceiling panels layout and installation of wood panels and suspension system components with other construction elements that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components, partition assemblies and all perimeter conditions.

3.7 PROJECT CONDITIONS

1. Space Enclosure and Environmental Limitations: Do not install wood panel ceilings until spaces are enclosed and weatherproof, wet-work in spaces is completed and dry, work above ceilings is complete, and ambient temperature and humidity conditions are being maintained at the levels indicated for Project when occupied for its intended use.

3.8 DELIVERY, STORAGE, AND HANDLING

1. Delivery & Unloading: Coordinate crate sizes, weights, unloading options, and delivery schedule with manufacturer prior to fabrication. Deliver wood panels and suspension system components to Project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other mistreatment.
2. Acclimatization: Before installing wood panels, permit them to reach room temperature and a stabilized moisture content (at least 72 hours) per AWI standards.
3. Handling: Handle Acoustic Plank Wood Members carefully to avoid chipping edges or damaging units in any way.
4. Protection:
 1. Personnel: Follow good safety and industrial hygiene practices during handling and installing of all products and systems, with personnel to take necessary precautions and wear appropriate protective equipment as needed. Read related literature for important information on products before installation. Contractor to be solely responsible for all personal safety issues during and subsequent to installation; architect, specifier, owner, and manufacturer will rely on contractor's performance in such regard.
 2. Existing completed work: Protect completed work above suspension system from damage during installation of suspension system components.

3.9 EXTRA MATERIALS/WARRANTIES

1. Extra Materials: Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.
 1. Acoustic Plank Wood Members: Furnish quantity of full-size units equal to 2.0 percent of amount installed.
 2. Suspension System Components: Furnish quantity of each component equal to 2.0 percent of amount installed.
2. Warranties: Provide owner with a (1) year warranty for material and workmanship on all installed products.
 1. Manufacturers: All materials, wood ceiling and grid, shall be warranted for (1) one year for material and workmanship.
 2. Installer: All work shall be warranted for (1) year from final acceptance of completed work.

PART 4 - PRODUCTS

4.1 ACOUSTIC PLANK WOOD MEMBERS AND SUSPENSION SYSTEM

1. General: The following manufacturer is basis of design:
 1. 9Wood, Inc. : Acoustic Plank, Style 3100.
2. Or Armstrong World Industries, Channeled Plank, W9 Perforation
3. Equal as prior approved by Architect. , r

4.2 ACOUSTIC PLANK WOOD MEMBERS

1. Basis of Design: 9Wood, Inc. Acoustic Wood Series 3000
 1. Wood Panels: 3100 Acoustic Plank,
 - a. Species: White Oak Veneer on Hemlock, Rift Sliced,
 - b. Assembly Style: T-Bar Z Clip
 - c. Fire Rating: Class 1, Class A Fire Treated >
 - d. Finish: White Oak Veneer, Clear Coat Finish
 - e. Acoustic Backer: SoundTex™ Black Acoustic Scrim

METAL SUSPENSION SYSTEMS, GENERAL

2. Metal T-Grid Suspension System: Provide standard interior Metal Heavy Duty 9/16" suspension T-Grid system using Main Runners, Cross-tees, Wall Angle or Shadow Moldings of types, structural classifications, and <black> finishes indicated and that comply with applicable ASTM C 635 requirements. Comply with all applicable codes and ordinances.
3. Attachment Devices: Size for 3 times the design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
4. Wire, Braces, Ties, Hanger Rods, Flat Hangers and Angle Hangers: Provide wires, rods and hangers that comply with applicable ASTM specifications.

PART 5 - EXECUTION

5.1 EXAMINATION

1. General: Examine substrates and structural framing to which ceilings attach or abut, with installer present, for compliance with requirements specified in this and other sections that affect ceiling installation and anchorage. Do not proceed with installation until unsatisfactory conditions have been corrected.

5.2 PREPARATION

1. Coordination: Furnish layouts for cast-in-place anchors, clips, and other ceiling anchors whose installation is specified in other Sections.

2. Layout: Measure each ceiling area and establish the layout of Acoustic Plank Wood Members to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and conform to the layout shown on reflected ceiling plans in accordance with wood ceiling manufacturer's approved Shop Drawings.

5.3 INSTALLATION

1. General: Install acoustic wood ceiling to comply with manufacturer's instructions and CISCA "Ceiling Systems Handbook."
2. Attachments: Suspend ceiling hangers from building's structural members per manufacturer's instructions and in compliance with all local codes and regulations.
3. Installation of Metal T-Bar Grid: Install, align, brace, tie-off, mount, handle interferences, and space suspension T-Grid in accordance with suspension manufacturer's instructions and in compliance with all local codes and regulations.
4. Installation of acoustic wood ceiling : Install ceiling panels in accordance with manufacturer's installation instructions and in compliance with all local codes and regulations. Install with undamaged edges and fitted accurately to suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit, as required.
5. Suspension Runners: Install suspension system runners so they are square and securely interlocked with one another. Install number and use on-center spacing per wood ceiling manufacturer's instructions, as indicated on approved Shop Drawings and in compliance with all local codes.

5.4 CLEANING

1. General: . Comply with manufacturer's instructions for cleaning and touchup of minor finish damage. Remove and replace wood ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095426

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

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

Section Includes:

1. Resilient base.
2. Resilient molding accessories.
3. Metal edge strips.

1.3 ACTION SUBMITTALS

1. Product Data: For each type of product.
2. Samples for Initial Selection: For each type of product indicated.
3. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches long.
4. Product Schedule: For resilient base and accessory products. Use same designations indicated on Drawings.

1.4 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Furnish not less than 2% for each of the following types of base:
 - a. RB-1
 - b. RB-2
 - c. RB-3
 - d. RB-4
 - e. RB-5
 - f. RB-6
 - g. RB-7

1.5 DELIVERY, STORAGE, AND HANDLING

1. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.6 FIELD CONDITIONS

1. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following periods:
 1. 48 hours before installation.
 2. During installation.
 3. 48 hours after installation.After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

1. Subject to compliance with requirements, provide Basis of Design Product and Manufacturer indicated in drawings or a comparable product by one of the following:
 1. Armstrong World Industries, Inc.
 2. Johnsonite; a Tarkett company.
 3. Roppe Corporation, USA.

Product Standard: ASTM F 1861, Type TV (vinyl, thermoplastic).

4. Group: I (solid, homogeneous).
5. Style and Location:
 - a. Style A, Straight: Provide in areas with carpet, or as otherwise indicated in drawings.
 - b. Style B, Cove: Provide in areas with resilient floor coverings, or as otherwise indicated in drawings.

Minimum Thickness: As indicated on the Finish Schedule.

Height: As indicated on the Finish Schedule.

Lengths: Coils in manufacturer's standard length.

Outside Corners: Cope or miter as recommended by the Manufacturer.

Inside Corners: Cope or miter as recommended by the Manufacturer.

Colors and Patterns: As indicated on the Finish Schedule.

2.2 RESILIENT MOLDING ACCESSORY

1. Subject to compliance with requirements, provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 1. Armstrong World Industries, Inc.

St. Johns River State College
Remodel and Addition to the FloArts Building, Palatka Campus
Phase: Bid Documents
Bid Number: BID-SJR-06-2024

2. Johnsonite; a Tarkett company.
3. Roppe Corporation, USA.

Profile and Dimensions: As indicated.

Locations: Provide resilient molding accessories in areas indicated.

Colors and Patterns: As indicated on the Finish Schedule.

2.3 MISCELLANEOUS MATERIALS

1. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, anodized aluminum, with flanges for setting in mortar bed.
 1. Subject to compliance with requirements, provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 - a. Blanke Corporation.
 - b. Ceramic Tool Company, Inc.

Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

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

Metal Edge Strips: Extruded aluminum with mill finish, nominal 2 inches wide, of height required to protect exposed edges of flooring, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

Proceed with installation only after unsatisfactory conditions have been corrected.
2. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

1. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
2. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
3. Do not install resilient products until materials are the same temperature as space where they are to be installed.
 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.

3.3 RESILIENT BASE INSTALLATION

1. Comply with manufacturer's written instructions for installing resilient base.
2. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
3. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
4. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates. E. Do not stretch resilient base during installation.
5. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
6. Preformed Corners: Install preformed corners before installing straight pieces.

3.4 RESILIENT ACCESSORY INSTALLATION

1. Comply with manufacturer's written instructions for installing resilient accessories.
2. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

1. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
2. Perform the following operations immediately after completing resilient-product installation:
 1. Remove adhesive and other blemishes from surfaces.
3. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION 096513

SECTION 096519 - RESILIENT TILE FLOORING

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

Section Includes:

1. Resilient tile flooring.

1.3 SUBMITTALS

1. Product Data: For each product indicated.
2. Shop Drawings: For each type of resilient floor tile.
 1. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 2. Show details of special patterns.
3. Samples for Initial Selection: For each type of floor tile indicated.
4. Samples for Verification: Full-size units of each color and pattern of floor tile required.
5. Product Schedule: For floor tile. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

1. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

1. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Floor Tile: Furnish 2%, of each type, color, and pattern of floor tile installed.

1.7 QUALITY ASSURANCE

1. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.
 1. Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.

1.8 DELIVERY, STORAGE, AND HANDLING

1. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles on flat surfaces.

1.9 PROJECT CONDITIONS

1. Maintain temperatures within range recommended by manufacturer, but not less than 70 degrees F or more than 95 degrees F, in spaces to receive floor tile during the following time periods:
 1. 48 hours before installation.
 2. During installation.
 3. 48 hours after installation.
2. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 degrees F or more than 95 degrees F. C. Close spaces to traffic during floor covering installation.
3. Close spaces to traffic for 48 hours after floor covering installation.
4. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 RUBBER FLOOR TILE - R-1

1. Subject to compliance with requirements, provide Basis of Design Product and Manufacturer indicated, or a comparable product by one of the following:
 1. Forbo Industries, Inc.
 2. Johnsonite; a Tarkett Company.
 3. Roppe Corporation, USA.

Tile Standard: ASTM F1344.

2. Wearing Surface: As selected by Architect from Manufacturers full range.
3. Thickness: As Indicated on the Finish Schedule.
4. Size: As Indicated on the Finish Schedule.
5. Fire-Test-Response Characteristics:
 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

2.3 INSTALLATION MATERIALS

1. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement-based formulation provided or approved by resilient product manufacturer for applications indicated.
2. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
3. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.
4. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of tiles, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
2. Concrete Substrates: Prepare according to ASTM F710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
3. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
4. Do not install floor tiles until materials are the same temperature as space where they are to be installed.
 1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.
5. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

1. Comply with manufacturer's written instructions for installing floor tile.
2. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 1. Lay tiles in pattern indicated.
3. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 1. Lay tiles with grain running in direction as approved by the Architect.
4. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
5. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

6. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
7. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
8. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

1. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
2. Perform the following operations immediately after completing floor tile installation:
 1. Remove adhesive and other blemishes from surfaces.
 2. Sweep and vacuum surfaces thoroughly.
 3. Damp-mop surfaces to remove marks and soil.
3. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
4. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.
 1. Apply three coat(s).
5. Cover floor tile until Substantial Completion.

END OF SECTION 096519

SECTION 096540 - LUXURY VINYL TILE

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

This Section includes the following:

1. Luxury Vinyl Tile.

1.3 SUBMITTALS

1. Product Data: For each type of product
2. Shop Drawings: For each type of floor plank. Include floor plank layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 1. Show details of special patterns.
3. Samples for Initial Selection: For each type of floor tile indicated.
4. Samples for Verification: Full-size units of each color and pattern of floor tile required.
5. Qualification Data: For Installer.

1.4 CLOSEOUT SUBMITTALS

1. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials, from the same product run, for the following products and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Luxury Vinyl Tile: Furnish a minimum of 4 boxes or 3%, whichever is greater of the following:
 - a. LVT1.
 - b. LVT2.

1.6 QUALITY ASSURANCE

1. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.
 1. Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.

1.7 DELIVERY, STORAGE, AND HANDLING

1. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles on flat surfaces.

1.8 FIELD CONDITIONS

1. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following periods:
 1. 48 hours before installation.
 2. During installation.
 3. 48 hours after installation.
2. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
3. Close spaces to traffic during floor tile installation.
4. Close spaces to traffic for 48 hours after floor tile installation.
5. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 LUXURY VINYL TILE

1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer indicated in drawings or a comparable product by one of the following:
 1. Interface.
 2. Mohawk Flooring.
 3. Nox Prime.
2. Tile Standard: ASTM F 1700.

2.2 INSTALLATION MATERIALS

1. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor plank manufacturer for applications indicated.
2. Adhesives: Water-resistant type recommended by floor plank and adhesive manufacturers to suit floor plank and substrate conditions indicated.
 1. Adhesives shall have a VOC content of 50 g/L or less.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
2. Concrete Substrates: Prepare according to ASTM F 710.
 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor plank manufacturer. Do not use solvents.
 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor plank manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing.
3. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft. and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 1. Anhydrous Calcium Chloride Test: ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 2. Relative Humidity Test: Using in-situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum percent relative humidity level measurement as permitted by flooring manufacturer in writing.
4. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

5. Do not install floor planks until they are the same temperature as the space where they are to be installed.
6. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor plank.
7. Install floor tile after other finishing operations, including painting, have been completed.

3.3 FLOOR PLANK INSTALLATION

1. Comply with manufacturer's written instructions for installing floor plank.
2. Lay out floor planks from center marks established with principal walls, discounting minor offsets, so planks at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half plank at perimeter.
 1. Lay planks in pattern indicated.
3. Match floor planks for color and pattern by selecting planks from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed planks.
 1. Lay planks in pattern of colors and sizes indicated.
4. Scribe, cut, and fit floor planks to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
5. Extend floor planks into toe spaces, door reveals, closets, and similar openings. Extend floor planks to center of door openings.
6. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor planks as marked on substrates. Use chalk or other nonpermanent marking device.
7. Install floor planks on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of plank installed on covers and adjoining planks. Tightly adhere plank edges to substrates that abut covers and to cover perimeters.
8. Adhere floor planks to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
 1. Adhesives shall be applied per manufacturer's recommended installation, including trowel tool sizes.

3.4 CLEANING AND PROTECTION

1. Comply with manufacturer's written instructions for cleaning and protecting floor plank.

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2. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION 096540

SECTION 096813 - CARPET TILE

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

Section includes:

1. Carpet tile and accessories.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

B. Review methods and procedures related to carpet tile installation including, but not limited to, the following:

1. Review delivery, storage, and handling procedures.
2. Review ambient conditions and ventilation procedures.
3. Review subfloor preparation procedures.

1.4 ACTION SUBMITTALS

1. Product Data: For each type of product.

1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
2. Include manufacturer's written installation recommendations for each type of substrate.

Shop Drawings: For carpet tile installation, plans showing the following:

3. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
4. Carpet tile type, color, and dye lot.
5. Type of subfloor.
6. Type of installation.
7. Pattern of installation.
8. Pattern type, location, and direction.
9. Pile direction.
10. Type, color, and location of insets and borders.
11. Type, color, and location of edge, transition, and other accessory strips.
12. Transition details to other flooring materials.

Samples for Initial Selection: For each type of carpet tile.

13. Include Samples of exposed edge, transition, and other accessory stripping involving color or finish selection.

Samples for Verification: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

14. Carpet Tile: Full-size Sample.

15. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch- long Samples. E.

Product Schedule: For carpet tile. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

1. Qualification Data: For Installer.
2. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.
3. Smoke and flammability reports
4. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

1. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.Video recording of instruction class for the Owner's maintenance staff.

1.7 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Carpet Tile: Full-size units equal to 1 percent of amount installed for each type indicated, but not less than 10 sq. yd.

1.8 QUALITY ASSURANCE

A. Contractor's Qualifications:

1. Employ only experienced installers, skilled in installation of the specified systems.
2. Installation company shall employ a minimum of three qualified installers with a minimum of three years experience each of installing similar systems. B.

Manufacturer's Qualifications:

3. Employ only manufacturers making the specified materials as a current production item.

4. Manufacturers shall have a minimum of five years of production experience with carpet of similar types to that specified.
 1. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
5. Build mockups at locations and in sizes shown on Drawings.
6. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

1. Comply with CRI's "CRI Carpet Installation Standard."
2. Deliver materials in the original factory packaging, labeled with identification of manufacturer, brand name, lot number, and test data.
3. Store materials on site, in original packaging, inside a well ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity.

1.10 FIELD CONDITIONS

1. Comply with CRI's "CRI Carpet Installation Standard" for temperature, humidity, and ventilation limitations.
2. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.
3. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
4. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.11 PROJECT CONDITIONS

1. Dimensions supplied in these Specifications and Drawings are approximate. Field verify dimensions and other conditions affecting Work.

1.12 WARRANTIES

1. Manufacturer's Warranty: Non-pro-rated, not less than 15 year warranty against surface pile wear, zippering, edge ravel, excessive static, loss of resiliency, moisture barrier, and delamination of secondary backing.

2. Installer's Warranty: Guarantee installation against defects in workmanship, seaming, and loss of adhesion for not less than 3 years from Date of Substantial Completion. C. Warranties shall begin on the date of Substantial Completion.
3. Upon written notice from the Architect, correct or replace improper work and material that may become apparent within the warranty period. Repairs will be made in accordance with this specification.
 1. Exception: Any problems arising from improper adherence to the manufacturer's recommended maintenance program.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Carpeting shall have a minimum critical radiant flux of 0.45 watts per square centimeter (radiant panel test) per ASTM E-648 "Standard Test Methods for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source", latest edition.
2. Carpet Fire-Test-Response Characteristics: Provide carpeting with the following characteristics as determined by testing identical products per test method indicated below by U.L. or another nationally recognized testing laboratory acceptable to the authorities having jurisdiction. Identify carpet with appropriate markings of applicable agency.
 1. Surface Flammability: Passes CPSC 16 CFR, Part 1630
 2. Flame Spread 25 or less per ASTM E 84, latest edition
 3. Smoke Development: 450 or less per ASTM E 84, latest edition
 4. Static: Under 3.5 kv. Below the average level of human sensitivityDry Breaking Strength: Not less than 100 lbf according to ASTM D 2646.

2.2 MANUFACTURERS

1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 - a. Mannington Mills, Inc.
 - b. Milliken & Company.
 - c. Tandus; a Tarkett company.

2.3 INSTALLATION ACCESSORIES

1. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cementbased formulation provided or recommended by carpet tile manufacturer.
2. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.

3. Vinyl Carpet Trims: Products and colors shall be as selected by Architect from available products and accessories similar to those manufactured by Johnsonite.
4. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, anodized aluminum, with flanges for setting in mortar bed.
1. Subject to compliance with requirements, provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 1. Blanke Corporation.
 2. Ceramic Tool Company, Inc.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance.
2. Examine carpet tile for type, color, pattern, and potential defects.
3. Concrete Slabs: Verify that finishes comply with requirements specified in Section 033000 "Cast-in-Place Concrete" and that surfaces are free of cracks, ridges, depressions, scale, and foreign deposits.
4. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft. and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 5. Anhydrous Calcium Chloride Test: ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. General: Comply with CRI's "Carpet Installation Standards" and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.
2. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider, and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.
3. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.

4. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

1. General: Comply with CRI's "CRI Carpet Installation Standard," Section 18, "Modular Carpet" and with carpet tile manufacturer's written installation instructions.
2. Installation Method: Glue down; install every tile with full-spread, releasable, pressuresensitive adhesive.
3. Maintain dye-lot integrity. Do not mix dye lots in same area.
4. Maintain pile-direction patterns, match mock-up.
5. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, and thresholds. Bind or seal cut edges as recommended by carpet tile manufacturer.
6. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
7. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.
8. Install pattern parallel to walls and borders.
9. Separate waste in accordance with the Waste Management Plan. Manufacturer to reclaim all scrap not retained by Owner.

3.4 CLEANING AND PROTECTION

1. All scrap carpet shall be palletized and returned to the manufacturer.
2. Immediately after installation, remove visible cement, dirt, wrappings, cartons, clippings, and other foreign substances. Vacuum carpet.
 1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 2. Remove yarns that protrude from carpet tile surface.
 3. Vacuum carpet tile using commercial machine with face-beater element.Protect installed carpet tile to comply with CRI's "Carpet Installation Standard," Section 20, "Protecting Indoor Installations."
Provide final protection and maintain conditions in a manner acceptable to the manufacturer and installer until the Date of Substantial Completion.
Conduct an instruction class for the Owner's maintenance staff prior to the Date of Substantial Completion.
 4. Instruct personnel on the proper method of cleaning the material as recommended by the manufacturer.

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5. Videotape this session.

END OF SECTION 096813

SECTION 097200 - WALL COVERINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

Section Includes:

1. Vinyl wall covering.

1.3 ACTION SUBMITTALS

1. Product Data: For each type of product.
 1. Include data on physical characteristics, durability, fade resistance, and fire-test-response characteristics.
2. Samples for Initial Selection: For each type of wall covering.
3. Samples for Verification: For each type of wall covering and for each color, pattern, texture, and finish specified, full width by [36 inches] long in size.
 1. Wall-Covering Sample: From same production run to be used for the Work, with specified [treatments] applied.
 - a. Show complete pattern repeat.
 - b. Mark top and face of fabric.
 2. Wood-Veneer Wall-Covering Sample: From same flitch to be used for the Work, with specified finish applied.

1.4 CLOSEOUT SUBMITTALS

1. Maintenance Data: For wall coverings to include in maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials, from the same production run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Wall-Covering Materials: For each type, color, texture, and finish, full width by length to equal to [5] percent of amount installed.

1.6 QUALITY ASSURANCE

1. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.

1.7 FIELD CONDITIONS

1. Environmental Limitations: Do not deliver or install wall coverings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and HVAC system is operating and maintaining ambient temperature and humidity conditions at levels intended for occupants after Project completion during the remainder of the construction period.
 1. Wood-Veneer Wall Coverings: Condition spaces for not less than 48 hours before installation.
2. Lighting: Do not install wall covering until lighting that matches conditions intended for occupants after Project completion is provided on the surfaces to receive wall covering.
3. Ventilation: Provide continuous ventilation during installation and for not less than the time recommended by wall-covering manufacturer for full drying or curing.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

1. Fire-Test-Response Characteristics: As determined by testing identical wall coverings applied with identical adhesives to substrates in accordance with test method indicated below by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - a. Flame-Spread Index: **[25]** or less.
 - b. Smoke-Developed Index: **[450]** or less.
 2. Fire-Growth Contribution: No flashover and heat and smoke release when tested in accordance with **[NFPA 265]** **[NFPA 286]**.

2.2 VINYL WALL COVERING

1. Manufacturers: Subject to compliance with requirements, **[provide products by one of the following]**:
 1. Knoll, Inc.
 2. MDC.
 3. Insert manufacturer's name.
2. Description: Provide vinyl products in rolls from same production run and complying with the following:
 1. ASTM F793/F793M for wall coverings.
 - a. Category: V, Type II, Commercial Serviceability (Vinyl Coated).

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates and conditions, with Installer present, for compliance with requirements for installation surfaces being true in plane and vertical and horizontal alignment, maximum moisture content, and other conditions affecting performance of the Work.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Comply with manufacturer's written instructions for surface preparation.
2. Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, and mildew.
3. Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.
 1. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
 2. Plaster: Allow plaster to cure for at least 90 days. Neutralize areas of high alkalinity. Apply primer/sealer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
 3. Metals: If not factory primed, clean and apply metal primer as recommended in writing by metal-primer manufacturer and wall-covering manufacturer.
 4. Gypsum Board: Apply primer/sealer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
 5. Painted Surfaces:
 - a. Check for pigment bleeding. Apply primer/sealer to areas susceptible to pigment bleeding as recommended in writing by primer/sealer manufacturer.
 - b. Sand gloss, semigloss, and eggshell finishes with fine sandpaper.
4. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.
5. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

3.3 INSTALLATION OF WALL COVERING

1. Comply with wall-covering manufacturers' written installation instructions applicable to products and applications indicated.

2. Cut wall-covering strips in roll number sequence. Change the roll numbers at partition breaks and corners.
3. Install strips in same order as cut from roll.
 1. For solid-color, even-texture, or random-match wall coverings, reverse every other strip.
4. Install wall covering without lifted or curling edges and without visible shrinkage.
5. Match pattern [72 inches] above the finish floor.
6. Install seams vertical and plumb at least 6 inches from outside corners and [3 inches] [6 inches] from inside corners unless a change of pattern or color exists at corner. Horizontal seams are not permitted.
7. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without overlaps or gaps between strips.
8. Fully bond wall covering to substrate. Remove air bubbles, wrinkles, blisters, and other defects.

3.4 CLEANING

1. Remove excess adhesive at seams, perimeter edges, and adjacent surfaces.
2. Use cleaning methods recommended in writing by wall-covering manufacturer.
3. Replace strips that cannot be cleaned.
4. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

END OF SECTION 097200

SECTION 098433 - SOUND-ABSORBING WALL UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section includes shop-fabricated, acoustical panel units tested for acoustical performance, including the following:
 1. Sound-absorbing wall panels.

1.3 DEFINITIONS

1. NRC: Noise Reduction Coefficient.
2. SAA: Sound Absorption Average.

1.4 ACTION SUBMITTALS

1. Product Data: For each type of product.
 1. Include[**fabric facing**,] panel edge, core material, and mounting indicated.
2. Shop Drawings: For unit assembly and installation.
 1. Include plans, elevations, sections, and mounting devices and details.
 2. Include details at panel head, base, joints, and corners; and details at ceiling, floor base, and wall intersections. Indicate panel edge profile and core materials.
 3. Include details at cutouts and penetrations for other work.
 4. Include direction of fabric weave and pattern matching.
3. Samples for Initial Selection: For each type of fabric facing.
 1. Include Samples of hardware and accessories involving color or finish selection.
4. Samples for Verification: For the following products:
 1. Fabric: Full-width by approximately [36-inch-] long Sample, but not smaller than required to show complete pattern repeat, from dye lot to be used for the Work, and with specified treatments applied. Mark top and face of fabric.
 2. Panel Edge: 12-inch- long Sample(s) showing each edge profile, corner, and finish.
 3. Core Material: 12-inch- square Sample at corner.
 4. Mounting Devices: Full-size Samples.
 5. Assembled Panels: Approximately 36 by 36 inches , including joints and mounting methods.

1.5 INFORMATIONAL SUBMITTALS

1. Coordination Drawings: Elevations and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 1. Items penetrating or covered by units including the following:
 - a. Air outlets and inlets.
 - b. Alarms.
 - c. Sprinklers.
 - d. Access panels.
2. Product Certificates: For each type of unit.
3. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

1. Maintenance Data: For each type of unit to include in maintenance manuals. Include fabric manufacturers' written cleaning and stain-removal instructions.

1.7 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials from same production run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Fabric: For each fabric, color, and pattern installed, provide length equal to **[10]** percent of amount installed, but no fewer than [10 sq. yd.] full width of bolt.
 2. Mounting Devices: Full-size units equal to **[5]** percent of amount installed, but no fewer than **[five]** devices, including unopened adhesives.

1.8 DELIVERY, STORAGE, AND HANDLING

1. Comply with fabric and unit manufacturers' written instructions for minimum and maximum temperature and humidity requirements for shipment, storage, and handling.
2. Deliver materials and units in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.

1.9 FIELD CONDITIONS

1. Environmental Limitations: Do not install units until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work at and above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
2. Lighting: Do not install units until [a permanent level of lighting] is provided on surfaces to receive the units.

3. Air-Quality Limitations: Protect units from exposure to airborne odors, such as tobacco smoke, and install units under conditions free from odor contamination of ambient air.
4. Field Measurements: Verify unit locations and actual dimensions of openings and penetrations by field measurements before fabrication, and indicate them on Shop Drawings.

1.10 WARRANTY

1. Special Warranty: Manufacturer agrees to repair or replace units and components that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to the following:
 - a. Acoustical performance.
 - b. Fabric sagging, distorting, or releasing from panel edge.
 - c. Warping of core.
 2. Warranty **Period: [Two] years** from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Source Limitations: Obtain wall units specified in this Section from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

1. Fire-Test-Response Characteristics: Units shall comply with "Surface-Burning Characteristics" or "Fire Growth Contribution" Subparagraph below, or both, as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 1. Surface-Burning Characteristics: Comply with ASTM E 84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - a. Flame-Spread Index: 25 or less.
 - b. Smoke-Developed Index: **[450]** or less.
 2. Fire Growth Contribution: Comply with acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 265 Method B Protocol or NFPA 286.
- B. A. American Society for Testing and Materials (ASTM):
 1. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 2. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
 3. ASTM E 2768-11 (2018) Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials

4. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
5. ASTM C 636 / C636M – 19 Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
6. ASTM C 754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board
7. ASTM E 1264 Classification for Acoustical Ceiling Products
8. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

C. International Building Code
D. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"
E. NFPA 70 National Electrical Code
F. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

2.3 SOUND-ABSORBING WALL UNITS

1. Sound-Absorbing Wall Panel Manufacturer's standard panel construction consisting of facing material [**laminated to front face, edges, and back edge border of core**] or [**stretched over front face of edge-framed core and bonded or attached to edges and back of frame**]
 1. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
 - a. Armstrong World Industries.
 - b. Insert manufacturer's name.
 3. Panel Shape: [**As indicated on Drawings**]
 4. Mounting: Edge mounted with splines secured to substrate.
 - a. Finish Color at Exposed Edges: [As selected by Architect from manufacturer's full range]
 5. Mounting: Back mounted with manufacturer's standard sharp point screws, general contractor to provide blocking in wall where required by manufacturer, secured to substrate.
 6. Core: [**Manufacturer's standard**].
 7. Edge Construction: Manufacturer's standard.
 8. Edge Profile:[**Square**]
 9. Corner Detail in Elevation: [**Square**].
 - 10.Reveals between Panels: (**Flush**) reveals [**as selected by Architect from manufacturer's full range**].
 - 11.Facing Material: [**As indicated on Drawings**].
 - 12.Panel Width:[**As indicated on Drawings**].
 - 13.Panel Height: [**As indicated on Drawings**].

2.4 MATERIALS

1. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than **<Insert value>** percent.
2. Core Materials:[**Manufacturer's standard.**]
 1. Particleboard: Panels complying with ANSI A208.1, **[grade to suit performance requirements]** **[Grade M-2]**.
 - a. Made with binder containing no urea formaldehyde.
 - b. Use panels that meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
 - c. Fire-retardant panels made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84 or UL 723.
 2. Wood and Plywood: Manufacturer's standard plywood or clear, vertical grain, straight, kiln-dried hardwood.
 - a. Fire-retardant treated by pressure process with a flame-spread index of 25 or less when tested according to ASTM E 84 or UL 723, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
 - 1) Treated material shall have a moisture content of 28 percent or less when tested according to ASTM D 3201/D 3201M at 92 percent relative humidity.
 - 2) Kiln-dry material after treatment to 19 percent or less for lumber and 15 percent or less for plywood.
3. Mounting Devices: Concealed on back of unit, recommended by manufacturer to support weight of unit, and as follows:
 1. Impaling Clips: **[Manufacturer's standard]**.

2.5 FABRICATION

1. Standard Construction: Use manufacturer's standard construction unless otherwise indicated; with facing material applied to face, edges, and back border of dimensionally stable core; and with rigid edges to reinforce panel perimeter against warpage and damage.
2. Edge Hardening: For **[glass-fiber board]** **[and]** **[mineral-fiber board]** cores, chemically harden core edges and areas of core where mounting devices are attached.
3. Core-Face Layer: Evenly stretched over core face and edges and securely attached to core; free from puckers, ripples, wrinkles, or sags.

4. Facing Material: Apply fabric facing fully covering visible surfaces of unit; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.
 1. Square Corners: Tailor corners. [**Heat-seal vinyl fabric seams at corners.**]
 2. Radius and Other Nonsquare Corners: Attach facing material so there are no seams or gathering of material.
 3. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches in adjacent units.
5. Dimensional Tolerances of Finished Units: Plus or minus 1/16 inch for the following:
 1. Thickness.
 2. Edge straightness.
 3. Overall length and width.
 4. Squareness from corner to corner.
 5. Chords, radii, and diameters.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine fabric, fabricated units, substrates, areas, and conditions for compliance with requirements, installation tolerances, and other conditions affecting unit performance.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Install units in locations indicated. Unless otherwise indicated, install units with vertical surfaces and edges plumb, top edges level and in alignment with other units, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.
2. Comply with manufacturer's written instructions for installation of units using type of mounting devices indicated. Mount units securely to supporting substrate.
3. Align fabric pattern and grain [**with adjacent units**] [**as indicated on Drawings**].

3.3 INSTALLATION TOLERANCES

1. Variation from Plumb and Level: Plus or minus [1/16 inch]in 48 inches , noncumulative.
2. Variation of Joint Width: Not more than [1/16-inch]variation from [**hairline**] [**reveal line**] in 48 inches , noncumulative.

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3.4 CLEANING

1. Clip loose threads; remove pills and extraneous materials.
2. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION 098433

SECTION 099100 PAINTING

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Surface preparation and field application of paints.
2. Related Sections:
 1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 SUBMITTALS

1. Submittals for Review:
 1. Product Data: Manufacturer's data on materials proposed for use including:
 - a. Product designation and grade.
 - b. Product analysis and performance characteristics.
 - c. Standards compliance.
 - d. Material content.
 - e. Mixing and application procedures.
 2. Samples:
 - a. 3 x 6 inch samples of each coating system on representative substrate. Step back successive coats so that all coats remain exposed. Indicate type of material used for each coat.
 3. Paint Schedule: Indicate types and locations of each surface, paint materials, and number of coats to be applied.

1.3 QUALITY ASSURANCE

1. Applicator Qualifications: Minimum 3 years documented experience in work of this Section.
2. Materials, Preparation, and Workmanship: Conform to MPI Painting Manual.

1.4 DELIVERY, STORAGE AND HANDLING

1. Container Labels: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage rates, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
2. Paint Materials: Store at ambient temperature from 45 to 90 degrees F in ventilated area, or as required by manufacturer's instructions.

1.5 PROJECT CONDITIONS

1. Do not apply materials when surface and ambient temperatures or relative humidity are outside ranges required by paint manufacturer.
2. Maintain ambient and substrate temperatures above manufacturer's minimum requirements for 24 hours before, during, and after paint application.
3. Do not apply materials when relative humidity is above 85 percent or when dew point is less than 5 degrees F different than ambient or surface temperature. D. Provide lighting level of 30 footcandles at substrate surface.

1.6 MAINTENANCE

1. Extra Materials: 1 gallon of each color and sheen.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Acceptable Manufacturers:
 1. PPG Architectural Finishes, Inc. (www.pittsburghpaints.com)
 2. Sherwin Williams. (www.sherwin-williams.com)
 3. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

1. Paints:
 1. As scheduled at end of Section, or approved substitute.
 2. Free from all forms of lead and mercury.
2. Maximum Volatile Organic Compound (VOC) Content for interior paints, coatings, and accessories, tested to ASTM D6886:
 1. Primers: 100 grams per liter.
 2. Flat paints and coatings: 50 grams per liter.
 3. Non-flat paints and coatings: 50 grams per liter.
 4. Rust preventative coatings: 100 grams per liter.
 5. Clear wood finishes: 275 grams per liter.
 6. Stains: 100 grams per liter.
 7. Dryfall coatings: 150 grams per liter.
3. Accessory Materials: Paint thinners and other materials required to achieve specified finishes; commercial quality.
4. Patching Materials: Latex filler.
5. Fastener Head Cover Materials: Latex filler.

2.3 MIXES

1. Deliver paints pre-mixed and pre-tinted.
2. Uniformly mix to thoroughly disperse pigments.
3. Do not thin in excess of manufacturer's recommendations.
4. Re-mix paint during application; ensure complete dispersion of settled pigment and uniformity of color and gloss.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Test shop applied primer for compatibility with subsequent coatings.
2. Measure moisture content of surfaces using electronic moisture meter. Do not apply coatings unless moisture content of surfaces are below following maximums:
 1. Gypsum board: 12 percent.
 2. Wood: 15 percent, measured to ASTM D4442.

3.2 PREPARATION

1. General:
 1. Protect adjacent and underlying surfaces.
 2. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
 3. Correct defects and clean surfaces capable of affecting work of this section.
 4. Seal marks that may bleed through surface finishes with shellac.
2. Impervious Surfaces: Remove mildew by scrubbing with solution of trisodium phosphate and bleach. Rinse with clean water and allow to dry.
3. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
4. Galvanized Steel: SSPC Method SP1 - Solvent Cleaning.
5. Aluminum: SSPC Method SP1 - Solvent Cleaning.
6. Uncoated Ferrous Metals: SSPC Method SP2 - Hand Tool Cleaning or Method SP3 - Power Tool Cleaning.
7. Shop Primed Ferrous Metals:
 1. SSPC Method SP2 - Hand Tool Cleaning or Method SP3 - Power Tool Cleaning.
 2. Feather edges to make patches inconspicuous.
 3. Prime bare steel surfaces.

8. Interior Wood:
 1. Wipe off dust and grit.
 2. Seal knots, pitch streaks, and sappy sections with sealer.
 3. Fill nail holes and cracks after primer has dried; sand between coats.
9. Exterior Wood:
 1. Remove dust, grit, and foreign matter.
 2. Seal knots, pitch streaks, and sappy sections.

3.3 APPLICATION

1. Apply paints in accordance with manufacturer's instructions and MPI Painting Manual, Custom Grade finish requirements.
2. Apply primer or first coat closely following surface preparation to prevent recontamination.
3. Do not apply finishes to surfaces that are not dry.
4. Apply coatings to minimum dry film thickness recommended by manufacturer.
5. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
6. Apply coatings to uniform appearance without laps, sags, curtains, holidays, and brush marks.
7. Allow applied coats to dry before next coat is applied.
8. When required on deep and bright colors apply an additional finish coat to ensure color consistency.
9. Continue paint finishes behind wall-mounted accessories.
10. Sand between coats on interior wood and metal surfaces.
11. Match final coat to approved color samples.
12. Where clear finishes are specified, tint fillers to match wood. Work fillers into grain before set. Wipe excess from surface.
13. Prime concealed surfaces of exterior wood and interior wood in contact with masonry or cementitious materials with one coat primer paint. N. Mechanical and Electrical Components:
 1. Paint factory primed equipment.
 2. Remove unfinished and primed louvers, grilles, covers, and access panels; paint separately.
 3. Paint exposed and insulated pipes, conduit, boxes, ducts, hangers, brackets, collars, and supports unless factory finished.

4. Do not paint name tags or identifying markings.
5. Paint exposed conduit and electrical equipment in finished areas.
6. Paint duct work behind louvers, grills, and diffusers flat black to minimum of 18 inches or beyond sight line.

14. Do not Paint:

1. Surfaces indicated on Drawings or specified to be unpainted or unfinished.
2. Surfaces with factory applied finish coat or integral finish.
3. Architectural metals, including brass, bronze, stainless steel, and chrome plating.

3.4 ADJUSTING

1. Touch up or refinish disfigured surfaces.

3.5 CLEANING

1. Remove paint from adjacent surfaces.

3.6 PAINT SCHEDULE

1. Types of paint listed herein are set forth as standard of quality and type of coating required for each type of surface.
 1. Paint exposed surfaces of types listed in Paint Schedule.
2. Prime coat consists of touch up on shop primed and existing surfaces with intact coatings.

SUBSTRATE	MANUFACTURER	PRIMER	TOP COATS
Exterior Surfaces			
Concrete	Sherwin Williams		
Ferrous and Galvanized Metals	Sherwin Williams	One coat All Surface Enamel Latex Primer	Two coats SuperPaint Exterior Latex Enamel Coating
Interior Surfaces			
Gypsum Board, Latex Flat Finish	Sherwin Williams	One coat ProMar 200 Zero VOC Primer	Two coats ProMar 200 Interior Latex Flat Wall Paint
Gypsum Board, Latex Eggshell Enamel Finish	Sherwin Williams	One coat ProMar 200 Zero VOC Primer	Two coats ProMar 200 Interior Latex Eg-Shel Enamel
Gypsum board, Latex semi-gloss Enamel Finish	Sherwin Williams	One coat ProMar 200 Zero VOC Primer	Two coats ProMar 200 Interior Latex Semi-gloss Enamel
Gypsum board, Epoxy finish	Sherwin Williams	One coat ProMar 200 Zero VOC Primer	Two coats Pro Industrial Pre-Catalyzed Waterbased Epoxy Eg-Shel
Ferrous and Galvanized Metals	Sherwin Williams	One coat All Surface Enamel Latex Primer	Two coats ProClassic Interior Alkyd Semi-Gloss Enamel

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Wood, Opaque, Latex Enamel Finish	Sherwin Williams	One coat PrepRite Wall and Wood Interior Primer/Undercoater	Two coats ProMar 200 Interior Latex Semi-Gloss Enamel
Wood, Transparent Finish	Sherwin Williams	One coat Wood Classics Interior Stain	Two coats Wood Classics Polyurethane Varnish, Satin

END OF SECTION 099100

SECTION 099300 - STAINING AND TRANSPARENT FINISHING

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

1. Section includes surface preparation and application of wood stains and transparent finishes.

1.3 SUBMITTALS

1. Product Data: For each type of product. Include preparation requirements and application instructions.
2. Samples for Initial Selection: For each type of product.
3. Samples for Verification: For each type of finish system and in each color and gloss of finish required.
 1. Submit Samples on representative samples of actual wood substrates, 8 inches square or 8 inches long.
 2. Apply coats on Samples in steps to show each coat required for system.
 3. Label each coat of each Sample.
 4. Label each Sample for location and application area.
4. Product List: Cross-reference to finish system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.4 DELIVERY, STORAGE, AND HANDLING

1. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.5 FIELD CONDITIONS

1. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F.
2. Do not apply finishes when relative humidity exceeds 85 percent, at temperatures less than 5 deg F above the dew point, or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Subject to compliance with requirements, provide products one of the following:
 1. Behr Paint Company; Behr Process Corporation.
 2. Benjamin Moore & Co.
 3. PPG Paints.

2.2 SOURCE LIMITATIONS

1. Source Limitations: Obtain each coating product from single source from single manufacturer.

2.3 MATERIALS, GENERAL

1. Material Compatibility:
 1. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. Stain Colors: Match Architect's samples.

2.4 MATERIALS, GENERAL

1. Material Compatibility:
 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, products shall be recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated. B. Stain Colors: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
2. Maximum Moisture Content of Interior Wood Substrates: 9 percent, when measured with an electronic moisture meter.
3. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

4. Proceed with finish application only after unsatisfactory conditions have been corrected.
 1. Beginning finish application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

1. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
2. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.
 1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
3. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each substrate condition and as specified.
 1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
 2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer. D. Interior Wood Substrates:
 3. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 4. Apply wood filler paste to open-grain woods, as defined in "MPI Architectural Painting Specification Manual," to produce smooth, glasslike finish.
 5. Sand surfaces exposed to view and dust off.
 6. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dry.

3.3 APPLICATION

1. Apply finishes according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 1. Use applicators and techniques suited for finish and substrate indicated.
 2. Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.
 3. Do not apply finishes over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
2. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.4 CLEANING AND PROTECTION

1. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

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2. After completing finish application, clean spattered surfaces. Remove spattered materials by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
3. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
4. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

3.5 INTERIOR WOOD -FINISH-SYSTEM SCHEDULE

1. Wood Substrates: Wood trim, architectural woodwork.
2. Subject to compliance with requirements provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 1. (1) Stain Coat: Stain, semitransparent.
 2. (2) Topcoat: Varnish, interior.
 - a. Gloss: Match Architect's sample.
 - b. Sheen: Match Architect's sample.

END OF SECTION 099300

SECTION 102113.19 - PLASTIC TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Solid-plastic toilet compartments.
2. Related Requirements:
 1. Section 061000 "Rough Carpentry" for .
 2. Section 092216 "Non-Structural Metal Framing" for blocking.

1.2 COORDINATION

1. Coordinate requirements for overhead supports blocking, reinforcing, and other supports concealed within wall and ceiling to ensure that toilet compartments can be supported and installed as indicated.

1.3 ACTION SUBMITTALS

1. Product Data:
 1. Solid-plastic toilet compartments:
 - a. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for toilet compartments.
2. Shop Drawings:
 1. Include plans, elevations, sections, details, and attachment details.
 2. Show locations of cutouts for compartment-mounted toilet accessories.
 3. Show locations of centerlines of toilet fixtures.
 4. Show locations of floor drains.
 5. Show ceiling grid, ceiling-mounted items, and overhead support or bracing locations.
3. Samples for Initial Selection: Manufacturer's standard color sheets, showing full range of available colors for each type of toilet compartment.
 1. Include Samples of hardware and accessories involving material and color selection.
4. Samples for Verification: Actual sample of finished products for each type of toilet compartment, hardware, and accessory.
 1. Size: Manufacturer's standard size

1.4 CLOSEOUT SUBMITTALS

1. Operation and Maintenance Data: For toilet compartments.

1.5 MAINTENANCE MATERIAL SUBMITTALS

1. Extra Stock Materials: Furnish extra materials to Owner that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Provide (4) complete sets and required fasteners.

1.6 FIELD CONDITIONS

1. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements, and coordinate before fabrication.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

1. Obtain plastic toilet compartments from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

1. Fire Performance: Tested in accordance with, and pass the acceptance criteria of, NFPA 286.
2. Structural Performance: Where grab bars are mounted on toilet compartments, design panels to comply with the following requirements:
 1. Panels are able to withstand a concentrated load on grab bar of at least 250 lbf applied at any direction and at any point, without deformation of panel.
3. Regulatory Requirements: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1 for toilet compartments designated as accessible.

2.3 SOLID-PLASTIC TOILET COMPARTMENTS

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. AJW Architectural Products.
 2. Metpar Corp.
 3. Scranton Products.
2. Toilet-Enclosure Style: Overhead braced Floor anchored , privacy type.
3. Urinal-Screen Style: Wall hung.

4. Door, Panel, and Pilaster Construction: Solid, high-density polyethylene (HDPE) material, not less than 1 inch thick, seamless, with eased edges, and with homogenous color throughout thickness of material. Provide with no-sightline system consisting of door and pilaster lapped edges on strike side of door and door and pilaster lapped edges on hinge side of door (unless continuous hinge is used).
 1. Color: in each room as selected by Architect from manufacturer's full range.
5. Pilaster Shoes: Manufacturer's standard design; stainless steel.
6. Brackets (Fittings):
 1. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

2.4 HARDWARE AND ACCESSORIES

1. Door Hardware and Accessories: Manufacturer's operating hardware and accessories.
 1. Hinges:
 - a. Manufacturer's integral hinge for solid-plastic doors, allowing emergency access by lifting door.
 - 1) Material, Integral Hinge: Nylon gravity cam unit with stainless steel pins/screws.
 2. Latch and Keeper: Manufacturer's surface-mounted latch unit, designed for emergency access, and with combination rubber-faced door strike and keeper. Provide units that comply with regulatory requirements for accessibility at toilet enclosures designated as accessible.
 - a. Material: Stainless steel.
 3. Door Pull: Manufacturer's unit at outswinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at toilet enclosures designated as accessible.
 - a. Material: Stainless steel.
2. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
3. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized steel, or other rust-resistant, protective-coated steel compatible with related materials.

2.5 MATERIALS

1. Aluminum Castings: ASTM B26/B26M.
2. Aluminum Extrusions: ASTM B221.
3. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.

4. Stainless Steel Castings: ASTM A743/A743M.
5. Zamac: ASTM B86, commercial zinc-alloy die castings.

2.6 FABRICATION

1. Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
2. Overhead-Braced Units: Manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters and walls to suit floor and wall conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
3. Floor-Anchored Units: Manufacturer's standard corrosion-resistant anchoring assemblies at pilasters and walls, with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
4. Ceiling-Hung Units: Manufacturer's standard corrosion-resistant anchoring assemblies at pilasters and walls, with leveling adjustment nuts at pilasters for connection to structural support above finished ceiling. Provide assemblies that support pilasters from structure without transmitting load to finished ceiling. Provide sleeves (caps) at tops of pilasters to conceal anchorage.
5. Floor-and-Ceiling-Anchored Units: Manufacturer's standard corrosion-resistant anchoring assemblies at pilasters and walls, with leveling adjustment nuts at tops and bottoms of pilasters. Provide shoes and sleeves (caps) at pilasters to conceal anchorage.
6. Urinal-Screen Posts: Manufacturer's standard corrosion-resistant anchoring assemblies at posts and walls, with leveling adjustment nuts at[**tops and**] bottoms of posts. Provide shoes[**and sleeves (caps)**] at posts to conceal anchorage.
7. Door Size and Swings: Unless otherwise indicated, provide 24-inch- wide, inswinging doors for standard toilet enclosures and 36-inch- wide, outswinging doors with a minimum 32-inch- wide, clear opening for toilet enclosures designated as accessible.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.
 1. Confirm location and adequacy of blocking and supports required for installation.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 1. Maximum Clearances:
 - a. Pilasters and Panels or Screens: 1/2 inch.
 - b. Panels or Screens and Walls: 1 inch.
 2. Full-Height (Continuous) Brackets: Secure panels or screens to walls and to pilasters with full-height brackets.
 - a. Locate bracket fasteners, so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.
2. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels and adjust, so tops of doors are parallel with overhead brace when doors are in closed position.
3. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust, so tops of doors are level with tops of pilasters when doors are in closed position.
4. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.3 ADJUSTING

1. Hardware Adjustment: Adjust and lubricate hardware in accordance with hardware manufacturer's written instructions for proper operation. Set hinges on inswinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on outswinging doors to return doors to fully closed position.

END OF SECTION 102113.19

SECTION 102623.13 - IMPACT RESISTANT WALL PROTECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

1. Interior protection products of the following types:
 1. Surface-mounted corner guards.

1.2 REFERENCES

1. ANSI/UL 2079 - Standard for Tests for Fire Resistance of Building Joint System.
2. ASTM International (ASTM):
 1. ASTM A 176 - Standard Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip.
 2. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 3. ASTM D 256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
 4. ASTM D 543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents.
 5. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
 6. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 7. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
 8. ASTM G 22 - Standard Practice for Determining Resistance of Plastics to Bacteria.
 9. ASTM F 476 - Standard Test Method for Security of Swinging Door Assemblies.
3. CAN/ULC S102.2 - Standard Method of Test for Surface Burning Characteristics of Building Materials.
4. SAE J-1545 - Instrumental Color Difference Measurement for Exterior Finishes, Textiles and Colored Trim.

1.3 SUBMITTALS

1. Product Data: Manufacturer's complete and current product data for each product required, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Complete installation methods.
2. Shop Drawings: Show locations of each item and installation details, including mounting and anchorage. Provide elevations of non standard conditions.

3. Selection Samples: Color charts consisting of actual product pieces, demonstrating full range of available colors, for initial color selection.
4. Verification Samples: For each product specified, two 8 inch long assemblies, including one end cap, in actual colors and materials specified.

1.4 QUALITY ASSURANCE

1. Provide test reports showing compliance with the performance specified for:
 1. Fire-related properties.
 2. Accessibility and safety properties.
 3. Impact strength.
2. Fire Resistance: Where fire ratings are specified for flush mounted corner guards, provide assemblies meeting the requirements of ANSI/UL 2079 to maintain the rating of wall assemblies.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Acceptable Manufacturer: Inpro, which is located at: S80 W18766 Apollo Dr.; Muskego, WI 53150; Toll Free Tel: 800-222-5556; Tel: 262-679-9010; Fax: 262-679-9127; Email: :request info (jjohnson@inprocorp.com); Web:www.inprocorp.com or approved equal as prior approved by the Architect.
2. Requests for substitutions will be considered in accordance with provisions of Section 012500 - Substitution Procedures.

2.2 MATERIALS

1. Materials: Compliance and performance data applies to materials listed unless otherwise listed under product description.
2. Vinyl: High impact polyvinyl chloride (PVC), velvet-textured.
 1. Vinyl Properties: Conforms with the NFPA Class A fire rating.
 - a. Surface Burning Characteristics (ASTM E 84): Flame spread 10, smoke developed 350-450; maximum.
 - b. Surface Burning Characteristics (CAN/ULC S102.2): Flame spread 15, smoke developed 35; maximum.

- c. Surface Burning Characteristics: Provide UL Classified rigid vinyl sheet; as determined by UL 723, for sheet installed with 3M Fastbond 30, shall be flame spread of 10 and smoke development of 95-140 for .040 inch thick material or flame spread of 15 and smoke development of 300 for .060 inch thick material. For sheet installed with Super Tek Products, XT-2000 adhesive, shall be flame spread of 20 and smoke development of 60-105 for .040 inch thick material or flame spread of 20 and smoke development of 250 for .060 inch thick material. Provide ULC (Canada) listed sheet conforming to the requirements of the National building Code of Canada 2010, Subsection 3.1.13. Surface burning characteristics, as determined by CAN/ULC-S102.2, shall be flame spread of 15 and smoke developed of 30.
 - d. Self Extinguishing: Provide end wall protectors with a CC1 classification, as tested in accordance with the procedures specified in ASTM D-635-74, Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position, as referenced in UBC 52-4.
 - e. Self-Extinguishing Characteristics (ASTM D 635): CC1 classification.
 - f. Impact Strength: Provide rigid vinyl profile materials that have an Impact Strength of 30.2 ft-lbs/inch of thickness as tested in accordance with the procedures specified in ASTM D 256, Impact Resistance of Plastics
 - g. Chemical and Stain Resistance: Tested in accordance with ASTM D 543.
 - h. Fungal and Bacterial Resistance: As tested in accordance with ASTM G 21 and ASTM G 22.
2. Color Consistency: Provide components matched in accordance with SAE J-1545 (Delta E) with a color difference no greater than 1.0 units using CIE Lab, CIE CMC, CIE LCh, Hunter Lab or similar color space scale systems.
3. G2 BioBlend: High impact Polyethylene Terephthalate Glycol (PETG), with an velvet-textured finish.
- 1. Properties:
 - a. Fire Performance Characteristics: Provide sheet material conforming to the NFPA Class A fire rating. Surface burning characteristics, as determined by ASTM E 84, shall be flame spread of 25 or less and smoke development of 450 or less.
 - b. Impact Strength: Provide materials that have been tested in accordance with the applicable provisions of ASTM D 256, Impact Resistance of Plastics.
 - c. Chemical and Stain Resistance: Provide material that shows resistance to stain when tested in accordance with applicable provisions of ASTM D 543.
 - d. Fungal and Bacterial Resistance: Provide material that does not support fungal or bacterial growth as tested in accordance with ASTM G 21 and ASTM G 22.
 - 2. Color Consistency: Provide components matched in accordance with SAE J-1545 - (Delta E) with a color difference no greater than 1.5 units using CIE Lab, CIE CMC, CIE LCh, Hunter Lab or similar color space scale systems.
 - 3. Certification: Provide GREENGUARD Certified material. Profiles shall meet GREENGUARD requirements of Certification Standards for Low-Emitting Products and Product Emission Standard for Children and Schools.
4. Aluminum for Retainers: Alloy 6063-T5, in accordance with ASTM B 221; mill finish.
5. Aluminum for Corner Guards: Alloy 5005-H34, clear anodized finish.

2.3 SURFACE MOUNTED CORNER GUARDS

1. General:
 1. Bottom Closure Caps: Provide standard injection-molded thermoplastics in color matching cove.
 2. Top Closure Caps: Provide standard injection-molded thermoplastics in color matching cove.
 3. Top Closure Caps: Provide optional flexible top caps shall be made of injection molded Biopolymer Flex PVC.
 4. Height: 4 ft.
 5. Material: G2 BioBlend G2-150 or approved equal
 6. Color: As selected from manufacturer's standard colors and patterns.
2. Surface Mounted Corner Guards: IPC Model 160 as manufactured by Inpro; 2 inch wide, 0.080 inch thick rigid cover over continuous 0.070 inch aluminum retainer.
 1. Material: Vinyl.
 2. Material: G2 BioBlend G2-160 or approved equal.
 3. Color: As selected from manufacturer's standard colors and patterns.

2.4 ACCESSORIES

1. Provide appropriate fasteners and accessories as required to properly complete installation.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Verify that walls are in proper condition to receive installation of products.

3.2 PREPARATION

1. Clean substrate to remove dust, debris, and loose particles.

3.3 INSTALLATION

1. General: Install products level and plumb, in full compliance with manufacturer's installation instructions.

3.4 ADJUSTING AND CLEANING

1. Verify that products are plumb and rigidly secured to substrate; make any adjustments required.

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2. Clean products and immediate areas of installation, using materials and methods recommended by manufacturer. Remove from project site packaging and debris caused by installation.

END OF SECTION 102623.13

SECTION 122200 - CURTAINS AND DRAPES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

1. Section Includes:
 1. Drapes.
 2. Drapery tracks.

1.3 ACTION SUBMITTALS

1. Product Data: For the following:
 1. Drapery Tracks: Include maximum weights of drapes that can be supported.
 - a. Motorized Tracks: Indicate motor weights, motor-mounting requirements, and electrical requirements.
 2. Fabrics.
 3. Textile treatments.
2. Shop Drawings:
 1. Drapery Tracks: Show installation and anchorage details and locations of controls.
 - a. Motorized Tracks: Indicate dimensions, weights, and required clearances for track and motor and differentiate between manufacturer-installed and field-installed wiring.
 2. Drapes: Show sizes, locations, and details of installation.
3. Samples: As follows:
 1. Drapery Tracks: 18 inches long, with carriers, controls, and accessories.
 2. Drapery Fabrics: For each color and pattern indicated, full width by 36 inches long, from dye lot to be used for the Work and with specified textile treatments applied. Show complete pattern repeat if any. Mark top and face of fabric.
 3. Textile Trims: For each color and pattern indicated, 18 inches long.
 4. Drape Fabrication: For each heading, fabric, color, and pattern indicated, a complete full-size panel to verify details of fabrication and thread colors.
4. Samples for Initial Selection: For each type of product indicated.
5. Samples for Verification: As follows:
 1. Drapery Tracks: 18 inches long, with carriers, controls, and accessories.
 2. Drapery Fabrics: For each color and pattern indicated, full width by 36 inches long, from dye lot to be used for the Work and with specified textile treatments applied. Show complete pattern repeat if any. Mark top and face of fabric.

3. Textile Trims: For each color and pattern indicated, 18 inches long.
4. Drape Fabrication: For each heading, fabric, color, and pattern indicated, a complete full-size panel to verify details of fabrication and thread colors.
6. **Product Schedule: For [drapes] [and] [drapery tracks]. Use** same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

1. Coordination Drawings: For drapery track installation; reflected ceiling plans drawn to scale and coordinating track installation with openings and ceiling-mounted items, on which the following items are shown:
 1. Suspended ceiling components.
 2. Structural members to which motors are attached.
 3. Size and location of motor access panel.
2. Product Certificates: For each drapery fabric treated with flame retardant, signed by fabric supplier and indicating treatment durability and cleaning procedures required to maintain treatment effectiveness.

1.5 CLOSEOUT SUBMITTALS

1. Maintenance Data: For products installed to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Drapery Track Carriers: For each size indicated, equal to **[5]** percent of amount installed, but no fewer than **[10]** of each size.
 2. Drapery Track Controls: For each type indicated, equal to **[5]** percent of amount installed, but no fewer than **[10]** of each type.
 3. Drapery Fabrics: For each fabric, color, and pattern indicated, from the same product run, full-width lengths equal to **[5]** percent of amount installed, but no fewer than **[10]** yards of each fabric, color, and pattern.

1.7 QUALITY ASSURANCE

1. Installer Qualifications: For drapes and drapery tracks, fabricator of drapes.

1.8 FIELD CONDITIONS

1. Field Measurements: Verify dimensions by field measurements before drape fabrication, and indicate measurements on Shop Drawings.
2. Scheduling: Do not deliver or install drapes until after other finish work, including painting, is complete and spaces are otherwise ready for occupancy.

PART 2 - PRODUCTS

2.1 DRAPERY TRACKS

1. Manually Operated Track
 1. Manufacturers: Subject to compliance with requirements,] [provide products by one of the following]
 2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or equal, prior approved by Architect.
 3. Construction: Extruded aluminum, slotted for mounting at interval of not more than 24 inches o.c., **and bendable to radii indicated.**
 - a. Lengths and Configurations: As indicated on Drawings.
 - b. Finish: Manufacturer's standard.
 4. Mounting Brackets: Aluminum, of type suitable for fastening track to surface indicated and designed to support weight of track assembly and drape plus force applied to operate track.
 - a. Mounting Surface: [As indicated on Drawings]
 5. Installation Fasteners: Sized to support track assembly and drape, and fabricated from metal compatible with track, brackets, and supporting construction. Provide two fasteners to fasten each bracket to supporting construction.
2. Motorized Track :
 1. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
 2. Basis-of-Design Product: Subject to compliance with requirements, provide Automatic Devices Company or approved equal, prior confirmed by Architect.
 3. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 4. Installation Fasteners: Sized to support track assembly and drape, and fabricated from metal compatible with track, brackets, and supporting construction. Provide two fasteners to fasten each bracket to supporting construction.
 5. Motor Operation: Low-voltage motor with built-in low-voltage interface for direct access to control systems, with thermal-overload switch; sized for weight of drape and track length indicated; and equipped with stops to prevent overdrawing.

2.2 DRAPES

1. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
2. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] or approved equal prior approved by Architect.
3. Source Limitations: Obtain each color and pattern of drapery fabric and trim from one dye lot.

4. Fire-Test-Response Characteristics: For fabrics treated with fire retardants, provide products that pass NFPA 701 as determined by testing of fabrics that were treated using treatment-application method intended for use for this Project by a testing and inspecting agency acceptable to authorities having jurisdiction.
5. Drape
 1. Drapery Fabric:
 2. Manufacturers: Subject to compliance with requirements, provide products as indicated on drawings or approved equal, prior approved by Architect.

PART 3 - EXECUTION

3.1 DRAPERY TRACK INSTALLATION

1. Install track systems according to manufacturer's written instructions, level and plumb, and at height and location in relation to adjoining openings as indicated on Drawings.
2. Isolate metal parts of tracks and brackets from concrete, masonry, and mortar to prevent galvanic action. Use tape or another method recommended in writing by track manufacturer.

3.2 DRAPE INSTALLATION

1. Where drapes abut overhead construction, hang drapes so that clearance between headings and overhead construction is 1/4 inch .
2. Where drapes extend to floor, install so that bottom hems clear finished floor by not more than 1 inch and not less than 1/2 inch .
3. Where drapes extend to windowsill, install so that bottom hems hang above sill line and clear sill line by not more than 1/2 inch .

3.3 ADJUSTING

1. After hanging drapes, test and adjust each drapery track to produce unencumbered, smooth operation.
2. Steam and dress down drapes as required to produce crease- and wrinkle-free installation.
3. Remove and replace drapes that are stained or soiled.

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END OF SECTION 122200

SECTION 122413 - ROLLER WINDOW SHADES

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. Motor operated roller shades.
 2. Manual operated roller shades

1.3 ACTION SUBMITTALS

1. Product Data: For each type of product.
 1. Include construction details, material descriptions, dimensions of individual components and profiles, features, finishes, and operating instructions for roller shades.
2. Shop Drawings: Show fabrication and installation details for roller shades, including shadeband materials, their orientation to rollers, and their seam and batten locations.
 1. Motor-Operated Shades: Include details of installation and diagrams for power, signal, and control wiring.
3. Samples for Initial Selection: For each type and color of shadeband material.
 1. Include Samples of accessories involving color selection. D. Samples for Verification: For each type of roller shade.
 2. Shadeband Material: Not less than 10 inches square. Mark interior face of material if applicable.
 3. Roller Shade: Full-size operating unit, not less than 16 inches wide by 36 inches long for each type of roller shade indicated.
 4. Installation Accessories: Full-size unit, not less than 10 inches long.
4. Product Schedule: For roller shades. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

1. Qualification Data: For Installer.
2. Product Certificates: For each type of shadeband material.
3. Product Test Reports: For each type of shadeband material, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

1. Operation and Maintenance Data: For roller shades to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Roller Shade Motors: Provide (3) replacement motors.

1.7 QUALITY ASSURANCE

1. Installer Qualifications: Fabricator of products.
2. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

1. Deliver roller shades in factory packages, marked with manufacturer, product name, and location of installation using same designations indicated on Drawings.

1.9 FIELD CONDITIONS

1. Environmental Limitations: Do not install roller shades until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
2. Field Measurements: Verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operating hardware of operable glazed units through entire operating range. Notify Architect of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Source Limitations: Obtain roller shades from single source from single manufacturer.

2.2 MANUAL OPERATED ROLLER SHADES

1. Basis-of-Design Product and Manufacturer; as indicated on the Finish Schedule, or a comparable product by one of the following:
 1. Draper Inc.
 2. Lutron Electronics Co., Inc.
 3. MechoShade, Systems, Inc.

2.3 MOTOR-OPERATED ROLLER SHADES

1. Basis-of-Design Product and Manufacturer; as indicated on the Finish Schedule, or a comparable product by one of the following:
 1. Draper Inc.
 2. Lutron Electronics Co., Inc.
 3. MechoShade, Systems, Inc.
2. Motorized Operating System: Provide factory-assembled, shade-operator system of size and capacity and with features, characteristics, and accessories suitable for conditions indicated, complete with electric motor and factory-prewired motor controls, power disconnect switch, enclosures protecting controls and operating parts, and accessories required for reliable operation without malfunction. Include wiring from motor controls to motors. Coordinate operator wiring requirements and electrical characteristics with building electrical system.
 1. Electrical Components: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Electric Motor: Manufacturer's standard tubular, enclosed in roller.
 - a. Electrical Characteristics: 110-V ac.
 - b. Maximum Total Shade Width: As required to operate roller shades indicated.
 - c. Maximum Shade Drop: As required to operate roller shades indicated.
 - d. Maximum Weight Capacity: As required to operate roller shades indicated.
 3. Remote Control: Electric controls with NEMA ICS 6, Type 1 enclosure for recessed or flush mounting. Provide the following for remote-control activation of shades:
 - a. Individual/Group Control Station: Momentary-contact, three-position, rocker-style, wall-switch-operated control station with open, close, and center off functions for individual and group control.
 4. Crank-Operator Override: Crank and gearbox operate shades in event of power outage or motor failure.
 5. Limit Switches: Adjustable switches interlocked with motor controls and set to stop shades automatically at fully raised and fully lowered positions.
 6. Operating Features:
 - a. Group switching with integrated switch control; single faceplate for multiple switch cutouts.
3. Rollers: Corrosion-resistant steel or extruded-aluminum tubes of diameters and wall thicknesses required to accommodate operating mechanisms and weights and widths of shadebands indicated without deflection. Provide with permanently lubricated drive-end assemblies and idle-end assemblies designed to facilitate removal of shadebands for service.
 1. Direction of Shadeband Roll: Regular, from back (exterior face) of roller.
 2. Shadeband-to-Roller Attachment: Manufacturer's standard method.
 3. Provide Double Rollers at locations indicating (2) shades are required.

4. Mounting Hardware: Brackets or endcaps, corrosion resistant and compatible with roller assembly, operating mechanism, installation accessories, and mounting location and conditions indicated.
5. Roller-Coupling Assemblies: Coordinated with operating mechanism and designed to join up to three inline rollers that are operated by one roller drive-end assembly. F. Installation Accessories:
 1. Recessed Shade Pocket: Rectangular, extruded-aluminum enclosure designed for recessed ceiling installation; with front, top, and back formed as one piece, end plates, and removable bottom closure panel.
 - a. Height: Manufacturer's standard height required to enclose roller and shadeband assembly when shade is fully open, but not less than height indicated on Drawings.
 - b. Provide pocket with lip at lower edge to support acoustical ceiling panel, where applicable.
 2. Installation Accessories Color and Finish: As selected from manufacturer's full range.

2.4 SHADEBAND MATERIALS

1. Shadeband Material Flame-Resistance Rating: Comply with NFPA 701. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
2. Basis-of-Design Product and Manufacturer; as indicated on the Finish Schedule, or a comparable product by one of the following:
 1. Draper Inc.
 2. Lutron Electronics Co., Inc.
 3. MechoShade, Systems, Inc.

2.5 ROLLER SHADE FABRICATION

1. Product Safety Standard: Fabricate roller shades to comply with WCMA A 100.1.
2. Shadeband Fabrication: Fabricate shadebands without battens or seams to extent possible, except as follows:
 1. Vertical Shades: Where width-to-length ratio of shadeband is equal to or greater than 1:4, provide battens and seams at uniform spacings along shadeband length to ensure shadeband tracking and alignment through its full range of movement without distortion of the material.
 2. Railroaded Materials: Railroad material where material roll width is less than the required width of shadeband and where indicated. Provide battens and seams as required by railroaded material to produce shadebands with full roll-width panel(s) plus, if required, one partial roll-width panel located at top of shadeband.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, locations of connections to building electrical system, and other conditions affecting performance of the Work.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ROLLER SHADE INSTALLATION

1. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions.
2. Electrical Connections: Connect motor-operated roller shades to building electrical system.
3. Roller Shade Locations: As indicated on Drawings.
4. Where shades are installed at openings with vertical mullions; the shades shall be installed at the maximum length available from the Manufacturer, with the minimum quantity of breaks in the shades as possible. Shades shall not be broken at each mullion, unless vertical mullion spacing exceeds Manufactures maximum shade width.

3.3 ADJUSTING

1. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.4 CLEANING AND PROTECTION

1. Clean roller shade surfaces, after installation, according to manufacturer's written instructions.
2. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that roller shades are without damage or deterioration at time of Substantial Completion.
3. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

3.5 DEMONSTRATION

1. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain motor-operated roller shades.

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END OF SECTION

SECTION 123661.16 - SOLID SURFACE COUNTERTOPS

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. Solid-surface-material countertops and backsplashes.

1.3 ACTION SUBMITTALS

1. Product Data: For materials indicated.
2. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
 1. Show locations and details of joints.
 2. Show direction of directional pattern, if any.
3. Samples for Initial Selection: For each type of material exposed to view.
4. Samples for Verification: For the following products:
 1. Countertop materials, 6 inches square.

1.4 INFORMATIONAL SUBMITTALS

1. Qualification Data: For fabricator.

1.5 CLOSEOUT SUBMITTALS

1. Maintenance Data: For countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.6 QUALITY ASSURANCE

1. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.
2. Installer Qualifications: Fabricator of countertops.

3. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for fabrication and execution.
 1. Build mockup of typical countertop as shown on Drawings.
 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 FIELD CONDITIONS

1. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.8 COORDINATION

1. Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP MATERIALS

1. Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.
 1. Subject to compliance with requirements provide Basis of Design Product and Manufacturer indicated or a comparable product by one of the following:
 - a. Formica Corporation.
 - b. Wilsonart LLC.
 2. Colors and Patterns: As selected by Architect from Manufacturers full range.
2. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

2.2 COUNTERTOP FABRICATION

1. Fabricate countertops according to material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."
 1. Grade: Custom.
2. Configuration: As Indicated.
3. Countertops thickness: 3 cm unless otherwise indicated.
4. Backsplash thickness: 2 cm unless otherwise indicated.
5. Fabricate tops with shop-applied edges unless otherwise indicated. Comply with material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
 1. Fabricate with loose backsplashes for field assembly.
 2. Joints: Fabricate countertops in sections for joining in field.

3. Joint Locations: Not within 18 inches of a sink or cooktop and not where a countertop section less than 36 inches long would result, unless unavoidable. G. Cutouts and Holes:
4. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
 - a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch into fixture opening.
5. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.
6. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.
7. Grommet locations shall be coordinated with the Owner.

2.3 INSTALLATION MATERIALS

1. Adhesives: Adhesives shall not contain urea formaldehyde.
 1. Color: Sealant color shall match countertop finish.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Install countertops level to a tolerance of 1/8 inch in 8 feet, 1/4 inch maximum. Do not exceed 1/64-inch difference between planes of adjacent units.
2. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Predrill holes for screws as recommended by manufacturer. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
3. Fasten subtops to cabinets by screwing through subtops into cornerblocks of base cabinets. Shim as needed to align subtops in a level plane.

4. Secure countertops to subtops with adhesive according to solid surface material manufacturer's written instructions. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
5. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
 1. Install metal splines in kerfs in countertop edges at joints where indicated. Fill kerfs with adhesive before inserting splines and remove excess immediately after adjoining units are drawn into position.
 2. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.
6. Install aprons to backing and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Fasten by screwing through backing. Predrill holes for screws as recommended by manufacturer.
7. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
 1. Seal edges of cutouts in particleboard subtops by saturating with varnish.
8. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."

END OF SECTION 123661.16

SECTION 126100 - FIXED AUDIENCE SEATING

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Fixed audience seating.

1.2 DEFINITIONS

1. Pan: An exposed, supporting seat bottom made of steel.
2. Shell: An exposed, supporting seat bottom or back made of materials other than steel.
3. Tablet Arm: A flat surface attached to a chair that has the primary function to support tasks such as writing and short-term reference-material handling.

1.3 ALLOWANCES

1. Fixed audience seating is part of fixed audience seating allowance.
2. Fabric for fixed audience seating is part of allowance.

1.4 PREINSTALLATION MEETINGS

1. Preinstallation Conference: Conduct conference at Project site

1.5 ACTION SUBMITTALS

1. Product Data:
 1. Fixed audience seating.
2. Product Data Submittals: For each product.
 1. Include construction details, material descriptions, dimensions of components, and finishes for fixed audience seating.
 2. Include electrical characteristics of electrical components, devices, and accessories.
3. Shop Drawings:
 1. Include plans, elevations, sections, and attachment details.
 2. Seating Layout: Show seating layout, aisle widths, aisle-end alignment or stepping, row-lettering and chair-numbering scheme, chair widths, and chair spacing in each row.
 3. Accessories: Show locations and features of accessories, including , and accessibility provisions.

4. Include diagrams for power, signal, and control wiring.
4. Samples for Initial Selection: For each type of exposed color, finish, texture, and pattern indicated.
 1. Include Samples of accessories involving color and finish selection.
5. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 1. Chair Unit: Full-size unit of each type[**and combination of finishes**].
 2. Molded Plastic: Manufacturer's standard-size unit, not less than 3 inches square.
 3. Plastic Laminate: Manufacturer's standard-size unit, not less than 3 inches square.
 4. Baked-on Coating Finishes: Manufacturer's standard-size unit, not less than 3 inches square.
 5. Aluminum Finishes: Manufacturer's standard-size unit, not less than 3 inches square.
 6. Wood and Plywood Materials and Finishes: Manufacturer's standard-size unit, not less than 3 inches square.
 7. Upholstery Fabric: Full width by Insert dimension long section of fabric from dye lot to be used for the Work, with specified treatments applied. Show complete pattern repeat. Mark top and face of fabric.
 8. Row-Letter and Chair-Number Plates: Full-size units with letters and numbers marked.
 9. Aisle Lighting: Full-size unit.
 10. Power and Data Service Devices: Full-size units.
 11. Bookracks: Full-size unit.
 12. Exposed Fasteners: Full-size units of each type.
 13. Full-size samples[**of chair units**] if approved, will be returned to Contractor for use in Project.

1.6 INFORMATIONAL SUBMITTALS

1. Coordination Drawings:
 1. Coordinate location of electrical wiring and devices eating layout to ensure that floor junction boxes for electrical devices are accurately located to allow connection without exposed conduit.
 2. Coordinate location of diffuser pedestals with HVAC work and with properties of diffuser pedestals to ensure alignment, proper air diffusion, and correct seat locations.
2. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

1. Operation and Maintenance Data: For fixed audience seating to include in operation and maintenance manuals.
 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - a. Maintenance of self-rising seat mechanisms, folding armrests, and other operating components.
 - b. Adjustment of self-rising seat mechanisms to align seats.

- c. Maintenance of electrical components, devices, and accessories.
- d. Methods for maintaining upholstery fabric.
- e. Precautions for cleaning materials and methods that could be detrimental to seating finishes and performance.

1.8 MAINTENANCE MATERIAL SUBMITTALS

1. Furnish extra materials, from the same production run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Chair Seats and Backs: [2] percent of quantity installed for each type and size of chair seat and back.
 2. Upholstered, Slip-on Cushions: [5] percent of quantity installed for each type and size of cushion.
 3. Fabric: [5] percent on the bolt of quantity installed for each type.
 4. Armrests: [5] percent of quantity installed for each type of armrest.
 5. Power Receptacles: [5] percent of quantity installed.
 6. Data Ports: [5] percent of quantity installed.
 7. Chair Seat Hinges: [5] percent of quantity installed.
 8. Aisle-Lighting Fixture Bulbs: [5] percent of quantity installed.
 9. Donor Plates: [100] .

1.9 MOCKUPS

1. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 1. Build mockups of **[two typical seats in width and two typical rows deep]** including finishes and accessories:
 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.

1.10 WARRANTY

1. Special Warranty: Manufacturer agrees to repair or replace components of fixed audience seating that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Structural failures including standards, beams, and pedestals.
 - b. Faulty operation of self-rising seat mechanism.
 - c. Faulty operation of electrical components.
 - d. Wear and deterioration of fabric and stitching beyond normal use.
 - e. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
 2. Warranty Periods: As follows, from date of Substantial Completion.
 - a. Structural: **[10 years]**
 - b. Operating Mechanisms: **[Five years]**
 - c. Electrical Components: **[Five]** years.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

1. Obtain each type of seating required, including accessories and mounting components, from single source from single manufacturer.
 1. Upholstery Fabric: Obtain fabric of a single dye lot for each color and pattern of fabric required.

2.2 PERFORMANCE REQUIREMENTS

1. Fire-Test-Response Characteristics of Upholstered Chairs:
 1. Fabric and Padding:
 - a. Fabric: Class 1 in accordance with DOC CS 191 or 16 CFR 1610, tested in accordance with California Technical Bulletin 117-2000.
 - b. Padding: Comply with California Technical Bulletin 117-2000.
 2. Upholstery Assembly: Assembly to comply with component-testing requirements of California Technical Bulletin 117-2013.
 3. Full-Scale Fire Test: Comply with California Technical Bulletin 133.
2. Strength and Durability Performance: Chairs and components to pass testing in accordance with BIFMA X5.4.

2.3 FIXED AUDIENCE SEATING

1. Fixed Audience Seating [**Assembly-space seating in permanent arrangement**] as indicated on Drawings.
 1. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following][**available manufacturers offering products that may be incorporated into the Work include, **
 - a. Hussey Seating Company.
 - b. Irwin Seating Company.
 - c. Seating Concepts LLC.
2. Formed Hardwood-Veneer Chairs: Hardwood-veneer-faced, formed plywood backs and seats, with fasteners.
 1. Back Top Corners: .

2.4 FABRICATION

1. Floor Attachments: Fabricate to conform to floor slope so that standards and pedestals are plumb and chairs are maintained at same angular relationship to vertical throughout Project.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Examine floors, risers, and other adjacent work and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
2. Verify that electrical connections are properly located.
3. Verify that HVAC air-distribution locations are correct.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

1. Install seating in locations indicated and fasten to substrates in accordance with manufacturer's written installation instructions.
 1. Install seating with each chair capable of complying with performance requirements without failure or other conditions that might impair the chair's usefulness.
 2. Install standards and pedestals plumb.
 3. Install seating so moving components operate smoothly and quietly.
2. Install seating[with end standards aligned or stepped as indicated from first to last row and with backs and seats varied in **[width]** **[and]** **[spacing]** to optimize sightlines.
3. Install riser-mounted standards and attachments to maintain uniform chair heights above floor.
4. Where seating is indicated in curved rows, install seatingat a constant radius unless otherwise indicated.
5. Install wiring conductors and cables concealed in components of seatingand accessible for servicing.
 1. Connect electrical service at junction-box locations in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
 2. Connect data communication service at junction-box locations in accordance with **[Section 271513 "Communications Copper Horizontal Cabling.]"** **[Section 271523 "Communications Optical Fiber Horizontal Cabling.]"**

3.3 FIELD QUALITY CONTROL

1. Perform the following tests and inspections[**with the assistance of a factory-authorized service representative**]:

1. Inspect components, assemblies, and equipment, including connections, to verify proper, complete, and sturdy installation in accordance with manufacturer's written instructions and product specifications.
 2. Verify that self-rising seats return to uniform at-rest, raised position.
 3. Test power receptacles as specified in Section 262726 "Wiring Devices" when power is activated.
 4. Test data ports when data connection is activated.
2. Fixed audience seating will be considered defective if it does not pass tests and inspections.
3. Prepare test and inspection reports.

3.4 ADJUSTING

1. Adjust chair backs so that they are at required angles and aligned with each other in uniform rows.
2. Adjust hardware and moving parts to function smoothly so they operate easily. Lubricate bearings and sliding parts as recommended in writing by manufacturer.
3. Adjust self-rising seat mechanisms so seats in each row are aligned when in upright position.
4. Repair minor abrasions and imperfections in finishes with coating that matches factory-applied finish.
5. Replace damaged and malfunctioning components that cannot be acceptably repaired.
6. Replace upholstery fabric damaged during installation or work of other trades.

END OF SECTION 126100