

RENOVATIONS TO:

Veterans Memorial Auditorium Concession Stand

1 AVENUE OF THE ARTS

PROVIDENCE, RHODE ISLAND 02903

PROJECT MANUAL

ISSUED FOR CONSTRUCTION

ISSUED: JULY 1, 2026

ARCHITECT:

ZDS Architecture and Interiors

2 CHARLES ST, SUITE A1

PROVIDENCE, RHODE ISLAND 02904

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00 01 10 - TABLE OF CONTENTS

DIVISION 00 — PROCUREMENT AND CONTRACTING REQUIREMENTS

Document 00 01 01 Project Cover Page
Document 00 01 10 Table of Contents

DIVISION 01 — GENERAL REQUIREMENTS

Section 00 41 13 Contract and Bid Form
Section 01 10 00 Summary
Section 01 25 00 Substitution Procedures
Section 01 26 00 Contract Modification Procedures
Section 01 29 00 Payment Procedures
Section 01 31 00 Project Management and Coordination
Section 01 32 00 Construction Progress Documentation
Section 01 33 00 Submittal Procedures
Section 01 40 00 Quality Requirements
Section 01 42 00 References
Section 01 50 00 Temporary Facilities and Controls
Section 01 60 00 Product Requirements
Section 01 73 00 Execution
Section 01 77 00 Closeout Procedures
Section 01 78 23 Operation and Maintenance Data
Section 01 78 39 Project Record Documents
Section 01 79 00 Demonstration and Training

DIVISION 02 — EXISTING CONDITIONS

Section 02 41 19 Selective Demolition

DIVISION 06 – WOODS AND PLASTICS

Section 06 10 00 Rough Carpentry
Section 06 40 23 Architectural Woodwork
Section 06 61 19 Quartz Surfacing Fabrications

DIVISION 07 — THERMAL AND MOISTURE PROTECTION

Section 07 92 00 Joint Sealants

DIVISION 08 — OPENINGS

Section 08 11 13 Hollow Metal Doors and Frames

DIVISION 09 - FINISHES

Section 09 21 16 Non Structural Metal Framing
Section 09 29 00 Gypsum Board
Section 09 51 23 Acoustical Ceilings
Section 09 65 19 Resilient Tile Flooring
Section 09 91 23 Painting

END OF DOCUMENT 00 01 10



RHODE ISLAND CONVENTION CENTER AUTHORITY

REQUEST FOR PROPOSALS FOR Renovations to Concession Stand at The Vets

Deadline Date: September 1, 2026 at 3 PM

I. INTRODUCTION

The Rhode Island Convention Center Authority (the “Authority”), is a public corporation of the State of Rhode Island, which, among other things, operates The Vets (formerly known as the Veterans Memorial Auditorium). The Vets is an auditorium located at One Avenue of the Arts in Providence, Rhode Island. The Authority is requesting proposals for the installation vent hoods at the stage vent structure on the roof of The Vets.

II. SPECIFICATIONS

Provide and install all items as outlined in the contract documents (drawings and project manual) dated July 1, 2026 as compiled by ZDS Architecture and Interiors and Building Engineering Resources. This includes all architectural, plumbing, fire protection, mechanical, electrical, and fire alarm drawings and specifications. All proposals must include all portions of the contract documents. Partial proposals will not be considered.

III. SUBMISSION OF INQUIRIES AND PROPOSALS

Any inquiries regarding this RFP must be submitted by email by **August 25, 2026** to the attention of Daniel Schwartz, General Manager at dschwartz@pfmcorp.com.

Questions and answers will be posted as an addendum to this RFP on the State of Rhode Island Division of Purchases’ Rhode Island Vendor Information Program website (“RIVIP Website”) accessible at www.purchasing.ri.gov.

A Proposal must fully and accurately set forth the information required by this RFP. **All submittals must be received by the Authority by 3:00 p.m., local time, on September 1 2026**, at which time a public proposal opening will be held at the second floor conference room at the below address. A proposal received after that time will not be considered. **There will be no exceptions to this deadline.**

Please submit one original and one copy of your proposal containing (i) the information required in the Submission Requirements section below, and (ii) the accompanying Pricing Sheet signed by a person legally authorized to bind the Proposer to a contract. Proposals shall be delivered in a sealed envelope or package marked on the outside **“Renovations to Concession Stand”**. The proposals are to be delivered to the following location:

Daniel P. McConaghy, Executive Director
Rhode Island Convention Center Authority
Administrative Offices –The AMP
One LaSalle Square
Providence, RI 02903



The Authority accepts no financial responsibility for any costs incurred by a Proposer in responding to this RFP. The proposals submitted in response to this RFP become the property of the Authority and may be used by the Authority in any way it deems appropriate.



Additionally, Proposers are advised that all documents, correspondence, and other submissions to the Authority may be accessible as public records, pursuant to Title 38, Chapter 2 of the General Laws, absent specific notice that portions of such submittals may contain confidential or proprietary information, such that public access to those items should be withheld.

IV. TIMELINE

RFP Issue Date	August 14, 2026
On-site walkthrough	August 21, 2026 at 10 AM
Pre-proposal Questions Due	August 25, 2026 at 3 PM
Question Responses Posted	August 28, 2026
Responses to RFP Due	September 1, 2026 at 3 PM
Finalists Notified	September 8, 2026 approximately

V. SUBMISSION REQUIREMENTS

Each Proposal must include the following:

- A. Cover Letter – A cover letter signed by an authorized representative of the Proposer and specifying the full name, address and telephone number of the Proposer, proposed payment terms, and each person authorized to communicate with the Authority regarding the proposal.
- B. Executive Summary – A brief narrative that gives the history of Proposer, any unique qualifications of the firm, and other data or information that Proposer considers helpful in the evaluation of the firm or its Proposal.
- C. References – Provide the name, address and telephone number of not less than three firms for which your firm has provided comparable services in the last three years.

VI. AWARD

If a contract is awarded, it will be awarded to that Proposer whose Proposal conforms to the solicitation and is most advantageous to the Authority, as evaluated by the Authority, as to price, appearance, quality, proposed manner of performance, reputation of manufacturer, anticipated ability to meet time deadlines, and other factors considered. This is a Request for Proposals and not a request for a bids. Proposals will be evaluated not solely upon price.

The Authority and the selected Proposer may negotiate a change in any element of contract performance or cost identified in this RFP or the selected Proposer's response, which results in lower costs or in a more cost-effective or better value than was presented in the selected Proposer's original response.

VII. RIGHTS RESERVED TO THE AUTHORITY

Notwithstanding any other provision of this RFP the Authority reserves to itself the rights listed below.

- A. Right to Modify RFP Documents:** The Authority reserves the right to modify or amend any provision of the RFP documents. The Authority will post a copy of the Modification on the State of Rhode Island Division of Purchases RIVIP Website accessible at www.purchasing.ri.gov as an amendment to this RFP.
- B. Right to Reject Any and All Proposals:** Whenever the Authority deems it to be in the Authority's best interest, the Authority reserves the right, in its sole discretion, to cancel this RFP, to reject any and all proposals, to waive minor irregularities or informalities in a proposal; to re-solicit; and to proceed in a manner other than awarding a contract under this RFP. The Authority will not waive, however, the requirement that qualifications and proposals be received by the Authority prior to the deadline for submission.
- C. Right to Cancel Award:** The Authority reserves the right to cancel negotiations with any Proposer at any time prior to a contract being fully executed by the Proposer and the Authority.
- D. Additional Cause for Rejection** - In addition to any other cause for rejection of a submittal stated in this RFP, a proposal may also be rejected if there is evidence of collusion among Proposers, if the proposer submitting it is in default or arrears under any prior or existing contract with the Authority or any other State department or agency, or there is an unresolved claim between the Proposer and the Authority or any other State department or agency.

Any direct contacts made or attempted to be made by any proposer with any Authority Board member prior to the selection of qualified Proposers will automatically disqualify a Proposer from any further consideration.

Proposers are advised that the Authority is a quasi-public agency of the State of Rhode Island and its records, including statements submitted in response to RFP's are public records unless otherwise exempted under state law.



THE VETS: RENOVATIONS TO CONCESSION STAND
PRICING SHEET

Total purchase price for Renovations to Concession Stand, including all Materials, Installation, Permits, and Fees: \$ _____

The undersigned hereby declares that it:

1. Is thoroughly familiar with the provisions of the Bid Invitation
2. It can fulfill its obligations, should it be selected as the successful bidder.

Bidder: _____ (Print Name of Company)

(Print Name of authorized officer)

(Signature of authorized officer)

(Date)

Address: _____

Contact Name:

Email:

Telephone:

Fax #:



RHODE ISLAND CONVENTION CENTER AUTHORITY

GENERAL TERMS AND CONDITIONS OF PURCHASE

All Rhode Island Convention Center Authority ("Authority") Purchase Orders, Contracts, Solicitations, Delivery Orders and Service Requests shall incorporate and be subject to the specific requirements described in the Request or Contract, and the following General Conditions of Purchase. In the event that there is a conflict between the terms of the Request or Contract and the following, the terms of the Request or Contract shall govern.

1. GENERAL - All purchase orders, contracts, solicitations, delivery orders, and service requests are for specified goods and services, in accordance with express terms and conditions of purchase, as defined herein. For the purposes of this document, the terms "bidder", "proposer", and "contractor" refer to any individual, firm, corporation, or other entity presenting a proposal indicating a desire to enter into contracts with the Authority, or with whom a contract is executed by the Authority, and the term "contractor" shall have the same meaning as "vendor".

3. ENTIRE AGREEMENT - The Authority's Purchase Order, or other contract shall constitute the entire and exclusive agreement between the Authority and any contractor receiving an award. In the event of any conflict between the bidder's standard terms of sale, these conditions or more specific provisions contained in the solicitation shall govern. All communication between the Authority and any contractor pertaining to any award or contract shall be accomplished in writing.

a. Each proposal will be received with the understanding that the acceptance, in writing, by contract or Purchase Order by the Authority purchasing agent of the offer to do work or to furnish any or all the materials, equipment, supplies or services described therein shall constitute a contract between the bidder and the Authority. This shall bind the bidder on his part to furnish and deliver at the prices and in accordance with the conditions of said accepted proposal and detailed specifications and the Authority on its part to order from such contractor (except in case of emergency) and to pay for at the agreed prices, all materials, equip-ment, supplies or services specified and delivered.

b. No alterations or variations of the terms of the contract shall be valid or binding upon the Authority unless submitted in writing and accepted by the Authority's purchasing agent. All orders and changes thereof must emanate from the Authority: no oral agreement or arrangement made by a contractor with the Authority or employee will be considered to be binding on the Authority, and may be disregarded.

c. Contracts will remain in force for the contract period specified or until all articles or services ordered before date of termination shall have been satisfactorily delivered or rendered and accepted and thereafter until all terms and conditions have been met, unless

- 1) terminated prior to expiration date by satisfactory delivery against orders of entire quantities, or
- 2) extended upon written authorization of the Authority and accepted by the contractor, to permit ordering of the unordered balances or additional quantities at the contract price and in accordance with the contract terms, or
- 3) canceled by the Authority in accordance with other provisions stated herein.



d. It is mutually understood and agreed that the contractor shall not assign, transfer, convey, sublet or otherwise dispose of this contract or his right, title or interest therein, or his power to execute such contract, to any other person, company or corporation, without the previous consent, in writing, of the Authority.

e. If, subsequent to the submission of an offer or issuance of a purchase order or execution of a contract, the bidder or contractor shall merge with or be acquired by another entity, the contract may

be terminated, except as a corporate resolution prepared by the contractor and the new entity ratifying acceptance of the original bid or contract terms, condition, and pricing is submitted to the Authority, and expressly accepted.

f. The contractor or bidder further warrants by submission of an offer or acceptance of a purchase order or other contract that he has no knowledge at the time of such action of any outstanding and delinquent or otherwise unsettled debt owed by him to the State and or the Authority, and agrees that later discovery by the Authority that this warranty was given in spite of such knowledge, except where the matter is pending in hearing or from any appeal therefrom, shall form reasonable grounds for termination of the contract.

4. **SUBCONTRACTS** - No subcontracts or collateral agreements shall be permitted, except with the Authority's express consent. Upon request, contractors must submit to the Authority a list of all subcontractors to be employed in the performance of any Purchase Order or other contract arising from this Request.

5. **RELATIONSHIP OF PARTIES** - The contractor or bidder warrants, by submission of an offer or acceptance of a purchase order or other contract, that he is not an employee, agent, or servant of the Authority, and that he is fully qualified and capable in all material regards to provide the specified goods and services. Nothing herein shall be construed as creating any contractual relationship or obligation between the Authority and any sub-bidder, subcontractor, supplier, or employee of the contractor or offeror.

6. **COSTS OF PREPARATION** - All costs associated with the preparation, development, or submission of bids or other offers will be borne by the offeror. The Authority will not reimburse any offeror for such costs.

7. **SPECIFIED QUANTITY REQUIREMENT** - Except where expressly specified to the contrary, all solicitations and contracts are predicated on a specified quantity of goods or services, or for a specified level of funding.

a. The Authority reserves the right to modify the quantity, scope of service, or funding of any contract, with no penalty or charge, by written notice to the contractor, except where alternate terms have been expressly made a part of the contract.

b. The Authority shall not accept overruns of printed material in excess of 5% of specified quantity, or in excess of the specified quantity where the item is normally sold by weight (where sold by weight, the Authority will not accept quantities greater than ten per cent [10%] of the specified quantity), or where the Request or Contract provides for awards for other than exact quantities.

c. Purchase Orders or other contracts may be increased in quantity or extended in term without subsequent solicitation with the mutual consent of the contractor and Authority, where determined by the Authority's purchasing agent to be in the Authority's best interest.

8. **TERM AND RENEWAL** - Where offers have been requested or contracts awarded for terms exceeding periods of twelve (12) months, it is mutually understood and agreed that the Authority's commitment is limited to a base term not to exceed twelve (12) months, subject to renewal annually at the Authority's option for successive terms as otherwise described, except where expressly specified to the contrary. Purchase orders appearing to commit to obligations of funding or terms of performance may be executed for administrative convenience, but are otherwise subject to this provision, and in such cases the Authority's renewal shall be deemed to be automatic, conditional on the continued availability of funds for the purpose and determination of continued need by the Authority, except as



written notice of the Authority's intent not to renew is served.

9. DELIVERY - Delivery must be made as ordered and in accordance with the proposal. If delivery qualifications do not appear on the bidder's proposal, it will be interpreted to mean that goods are in stock and that shipment will be made within seven (7) calendar days. The decision of the Authority's purchasing agent, as to reasonable compliance with the delivery terms, shall be final. Burden of proof of delay in receipt of order shall rest with the vendor. No delivery charges shall be added to invoices except when authorized on the Purchase Order, or when approved, in advance, by the Authority's purchasing agent.



10. FOREIGN CORPORATIONS - In accordance with Title 7 Chapter 1.1 of the General Laws of Rhode Island, no foreign corporation shall have the right to transact business in this state until it shall have procured a certificate of authority so to do from the Secretary of State.

11. PRICING - All pricing offered or extended to the Authority is considered to be firm and fixed unless expressly provided for to the contrary. All prices shall be quoted F.O.B. Destination with freight costs included in the unit cost to be paid by the Authority, except, where the Request or Contract permits, offers reflecting F.O.B. Shipping Point will be considered, and freight costs may then be prepaid and added to the invoice.

12. COLLUSION - Bidder or contractor warrants that he has not, directly or indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of full competitive bidding. In special circumstances, an executed affidavit will be required as a part of the bid.

13. PROHIBITION AGAINST CONTINGENT FEES AND GRATUITIES - Bidder or contractor warrants that he has not paid, and agrees not to pay, any bonus, commission, fee, or gratuity to any employee or official of the Authority for the purpose of obtaining any contract or award issued by the Authority. Bidder or contractor further warrants that no commission or other payment has been or will be received from or paid to any third party contingent on the award of any contract by the Authority. Subsequent discovery by the Authority of non-compliance with these provisions shall constitute sufficient cause for immediate termination of all outstanding contracts and suspension or debarment of the bidder(s) or contractor(s) involved.

14. AWARDS - Awards will be made with reasonable promptness and by written notice to the successful bidder (only); bids are considered to be irrevocable for a period of sixty (60) days following the bid opening unless expressly provided for to the contrary in the Request, and may not be withdrawn during this period without the express permission of the Authority's purchasing agent.

a. Awards shall be made to the bidder(s) whose offer(s) constitutes the lowest responsive price offer (or lowest responsive price offer on an evaluated basis) for the item(s) in question or for the Request as a whole, at the option of the Authority. The Authority reserves the right to determine those offers which are responsive to the Request, or which otherwise serve its best interests.

b. The Authority reserves the right, before making award, to initiate investigations as to whether or not the materials, equipment, supplies, qualifications or facilities offered by the bidder meet the requirements set forth in the proposal and specification, and are ample and sufficient to insure the proper performance of the contract in the event of award. If upon such examination it is found that the conditions of the proposal are not complied with or that articles or equipment proposed to be furnished do not meet the requirements called for, or that the qualifications or facilities are not satisfactory, the Authority may reject such a bid. It is distinctly understood, however, that nothing in the foregoing shall mean or imply that it is obligatory upon the Authority to make any examinations before awarding a contract; and it is further understood that if such examination is made, it in no way relieves the contractor from fulfilling all requirements and conditions of the contract.

c. Qualified or conditional offers which impose limitations of the bidder's liability or modify the requirements of the bid, offers for alternate specifications, or which are made subject to different terms and conditions than those specified by the Authority may, at the option of the Authority, be:

1) rejected as being non-responsive, or



2) set aside in favor of the Authority's terms and conditions (with the consent of the bidder), or

3) accepted, where the Authority determines that such acceptance best serves the interests of the Authority. Acceptance or rejection of alternate or counter-offers by the Authority shall not constitute a precedent which shall be considered to be binding on successive solicitations or procurements.

- d. Bids submitted in pencil, or which do not bear an original signature and date, in ink, by an authorized agent of the vendor thereof, may be rejected.
- e. Bids must be extended in the unit of measure specified in the Request. In the event of any discrepancy between unit prices and their extensions, the unit price will govern.
- f. The Authority reserves the right to determine the responsibility of any bidder for a particular procurement.
- g. The Authority's purchasing agent reserves the right to reject any and all bids in whole or in part, to waive technical defects, irregularities, and omissions, and to give consideration to past performance of the offerors where, in his judgment the best interests of the Authority will be served by so doing.
- h. The Authority's purchasing agent reserves the right to make awards by items, group of items or on the total low bid for all the items specified as indicated in the detailed specification, unless the bidder specifically indicates otherwise in his bid.
- i. Preference may be given to bids on products raised or manufactured in the State, other things being equal.
- j. The impact of discounted payment terms shall not be considered in evaluating responses to any Request.
- k. The Authority's purchasing agent reserves the right to act in the Authority's best interests regarding awards caused by clerical errors by the Authority.

15. SUSPENSION AND DEBARMENT - The Authority may initiate suspension or debarment procedures against any vendor or potential bidder, for good cause shown:

- a. A debarment or suspension against a part of a corporate entity constitutes debarment or suspension of all of its divisions and all other organizational elements, except where the action has been specifically limited in scope and application, and may include all known corporate affiliates of a contractor, when such offense or act occurred in connection with the affiliate's performance of duties for or on behalf of the contractor, or with the knowledge, approval, or acquiescence of the contractor or one or more of its principals or directors (or where the contractor otherwise participated in, knew of, or had reason to know of the acts)
- b. The fraudulent, criminal or other serious improper conduct of any officer, director, shareholder, partner, employee, or any other individual associated with a contractor may be imputed to the contractor when the conduct occurred in connection with the individual's performance of duties for or on behalf of the contractor, or with the contractor's knowledge, approval or acquiescence. The contractor's acceptance of benefits derived from the conduct shall be evidence of such knowledge, approval, or acquiescence.
- c. A vendor or contractor who knowingly engages as a subcontractor for a contract awarded by the Authority to a vendor or contractor then under a ruling of suspension or debarment by the Authority shall be subject to disallowance of cost, annulment or termination of award, issuance of a stop work order, or debarment or suspension as may be judged to be appropriate by the Authority's purchasing agent.

16. PUBLIC RECORDS - Contractors and bidders are advised that all documents, correspondence, and other



CONTRACT AND BID
FORM

submissions to the Authority may be accessible as public records, pursuant to Title 38, Chapter 2 of the General Laws, absent specific notice that portions of such submittals may contain confidential or proprietary information, such that public access to those items should be withheld.

17. PRODUCT EVALUATION - In all specifications, the words "or equal" are understood after each article when manufacturer's name or catalog are referenced. If bidding on items other than those specified, the bidder must, in every instance, give the trade designation of the article, manufacturer's name and detailed specifications of the item the bidder proposes to furnish; otherwise, the bid will be construed as submitted on the identical commodity

described in the detailed specifications. The Authority's purchasing agent reserves the right to determine whether or not the item submitted is the approved equal of the detailed specifications.

- a. Any objections to specifications must be filed by a bidder, in writing, with the Authority's purchasing agent at least 96 hours before the time of bid opening to enable the Authority's purchasing office to properly investigate the objections.
- b. All standards are minimum standards except as otherwise provided for in the request or contract.
- c. Samples when required must be submitted to the Authority in accordance with the terms of the proposals and detailed specifications. Samples must be furnished free of charge and must be accompanied by descriptive memorandum invoices indicating whether or not the bidder desires their return and specifying the address to which they are to be returned (at the bidder's risk and expense), provided they have not been used or made useless by tests; and absent such instructions, the samples shall be considered to be abandoned. Award samples may be held for comparison with deliveries.
- d. All samples submitted are subject to test by any laboratory the Authority's purchasing agent may designate.

18. **PRODUCT ACCEPTANCE** - All merchandise offered or otherwise provided shall be new, of prime manufacture, and of first quality unless otherwise specified by the Authority. The Authority reserves the right to reject all non-conforming goods, and to cause their return for credit or replacement, at the Authority's option. Contract deliverables specified for procurements of services shall be construed to be work products, and subject to the provisions of this section.

- a. Failure by the Authority to discover latent defect(s) or concealed damage or non-conformance shall not foreclose the Authority's right to subsequently reject the goods in question.
- b. Formal or informal acceptance by the Authority of non-conforming goods shall not constitute a precedent for successive receipts or procurements.
- c. Where the contractor fails to promptly cure the defect or replace the goods, the Authority reserves the right to cancel the Purchase Order, contract with a different contractor, and to invoice the original contractor for any differential in price over the original contract price.
- d. When materials, equipment or supplies are rejected, the same must be removed by the contractor from the premises of the Authority within forty-eight (48) hours of notification. Rejected items left longer than two days will be regarded as abandoned and the Authority shall have the right to dispose of them as its own property.

19. **PRODUCT WARRANTIES** - All product or service warranties normally offered by the contractor or bidder shall accrue to the Authority's benefit, in addition to any special requirements which may be imposed by the Authority. Every unit delivered must be guaranteed against faulty material and workmanship for a period of one year unless otherwise specified, and the Authority may, in the event of failure, order its replacement, repair, or return for full credit, at its sole option.

20. **PAYMENT**- Unless otherwise provided for by the Request or Contract, payment shall not be made until delivery has been made, or services performed, in full, and accepted. Payment shall not be due prior to thirty (30) working days following the latest of completion, acceptance, or the rendering of a properly submitted invoice.



- a. Payment terms other than the foregoing may be rejected as being non-responsive.
- b. No partial shipments or payments will be accepted, unless provided for by the Request, Contract or approved by the Authority's purchasing agent.
- c. Where a question of quality is involved, payment in whole or part against which to charge back any adjustment required, shall be withheld at the direction of the Authority's purchasing agent. In the event a cash discount is stipulated, the withholding of payments, as herein described, will not deprive the Authority from taking such discount.

d. Payments for used portion of inferior delivery will be made by the Authority on an adjusted price basis.

e. Payments on contracts under architectural or engineering supervision must be accompanied by a Certificate of Payment and Statement of Account signed by the architect or engineer and submitted to the Authority involved for approval. Awarded party shall provide payment requisitions as follows:

- 1) Pencil Requisitions (draft) – Shall be provided no later than 7 days before the end of the month, with all required back up as requested by owner, architect, and engineer.
- 2) Requisitions shall be in AIA G702 and G703 format. All line items shall be broken out in regards to specification section and then materials and labor for each subsequent section.
- 3) Subcontractor requisitions shall also follow the same format, with further break out of materials provided under each specification section/trade.

21. **THIRD PARTY PAYMENTS** - The Authority recognizes no assigned or collateral rights to any purchase agreement except as may be expressly provided for in the bid or contract documents, and will not accede to any request for third party or joint payment(s), except as provided for in specific orders by a court of competent jurisdiction or by expressed written permission of the Authority's purchasing agent. Where an offer is contingent upon such payment(s), the offeror is obligated to serve affirmative notice in his bid submission.

22. **SET-OFF AGAINST PAYMENTS** - Payments due the contractor may be subject to reduction equal to a verified amount of unpaid and delinquent state taxes (or other just debt owed to the State), except where notice of delinquency has not been served or while the matter is pending in hearing or from any appeal therefrom.

23. **CLAIMS** - Any documented claim against a contractor may be deducted by the Authority from any money due him in the same or other transactions. If no deduction is made in such fashion, the contractor shall pay the Authority the amount of such claim on demand. Submission of a voucher and payment, thereof, shall not preclude the Authority's purchasing agent from demanding a price adjustment in any case when the commodity delivered is later found to deviate from the specifications and proposal.

a. The Authority may assess dollar damages against a vendor or contractor determined to be non-performing or otherwise in default of their contractual obligations equal to the cost of remedy incurred by the Authority, and make payment of such damages a condition for consideration for any subsequent award. Failure by the vendor or contractor to pay such damages shall constitute just cause for disqualification and rejection, suspension, or debarment.

24. **MINORITY BUSINESS ENTERPRISES** - Pursuant to the provisions of Title 37 Chapter 14.1 of the General Laws, the Authority reserves the right to apply additional consideration to offers, and to direct awards to bidders other than the responsive bid representing the lowest price where:

- a. the offer is fully responsive to the terms and conditions of the Request, and
- b. the price offer is determined to be within a competitive range (not to exceed 5% higher than the lowest responsive price offer) for the product or service, and
- c. the firm making the offer has been certified by the Minority Business Enterprise Program to be a



small business concern meeting the criteria established to be considered a Minority Business Enterprise.

Ten per cent [10%] of the dollar value of the work performed against contracts for construction exceeding \$5,000 shall be performed by Minority Business Enterprises where it has been determined that subcontract opportunities exist, and where certified Minority Business Enterprises are available. A contractor may count towards its MBE, DBE, or WBE goals 60% of its expenditures for materials and supplies required under a contract and obtained from an MBE, DBE, or WBE regular dealer, and 100% of such expenditures when obtained from an MBE, DBE, or WBE manufacturer.

25. PREVAILING WAGE REQUIREMENT - In accordance with Title 37 Chapter 13 of the General Laws of Rhode Island, payment of the general prevailing rate of per diem wages and the general prevailing rate for regular, overtime and other working conditions existing in the locality for each craft, mechanic, teamster, or type of workman needed to execute this work is a requirement for both contractors and subcontractors for all public works.



26. EQUAL OPPORTUNITY COMPLIANCE AND AFFIRMATIVE ACTION - Contractors of the Authority are required to demonstrate the same commitment to equal opportunity as prevails under federal contracts controlled by Federal Executive Orders 11246, 11625, and 11375, and Title 28 Chapter 5.1 of the General Laws of Rhode Island. Affirmative action plans shall be submitted by the contractor for review by the State Equal Opportunity Office. A contractor's failure to abide by the rules, regulations, contract terms and compliance reporting provisions as established shall be grounds for forfeiture and penalties as shall be established, including but not limited to suspension.

27. DRUG-FREE WORKPLACE REQUIREMENT - In accordance with Executive Order No. 91-14, Contractors and their employees who do business with the Authority shall abide by the State's drug-free workplace policy and the contractor shall so attest by signing a certificate of compliance.

28. TAXES - The Authority is exempt from payment of excise, transportation and sales tax imposed by the Federal or State Government. These taxes should not be included in the proposal price. Exemption Certificates will be furnished upon request.

29. INSURANCE - All construction contractors, independent tradesmen, or firms providing any type of maintenance, repair, or other type of service to be performed on Authority premises, buildings, or grounds are required to purchase and maintain coverage with a company or companies licensed to do business in the state as follows:

a. Comprehensive General Liability Insurance -

1) Bodily Injury \$1,000,000 each occurrence

\$1,000,000 annual aggregate

2) Property Damage \$500,000 each occurrence

\$500,000 annual aggregate

Independent Contractors

Contractual - including construction hold harmless and other types of contracts or agreements in effect for insured operations

Completed Operations

Personal Injury (with employee exclusion deleted)

b. Automobile Liability Insurance - Combined Single Limit \$1,000,000 each occurrence

Bodily Injury

Property Damage, and in addition non-owned and/or hired vehicles and equipment

c. Workers' Compensation Insurance - Coverage B \$100,000

d. The Authority reserves the right to consider and accept alternate forms and plans of insurance or to require additional or more extensive coverage for any individual requirement. Successful bidders shall provide certificates of coverage, reflecting the Authority, the State of Rhode Island, and SMG (the management company for the Authority) as an additional insured, to the Authority's purchasing office, forty-eight (48) hours prior to the commencement of work, as a condition of award. Failure to



comply with this provision shall result in rejection of the offeror's bid.

30. BID SURETY - When requested, a bidder must furnish a Bid Bond or Certified Check for 5% of his bid, or for the stated amount shown in the solicitation. Bid Bonds must be executed by a reliable Surety Company authorized to do business in the State of Rhode Island. Failure to provide Bid Surety with bid may be cause for rejection of bid. The Bid Surety of any three bidders in contention will be held until an award has been made according to the specifications of each proposal. All others will be returned by mail within 48 hours following the bid opening. Upon award of a contract, the remaining sureties will be returned by mail unless instructed to do otherwise.

31. PERFORMANCE AND LABOR AND PAYMENT BONDS - A performance bond and labor and payment bond of up to 100% of an award may be required by the Authority's purchasing agent. Bonds must meet the following requirements:

- a. Corporation: The Bond must be signed by an official of the corporation above his official title and the corporate seal must be affixed over his signature.
- b. Firm or Partnership: The Bond must be signed by all of the partners and must indicate that they are "Doing Business As (name of firm)."
- c. Individual: The Bond must be signed by the individual owning the business and indicate "Owner."
- d. The Surety Company executing the Bond must be licensed to do business in the State of Rhode Island or Bond must be countersigned by a company so licensed.
- e. The Bond must be signed by an official of the Surety Company and the corporate seal must be affixed over his signature.
- f. Signatures of two witnesses for both the principal and the Surety must appear on the Bond.
- g. A Power of Attorney for the official signing of the Bond for the Surety Company must be submitted with the Bond.

32. DEFAULT AND CANCELLATION - A contract may be canceled or annulled at the contractor's expense upon non-performance of contract, or breach, by the contractor, of any of his obligations. Failure of contractor to cure such non-performance or breach within ten (10) working days after the receipt of notice, shall be sufficient cause for the cancellation of the contract in question, the cancellation of all outstanding contracts or sub-contracts held by the contractor, and the suspension or debarment of the contractor from future procurements.

- a. Failure of a contractor to deliver or perform within the time specified, or within reasonable time as interpreted by the Authority's purchasing agent or failure to make replacement of rejected articles, when so requested, immediately or as directed by the Authority's purchasing agent, will cause the Authority's purchasing agent to purchase in the open market to replace those rejected or not delivered. The Authority's purchasing agent reserves the right to authorize immediate purchase in the open market against rejections on any contract when necessary. On all such purchases, the contractor, or his surety, agrees to promptly reimburse the Authority for excess costs occasioned by such default. Should the cost be less, the contractor shall have no claim to the difference.
- b. A contractor who fails to commence within the time specified or complete an award made for repairs, alterations, construction, or any other service will be considered in default of contract. The Authority's purchasing agent may contract for completion of the work with another contractor and seek recourse from the defaulting contractor or his surety.
- c. If contractor consistently fails to deliver quantities or otherwise perform as specified, the Authority's purchasing agent reserves the right to cancel the contract and purchase the balance in the open market at the contractor's expense.

33. INDEMNITY - The contractor guarantees:

- a. To save the Authority, the State of Rhode Island, and their agents and employees, harmless from



any liability arising from the negligence, either active or passive, of the contractor, as well as for the use of any copyrighted or uncopied composition, secret process, patented or unpatented invention, article or appliance furnished or used in the performance of the contract of which the contractor is not the patentee, assignee or licensee.

b. To pay for all permits, licenses and fees and give all notices and comply with all laws, ordinances, rules and regulations of the city or town in which the installation is to be made and of the State of Rhode Island.

- c. That the equipment offered is standard new equipment, latest model of regular stock product with all parts regularly used with the type of equipment offered; also, that no attachment or part has been substituted or applied contrary to manufacturer's recommendations and standard practice.

34. CONTRACTOR'S OBLIGATIONS - In addition to the specific requirements of the contract, construction and building repair contractors bear the following standard responsibilities:

- a. To furnish adequate protection from damage for all work and to repair damages of any kind, for which he or his workmen are responsible, to the building or equipment, to his own work, or to the work of other contractors;
- b. To clear and remove all debris and rubbish resulting from his work from time to time, as directed or required, and on completion of the work leave the premises in a neat unobstructed condition, broom clean, and in satisfactory order and repair;
- c. To store equipment, supplies, and material at the site only upon approval by the Authority, and at his own risk;
- d. To perform all work so as to cause the least inconvenience to the Authority, and with proper consideration for the rights of other contractors and workmen;
- e. To acquaint themselves with conditions to be found at the site, and to assume responsibility for the appropriate dispatching of equipment and supervision of his employees during the conduct of the work; and
- f. To ensure that his employees are instructed with respect to special regulations, policies, and procedures in effect for any Authority facility or site, and that they comply with such rules.

35. FORCE MAJEURE - All orders shall be filled by the contractor with reasonable promptness, but the contractor shall not be held responsible for any losses resulting if the fulfillment of the terms of the contract shall be delayed or prevented by wars, acts of public enemies, strikes, fires, floods, acts of God, or for any other acts not within the control of the contractor and which by the exercise of reasonable diligence, the contractor is unable to prevent.

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work under separate contracts.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and Drawing conventions.

1.2 PROJECT INFORMATION

A. Project Identification: Vets Memorial Auditorium – Concession Stand.

1. Project Location: 1 Avenue of the Arts, Providence, RI.

B. Owner: Veterans Memorial Auditorium

C. Architect: ZDS Architecture and Interiors., 2 Charles Street, Suite 1A, Providence, RI 02904.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. This project includes, but is not limited to the following, and other Work as indicated in the Contract Documents:
 - a. The scope of work for this project involves the renovation of the lower-level concession stand. The renovation includes upgrades to the existing bar and queuing area. In addition, back-of-house functions will be improved and better coordinated through more efficient layout and placement. MEPFP systems will be modified to support the renovation,

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.4 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1.5 ACCESS TO SITE

- A. General: Each Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

- A. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.
- B. The Contractor shall coordinate with the Owner and their facilities teams on phasing throughout the project, as well as scheduling work to be done around events that are scheduled to be held on site. The Contractor shall ensure the installation of temporary partitions to keep the public out of the work areas, and also maintain existing egress routes.

1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7 a.m. to 4 p.m., Monday through Friday, unless otherwise indicated. Contractor shall coordinate with local authority allowable working hours.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Architect and Owner not less than two days in advance of proposed utility interruptions.
 - 2. Obtain Architect's and/or Owner's written permission before proceeding with utility interruptions.
- D. Restricted Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 01 60 00 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

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

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit one copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.

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

1.4 QUALITY ASSURANCE

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

1.5 PROCEDURES

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

1.6 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution is compatible with other portions of the Work.
 - e. Requested substitution has been coordinated with other portions of the Work.
 - f. Requested substitution provides specified warranty.
 - g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 MINOR CHANGES IN THE WORK

- 1.3 Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on web-based Project management software or via digital media through email correspondence.

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

- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to 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.



CONTRACT MODIFICATION PROCEDURES

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.4 CHANGE ORDER PROCEDURES

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

1.5 CONSTRUCTION CHANGE DIRECTIVE

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 29 00 –
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Procedures may be subject to additional lender requirements.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect and Owner at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Arrange schedule of values consistent with format of AIA Document G703.
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts. Separate out line items for different portions of subcontract work to allow for evaluation of scope completion monthly.
 - 3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site.
 - 4. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
 - 5. Closeout Costs: 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.
 - 6. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.3 APPLICATIONS FOR PAYMENT

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

- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect by the Date Agreed Upon in the Contract with the Owner of the month. The period covered by each Application for Payment is one month, ending on the last day of the month unless otherwise agreed to in writing.
 - 1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- F. Transmittal: Submit one signed and notarized original copy of the 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.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
 - 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit conditional final or full waivers.
 - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 - 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 - 1. List of subcontractors.

2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Products list (preliminary if not final).
 5. Sustainable design action plans, including preliminary project materials cost data.
 6. Schedule of unit prices.
 7. Submittal schedule (preliminary if not final).
 8. List of Contractor's staff assignments.
 9. List of Contractor's principal consultants.
 10. Copies of building permits.
 11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 12. Initial progress report.
 13. Report of preconstruction conference.
 14. Certificates of insurance and insurance policies.
 15. Performance and payment bonds.
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706.
 5. AIA Document G706A.
 6. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00



PROJECT MANAGEMENT AND COORDINATION

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Project meetings.
- B. Related Requirements:
 - 1. Section 01 73 00 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.3 DEFINITIONS

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

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.

1.6 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. 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.
- C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven 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 by Architect 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 01 26 00 "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.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log bi-weekly, or at each OAC meeting. Software log with not less than the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.

7. Date Architect's response was received.

- F. 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.

1.7 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Web-Based Project Software: Provide, administer, and use web-based Project software site for purposes of hosting and managing Project communication and documentation until Final Completion.

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

- B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:

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

1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
 1. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including, but not limited to, the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Preparation of Record Documents.
 - o. Use of the premises and existing building.
 - p. Work restrictions.
 - q. Working hours.
 - r. Owner's occupancy requirements.
 - s. Responsibility for temporary facilities and controls.
 - t. Procedures for moisture and mold control.
 - u. Procedures for disruptions and shutdowns.
 - v. Construction waste management and recycling.
 - w. Parking availability.
 - x. Office, work, and storage areas.

- y. Equipment deliveries and priorities.
 - z. First aid.
 - aa. Security.
 - bb. Progress cleaning.
- 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including, but not limited to, requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility requirements.
 - k. Time schedules.
 - l. Manufacturer's written instructions.
 - m. Warranty requirements.
 - n. Compatibility of materials.
 - o. Acceptability of substrates.
 - p. Temporary facilities and controls.
 - q. Space and access limitations.
 - r. Regulations of authorities having jurisdiction.
 - s. Installation procedures.
 - t. Coordination with other work.
 - u. Required performance results.
 - v. Protection of adjacent work.
 - w. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at bi-weekly intervals, or as agreed to upon by Owner, Contractor, and Architect.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site use.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of Proposal Requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.



PROJECT MANAGEMENT AND COORDINATION

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.
- E. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.3 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:



CONSTRUCTION PROGRESS DOCUMENTATION

1. Working electronic copy of schedule file, where indicated.
 2. PDF file.
- B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. 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 in calendar days.
1. Activity Report: List of 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 each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
 3. Total Float Report: List of activities sorted in ascending order of total float.
- E. Construction Schedule Updating Reports: Submit with Applications for Payment.
- F. Daily Construction Reports: Submit at bi-weekly intervals.
- G. Site Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

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

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
- B. Time Frame: Extend schedule from date established for the Notice of Award to date of Substantial Completion and final completion.
1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

- C. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 - 1. Procurement Activities: Include procurement process activities for the 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.
 - 2. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
 - 3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 - 4. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
 - 1. Phasing: Arrange list of activities on schedule by phase.
 - 2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 01 10 00 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 - 3. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use-of-premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion, and the following interim milestones:
 - 1. Temporary enclosure and space conditioning.
 - 2. Other critical milestones not indicated elsewhere.
 - 3. Phases and completion of phases
- F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
 - 1. Unresolved issues.
 - 2. Unanswered Requests for Information.
 - 3. Rejected or unreturned submittals.
 - 4. Notations on returned submittals.
 - 5. Pending modifications affecting the Work and the Contract Time.

- G. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise 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 final completion percentage for each activity.
- H. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
- I. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.6 GANTT-CHART SCHEDULE REQUIREMENTS

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

1.7 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. Equipment at Project site.
 - 5. Material deliveries.



CONSTRUCTION PROGRESS DOCUMENTATION

6. High and low temperatures and general weather conditions, including presence of rain or snow.
 7. Testing and inspection.
 8. Accidents.
 9. Meetings and significant decisions.
 10. Stoppages, delays, shortages, and losses.
 11. Meter readings and similar recordings.
 12. Emergency procedures.
 13. Orders and requests of authorities having jurisdiction.
 14. Change Orders received and implemented.
 15. Construction Change Directives received and implemented.
 16. Services connected and disconnected.
 17. Equipment or system tests and startups.
 18. Partial completions and occupancies.
 19. Substantial Completions authorized.
- B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 32 00

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

1.2 DEFINITIONS

- A. 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."
- B. 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."

1.3 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals. Example is "100000-001-0"
8. Category and type of submittal.
9. Submittal purpose and description.
10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.

11. Drawing number and detail references, as appropriate.
12. Indication of full or partial submittal.
13. Location(s) where product is to be installed, as appropriate.
14. Other necessary identification.
15. Remarks.
16. Signature of transmitter.

- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Submittals for Web-Based Project Software: Prepare submittals as PDF files, or other format indicated by Project software website.

1.5 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 1. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal. Web Based Software shall have the capability of notifying Architect, Owner and Architect/Owner consultant's when a submittal is uploaded or modified to this software. Submittal shall be able to be exported from web-based software to pdf.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 - a. Add additional (5) days for review if submittal is to be reviewed by Architect Consultant.
 2. Resubmittal Review: Allow 10 days for review of each resubmittal.

- a. Add additional (5) days for review if submittal is to be reviewed by Architect Consultant.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Architect will reject revised submittals with different number and specification section format without review if resubmitted incorrectly.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.6 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - h. Each submittal shall be submitted digitally in pdf format.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 3. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
 4. Paper Transmittal: Include paper transmittal with samples including complete submittal information indicated.
 5. Disposition: Maintain second sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

6. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
7. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Certificates:
 1. Certificates and Certifications Submittals: Submit a statement that includes the signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

G. Test and Research Reports:

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

1.7 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement



SUBMITTAL PROCEDURES

certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.8 ARCHITECT'S REVIEW

- A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return it.
 1. Submittals by Web-Based Project Software: Architect will indicate, on Project software website, the appropriate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial or Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- D. Architect will return without reviewing submittals received from sources other than Contractor.
- E. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

- F. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. 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.
- I. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.3 CONFLICTING REQUIREMENTS

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

1.4 ACTION SUBMITTALS

- A. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 - 2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

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

1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, telephone number, and email address of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 - 1. Statement on condition of substrates and their acceptability for installation of product.
 - 2. Statement that products at Project site comply with requirements.
 - 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 5. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 - 1. Statement that equipment complies with requirements.
 - 2. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 3. Other required items indicated in individual Specification Sections.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:

- a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. When testing is complete, remove test specimens and test 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, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.8 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
1. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspection requested by the Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 6. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in the Statement of Special Inspections attached to this Section, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect 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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

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

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00



QUALITY REQUIREMENTS

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

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

1.2 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

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

1.3 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.
1. AABC - Associated Air Balance Council; www.aabc.com.
 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 7. ABMA - American Boiler Manufacturers Association; www.abma.com.
 8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org
 9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 11. AF&PA - American Forest & Paper Association; www.afandpa.org.
 12. AGA - American Gas Association; www.aga.org.
 13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 15. AI - Asphalt Institute; www.asphaltinstitute.org.
 16. AIA - American Institute of Architects (The); www.aia.org.
 17. AISC - American Institute of Steel Construction; www.aisc.org.
 18. AISI - American Iron and Steel Institute; www.steel.org.
 19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
 20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
 21. ANSI - American National Standards Institute; www.ansi.org.
 22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
 23. APA - APA - The Engineered Wood Association; www.apawood.org.
 24. APA - Architectural Precast Association; www.archprecast.org.
 25. API - American Petroleum Institute; www.api.org.
 26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
 27. ARI - American Refrigeration Institute; (See AHRI).
 28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
 29. ASCE - American Society of Civil Engineers; www.asce.org.
 30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
 31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.

32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWWA - American Water Works Association; www.awwa.org.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformance Europeenne; <http://ec.europa.eu/growth/single-market/ce-marking/>
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - Canadian Standards Association; www.csa.ca.
65. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.

75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsintstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarroof.com.
88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.
91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
99. IAS - International Accreditation Service; www.iasonline.org.
100. IAS - International Approval Services; (See CSA).
101. ICBO - International Conference of Building Officials; (See ICC).
102. ICC - International Code Council; www.iccsafe.org.
103. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
104. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
105. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
106. IEC - International Electrotechnical Commission; www.iec.ch.
107. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
108. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
109. IESNA - Illuminating Engineering Society of North America; (See IES).
110. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
111. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
112. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
113. ILI - Indiana Limestone Institute of America, Inc.; www.ili.ai.com.
114. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
115. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
116. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).

117. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
118. ISO - International Organization for Standardization; www.iso.org.
119. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
120. ITU - International Telecommunication Union; www.itu.int/home.
121. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
122. LMA - Laminating Materials Association; (See CPA).
123. LPI - Lightning Protection Institute; www.lightning.org.
124. MBMA - Metal Building Manufacturers Association; www.mbma.com.
125. MCA - Metal Construction Association; www.metalconstruction.org.
126. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
127. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
128. MHIA - Material Handling Industry of America; www.mhia.org.
129. MIA - Marble Institute of America; www.marble-institute.com.
130. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
131. MPI - Master Painters Institute; www.paintinfo.com.
132. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
133. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
134. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
135. NADCA - National Air Duct Cleaners Association; www.nadca.com.
136. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
137. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
138. NBI - New Buildings Institute; www.newbuildings.org.
139. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
140. NCMA - National Concrete Masonry Association; www.ncma.org.
141. NEBB - National Environmental Balancing Bureau; www.nebb.org.
142. NECA - National Electrical Contractors Association; www.necanet.org.
143. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
144. NEMA - National Electrical Manufacturers Association; www.nema.org.
145. NETA - InterNational Electrical Testing Association; www.netaworld.org.
146. NFHS - National Federation of State High School Associations; www.nfhs.org.
147. NFPA - National Fire Protection Association; www.nfpa.org.
148. NFPA - NFPA International; (See NFPA).
149. NFRC - National Fenestration Rating Council; www.nfrc.org.
150. NHLA - National Hardwood Lumber Association; www.nhla.com.
151. NLGA - National Lumber Grades Authority; www.nlga.org.
152. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
153. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
154. NRCA - National Roofing Contractors Association; www.nrca.net.
155. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
156. NSF - NSF International; www.nsf.org.
157. NSPE - National Society of Professional Engineers; www.nspe.org.
158. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
159. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
160. NWFA - National Wood Flooring Association; www.nwfa.org.
161. PCI - Precast/Prestressed Concrete Institute; www.pci.org.

162. PDI - Plumbing & Drainage Institute; www.pdionline.org.
163. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); <http://www.plasa.org>.
164. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
165. RFCI - Resilient Floor Covering Institute; www.rfci.com.
166. RIS - Redwood Inspection Service; www.redwoodinspection.com.
167. SAE - SAE International; www.sae.org.
168. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
169. SDI - Steel Deck Institute; www.sdi.org.
170. SDI - Steel Door Institute; www.steeldoor.org.
171. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
172. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
173. SIA - Security Industry Association; www.siaonline.org.
174. SJI - Steel Joist Institute; www.steeljoist.org.
175. SMA - Screen Manufacturers Association; www.smainfo.org.
176. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
177. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
178. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
179. SPIB - Southern Pine Inspection Bureau; www.spib.org.
180. SPRI - Single Ply Roofing Industry; www.spri.org.
181. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
182. SSINA - Specialty Steel Industry of North America; www.ssina.com.
183. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
184. STI - Steel Tank Institute; www.steeltank.com.
185. SWI - Steel Window Institute; www.steelwindows.com.
186. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
187. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
188. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
189. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
190. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
191. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
192. TMS - The Masonry Society; www.masonrysociety.org.
193. TPI - Truss Plate Institute; www.tpinst.org.
194. TPI - Turfgrass Producers International; www.turfgrasssod.org.
195. TRI - Tile Roofing Institute; www.tilerroofing.org.
196. UL - Underwriters Laboratories Inc.; <http://www.ul.com>.
197. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
198. USAV - USA Volleyball; www.usavolleyball.org.
199. USGBC - U.S. Green Building Council; www.usgbc.org.
200. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
201. WASTEC - Waste Equipment Technology Association; www.wastec.org.
202. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
203. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.

204. WDMA - Window & Door Manufacturers Association; www.wdma.com.
 205. WI - Woodwork Institute; www.wicnet.org.
 206. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
 207. WWPA - Western Wood Products Association; www.wwpa.org.
- B. 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. ICC - International Code Council; www.iccsafe.org.
 2. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
- C. Federal and State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
1. COE - Army Corps of Engineers; www.usace.army.mil.
 2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
 3. DEM – Department of Environmental Management, <https://dem.ri.gov/>
 4. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
 5. DOD - Department of Defense; www.quicksearch.dla.mil.
 6. DOE - Department of Energy; www.energy.gov.
 7. DOH – Department of Health, <https://health.ri.gov/>
 8. EPA - Environmental Protection Agency; www.epa.gov.
 9. FAA - Federal Aviation Administration; www.faa.gov.
 10. FG - Federal Government Publications; www.gpo.gov/fdsys.
 11. GSA - General Services Administration; www.gsa.gov.
 12. HUD - Department of Housing and Urban Development; www.hud.gov.
 13. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
 14. OSHA - Occupational Safety & Health Administration; www.osha.gov.
 15. SBO – State Building Office, <https://ribcc.ri.gov/>
 16. SD - Department of State; www.state.gov.
 17. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
 18. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
 19. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
 20. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
 21. USP - U.S. Pharmacopeial Convention; www.usp.org.
 22. USPS - United States Postal Service; www.usps.com.
- D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
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 Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 01 10 00 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Field Offices, General: If required, Owner will work with selected contractor for temporary work space within current offices.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction and marked for intended location and application.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

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

3.2 INSTALLATION, GENERAL

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

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

3.3 SUPPORT FACILITIES INSTALLATION

- A. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- B. Parking: Provide temporary parking areas for construction personnel.
- C. Waste Disposal Facilities: Comply with requirements specified in Section 01 74 19 "Construction Waste Management and Disposal."
- D. 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

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
 - 1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.
- D. 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.
- E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- F. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

- G. 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.
- H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
 - 1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
 - 2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
 - 3. Indicate methods to be used to avoid trapping water in finished work.
- B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.
 - 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
 - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 - 2. Keep interior spaces reasonably clean and protected from water damage.

3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard and replace stored or installed material that begins to grow mold.
 7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.
- D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 01 25 00 "Substitution Procedures" for requests for substitutions.

1.2 DEFINITIONS

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

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attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.

- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.
- D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:
 - 1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
 - 2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.
- E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 01 33 00 "Submittal Procedures."
- F. Substitution: Refer to Section 01 25 00 "Substitution Procedures" for definition and limitations on substitutions

1.3 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Architect's Approval of Submittal: As specified in Section 01 33 00 "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

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

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

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

1.6 PRODUCT WARRANTIES

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

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
- B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."
 2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

- a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."
 3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
 - a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
 4. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
 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.
 - a. For approval of products by unnamed manufacturers, comply with requirements in Section 01 25 00 "Substitution Procedures" for substitutions for convenience.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following

conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 2. Evidence that proposed product provides specified warranty.
 3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 4. Samples, if requested.
- B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation, as specified in Section 01 33 00 "Submittal Procedures."
1. Form of Approval of Submittal: As specified in Section 01 33 00 "Submittal Procedures."
 2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- C. Submittal Requirements, Two-Step Process: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.
- D. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by the Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner's portion of the Work.
6. Coordination of Owner-installed products.
7. Progress cleaning.
8. Starting and adjusting.
9. Protection of installed construction.
10. Correction of the Work.

- B. Related Requirements:

1. Section 01 10 00 "Summary" for limits on use of Project site.
2. Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
3. Section 02 41 19 "Selective Demolition" for demolition and removal of selected portions of the building.

1.2 DEFINITIONS

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

1.3 QUALITY ASSURANCE

- A. 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.
 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.
 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.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.
- C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of utilities and construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility, Owner and Architect that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 31 00 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Remove and replace damaged, defective, or non-conforming Work.

3.5 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 10 00 "Summary."
- F. 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.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- H. 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.
 - c. 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, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 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.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 COORDINATION OF OWNER'S PORTION OF THE WORK

- A. Site Access: Provide access to Project site for Owner's construction personnel and Owner's separate contractors.
1. Provide temporary facilities required for Owner-furnished, Contractor-installed products.
 2. Refer to Section 01 10 00 "Summary" for other requirements for Owner-furnished, Contractor-installed products.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel and Owner's separate contractors.
1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.
- C. Restore permanent facilities used during construction to their specified condition.
- D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
 - 2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 3. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at final completion.

1.3 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
 5. Submit testing, adjusting, and balancing records.
 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 6. Advise Owner of changeover in utility services.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements.
 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect 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.

1.5 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 - 1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
 - 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 4. Submit pest-control final inspection report.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Submit list of incomplete items in one of the following formats:
 - a. MS Excel electronic file. Architect will return annotated file.
 - b. Web-based project software upload. Utilize software feature for creating and updating list of incomplete items (punch list).

1.7 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

1. Submit on digital media acceptable to Architect or by uploading to web-based project software site.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. 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.
 - c. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - d. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations
 - e. Sweep concrete floors broom clean in unoccupied spaces.
 - f. Vacuum and mop concrete.
 - g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - h. 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
 - i. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

- j. Remove labels that are not permanent.
 - k. Wipe surfaces of mechanical and electrical equipment, elevator 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 luminaires, light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - o. Clean strainers.
 - p. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations, before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.

1.2 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
 - 1. Submit on digital media acceptable to Architect or by uploading to web-based project software site. Enable reviewer comments on draft submittals.
- C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.
- D. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.3 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

1.4 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
 1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Construction Manager.
 7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.
 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.5 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
 - 1. Type of emergency.
 - 2. Emergency instructions.
 - 3. Emergency procedures.
- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - 1. Fire.
 - 2. Flood.
 - 3. Gas leak.
 - 4. Water leak.
 - 5. Power failure.
 - 6. Water outage.
 - 7. System, subsystem, or equipment failure.
 - 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

1.6 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 - 2. Performance and design criteria if Contractor has delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.

5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.7 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds, as described below.

- C. **Manufacturers' Maintenance Documentation:** Include the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. **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.
- E. **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.
- F. **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.
- G. **Warranties and Bonds:** Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.
- H. **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.

1.8 PRODUCT MAINTENANCE MANUALS

- A. **Product Maintenance Manual:** Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. 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.
- D. 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.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for final property survey.
 - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.3 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.

- c. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. 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: [DWG] where capable
 2. Format: Annotated PDF electronic file.
 3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 4. Refer instances of uncertainty to Architect for resolution.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. 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.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

1.4 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders, record Product Data, and record Drawings where applicable.

- B. Format: Submit record Specifications as annotated PDF electronic file.

1.5 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- C. Format: Submit record Product Data as annotated PDF electronic file.
1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.6 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 01 78 39

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Instruction in operation and maintenance of systems, subsystems, and equipment.
 - 2. Demonstration and training video recordings.

1.2 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

1.3 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
 - 1. At completion of training, submit complete training manual(s) for Owner's use prepared in same paper and PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

1.4 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.5 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.6 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Systems and equipment operation manuals.
 - c. Systems and equipment maintenance manuals.
 - d. Product maintenance manuals.
 - e. Project Record Documents.
 - f. Identification systems.
 - g. Warranties and bonds.
 - h. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.

- f. Special operating instructions and procedures.
- 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning.
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

1.7 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

1.8 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.
- F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.9 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.



DEMONSTRATION AND TRAINING

- E. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 01 79 00

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of selective demolition activities with starting and ending dates for each activity.
- C. Predemolition photographs or video.

1.4 CLOSEOUT SUBMITTALS

- A. Inventory of items that have been removed and salvaged.

1.5 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.6 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 1. Before selective demolition, Owner will remove the following items:
 - a. To be coordinated.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. 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.
- F. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.7 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Inventory and record the condition of items to be removed and salvaged.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. 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. Owner will arrange to shut off indicated services/systems when requested by Contractor.

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
- C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION

- A. 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. Maintain fire watch during and for at least 72 hours after flame-cutting operations.
 - 5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 6. Dispose of demolished items and materials promptly.
- B. 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.
- C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify 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. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. 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.

3.5 CLEANING

A. Remove demolition waste materials from Project site.

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.

B. Burning: Do not burn demolished materials.

C. 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 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. General: The work of this Section consists of rough carpentry as specified herein, where shown on the Drawings, and as additionally required for a complete and proper installation.
- B. Furnish and install the following:
 - 1. Fire retardant treated plywood backer panels for mounting of electrical panelboards, telephone/data backboards, HVAC and fire control equipment and other equipment.
 - 2. Various fire retardant treated wood blockings, edgings, nailers, curbs, cants, grounds, furring, sheathing, framing members as required for receipt of various finishes and surfacing materials, not described herein above.
 - a. Blocking work includes fire-resistant treated flexible wood backing system.
 - 3. Rough installation hardware, including bolts, screws, spikes, nails, clips, and connection assemblies, as needed for installation of the rough carpentry work.
- C. Coordinate work of this Section with the work of the various trades responsible for applying finish materials and other items to rough carpentry work. Furnish and install furring, blocking, and shims, and other usual items of normal rough carpentry work as required by the various trades for the proper completion of the project.
 - 1. The applicable requirements specified in Part 1 - GENERAL and Part 3 - EXECUTION of the individual specification sections furnishing materials to be installed under this Section, shall be included in and made a part of this Section.
- D. No attempt is made in this Section to list all elements of rough carpentry required on this project or to describe how each element will be installed. It is the responsibility of the Contractor to determine for itself the scope and nature of the work required for a complete installation from the information provided herein and in the Drawings.

1.3 RELATED REQUIREMENTS

- A. Section 09 29 00 - GYPSUM BOARD: Wall board construction work, having taped and compounded joint finish.
- B. Section 09 91 00 - PAINTING: Applied primer and finish coatings to exposed to view rough carpentry work.

- C. Division 26 - ELECTRICAL: Providing and mounting electrical panels and equipment.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
1. APA - applicable grades and specifications.
 2. APA PRB-108 Performance Standards and Policies for Structural-Use Panels.
 3. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 4. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 5. ASTM C203 - Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
 6. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 7. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
 8. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 9. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
 10. ASTM D273 (Withdrawn Standard) - Methods of Test for Conducting Paths in Electrical Slate.
 11. ASTM D297 - Standard Test Methods for Rubber Products—Chemical Analysis.
 12. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
 13. ASTM D1623 - Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
 14. ASTM D3201 - Standard Test Method for Hygroscopic Properties of Fire-Retardant Wood and Wood-based Products.
 15. ASTM D3498 - Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing.
 16. ASTM D5456 - Standard Specification for Evaluation of Structural Composite Lumber Products.
 17. ASTM D2559 - Standard Specification for Adhesives for Bonded Structural Wood Products for Use Under Exterior Exposure Conditions.
 18. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 19. ASTM G60 - Standard Practice for Conducting Cyclic Humidity Exposures.
 20. AWPA Standard UCFA - Fire Protection as Required by Codes Above Ground Interior Construction.
 21. AWPA Standard UCFB - Fire Protection as Required by Codes Above Ground Exterior Construction.
 22. MIL L-1914OE - Lumber and Plywood, Fire Retardant Treated.
 23. SPIB Grading Rules, current edition.

24. UL - Building Materials Directory
25. US. Department of Commerce Voluntary Product Standard PS1 for Construction and Industrial Plywood.
26. US. Department of Commerce Voluntary Product Standard PS2 for Wood-Based Structural-Use Panels.
27. US. Department of Commerce Voluntary Product Standard PS-20 - American Softwood Lumber Standard.
28. U.S. Department of Commerce Simplified Practice Recommendation R-16, for sizes and use classifications of lumber
29. American Lumber Standards Committee, National Lumber Grades Authority for Canadian Lumber, and applicable grading rules and standards of the various lumber associations whose species are being used for grades specified.

1.5 1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 1. Coordinate the work of this Section with the respective trades responsible for locating anchorages installed into blocking which is provided under this Section.
 2. Coordinate work of this Section with the work of the various trades responsible for applying finish materials and other items to rough carpentry work, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties and installation instructions for products specified herein.
 2. Certifications:
 - a. Written certification from the respective treatment plants indicating types of fire-retardant treatment used, treatments method, applications instructions, and conformance to the requirements specified herein.
 - 1) Provide certification that fire retardant treatment materials do not contain ammonium phosphate.
 - 2) Provide report from ICC Evaluation Service on fire retardant treated wood flame spreading, strength, corrosion and hygroscopic properties.

1.7 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.
 1. All lumber shall:
 - a. Be new, dressed four sides (S4S), clear and free from warping and other defects.
 - b. Have a moisture content not exceeding 19 percent when delivered to the project.
 - c. Be in accordance with the grading rules of the lumber manufacturer's association under whose jurisdiction the lumber is produced and bear the mark of grade and mill identification.

B. Certifications:

1. Plywood: Conform to the requirements of Product Standard PS-1, and bear applicable APA grade trademarks.
 - a. Plywood for electrical boards treated for retardance, meet Class I or a flame spread rating of 25 or less and bear U.L. label "Classified FRS".

1.8 DELIVERY, STORAGE AND HANDLING

A. Delivery and Acceptance Requirements:

1. Store all materials in an elevated dry location, protected by waterproof coverings.

PART 2 - PRODUCTS

2.1 BOARD AND SHEET MATERIALS

- A. Fire-resistant treated lumber for blocking, nailers and curbs as indicated or required: Hem-Fir, Douglas Fir, Eastern Spruce, Eastern Hemlock, or Southern Pine, surfaced dried stud or utility grade. Wood members shall be of sizes indicated on the Drawings or of the same size as the members being braced.
 1. 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. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.
- B. Fire-resistant treated flexible wood backing system (Provided at Contractor's option in lieu of specified wood blocking, where applicable): ClarkDietrich Building Systems, LLC, West Chester, OH. Product "DanBack Flexible Wood Backing", product code D16F.
 1. 3/4" CDX Douglas Fir plywood with Class A, EPA registered Viance LLC, "D-Blaze" or Koppers Performance Chemicals "FlamePRO" fire-retardant treatment.
 2. Dimensions: 5-1/8" x 48" (130mm x 1219mm)
 3. Load capacity at 1 inch offset, 825 pounds.
- C. Plywood and sheet products:
 1. For electric panel board mountings and similar uses: APA graded B-D INT, Group 2 species, touch-sanded, fire-retardant treated, 3/4 inch thick, except as otherwise indicated on the Drawings.
 2. For unspecified interior concealed from view locations: APA graded C-D PLUGGED INT, Group 2 species, fire-retardant treated, thickness(es) as indicated on the Drawings.

2.2 WOOD TREATMENTS

- A. Treated wood products shall be produced by a single treatment plant, fully licensed by the chemical manufacturers, and conforming to the requirements specified herein.
 1. Toxicity and Environmental Quality:
 - a. Products containing chromium will not be permitted.
 - b. Products containing arsenic will not be permitted.

- c. Fire-retardant-treated wood products shall be free of halogens, sulfates, ammonium phosphate and formaldehyde.
 - 2. Kiln dry all treated lumber and plywood to the following maximum moisture content after treatment.
 - a. Lumber: 19 percent.
 - b. Plywood 15 percent.
 - c. Discard pieces with defects which might impair quality of work.
 - 3. Quality marks: Each piece of lumber and plywood shall be permanently affixed with a quality mark, containing the following information:
 - a. Identification of the inspection agency.
 - b. Standard to which material was treated.
 - c. Identification of the treating plant.
 - d. Fire retardant treated wood shall include: stamp signifying a FR-S rating
- B. Fire retardant treated wood. Designated as "FRTW"
 - 1. Chemical Manufacturer: Subject to compliance with the requirements specified herein, Products which may be incorporated in the work include:
 - a. Arch Wood Protection, Atlanta, GA., product, "Dricon FRT Wood".
 - b. Flameproof Companies., Montgomery, IL, product: "FlameTech".
 - c. Hoover Treated Wood Products, Inc., Thomson, GA product "PyroGuard".
 - d. Osmose, Inc., Griffin GA., product "FirePro".
 - e. Viance, LLC., Charlotte, NC., product: "D-Blaze FRT".
 - f. UFP Industries, Inc., Grand Rapids, MI., product: "ProWood FR".
 - 2. Fire retardant treated wood shall comply with the following requirements:
 - a. All fire-retardant lumber and plywood must have an Underwriters Laboratories stamp signifying a FR-S rating certifying a 25 or less flame spread and smoke developed value, when tested in accordance to ASTM E84, or UBC Standard No. 42-1.
 - b. Corrosion rates: Less than one mil per year for carbon steel, galvanized steel, aluminum, copper and red brass in contact with the fire retardant treated wood when tested in accordance with Federal Specification MIL-L-19140E Paragraph 4.6.5.2.
 - c. The fire retardant treated wood must have an equilibrium moisture content of not more than 25 percent when tested in accordance with ASTM D3201 procedures at 95 percent relative humidity and 80 degrees Fahrenheit.
 - d. Fire retardant chemical: Registered for use as a wood preservative by the U.S. Environmental Protection Agency.
 - e. Testing: Fire performance and strength properties for both lumber and plywood, of the fire retardant treated wood shall be recognized by issuance of a ICC Evaluation Service Report. Fire retardant chemical must not damage the middle lammella of the wood structure when exposed to 170 degrees Fahrenheit and 90 percent relative humidity for 23 days.

2.3 ACCESSORIES

- A. Adhesives:
 - 1. General: Provide adhesives approved which are Low-VOC or non-VOC, non-flammable, water-proof after cured, odor free.
 - 2. Adhesive for lamination and fabrication of wood and plywood items: Exterior adhesives containing no urea formaldehydes, having a VOC limit of 70 g/L.

3. Adhesive for subfloors and underlayment: High strength, waterproof and non-freezing adhesive complying with AFG-01 "Frozen Lumber Test" and ASTM D3498, and having a VOC limit of 50 g/L.
- B. Nails (interior and exterior), typical: Galvanized common nails, of size and type to suit application and as required by state and local building codes.
- C. Screws:
 1. Screws for interior applications, typical: Flat head electroplated-galvanized wood screws of the appropriate sizes.
 2. Screws for exterior applications:
 - a. For general application : Flat head hard aluminum, or stainless steel, wood screws, of the appropriate sizes.
- D. Anchor bolts, expansion bolts and lag screws: Hot-dipped galvanized steel, of the following types:
 1. For lumber having actual thickness of 1-1/2 inches or greater to masonry and concrete: Anchor bolts or expansion bolts, as most applicable for the specific receiving surface material, 3/8-inch minimum diameter, spaced as shown on drawings, and staggered as far as practicable. Countersink all bolt heads, and provide head washers of matching material.
 2. For lumber having actual thickness of greater than 7/8-inch but less than 1-1/2 inches to masonry and concrete: Anchor bolts or expansion bolts, as most applicable for the specific receiving surface material, at least 1/4-inch diameter of the most appropriate lengths for the specific application, spaced as shown, and staggered as far as practicable. Countersink all bolt heads, and provide head washers of matching material.
 3. For lumber having actual thickness of 7/8-inch and less: Anchor bolts or expansion bolts, at least 1/4-inch in diameter; or screws, of the most appropriate sizes; in lengths most suitable for the specific application, countersunk, spaced, and staggered.

PART 3 - PART 3 - EXECUTION

3.1 PREPARATION

- A. All materials shall be inspected before use, with all checked, split and otherwise deficient stock rejected, or used only for miscellaneous blocking, furring or other incidental use. The Contractor shall be responsible for replacing all lumber which, due to warpage, twist, splitting, or checking, results in unsatisfactory work. Such replacement shall be required at any time, whether before or after application of finish material under other Sections.

3.2 INSTALLATION - GENERAL

- A. Closely coordinate the installation of the rough carpentry work with the work of other trades responsible for the installation of interfacing or overlaying materials, so as not to delay the work of the related trades.
- B. Erect all rough carpentry work plumb, level, and true with tight, close fitting joints, securely attached and braced to surrounding construction, all in a first class workmanlike manner. Counterbore for bolt heads, nuts, and washers where required to avoid interference with

other materials. Bear complete responsibility for structural integrity, connections, and anchorage of all rough carpentry work.

1. Bolt Fastening: Pre-drill holes 1/6 inch larger in diameter than bolt size, perpendicular to wood being bolted.
 2. Screw Fastening: Pre-drill holes having same diameter as root diameter (minor diameter).
 3. Nail Fastening: Nail tight without splitting wood, pre-bore as required. Set common nails flush with surface; Counter sink finish nails. Remove split wood members and replace.
- C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- D. Use as long lengths as practicable for wood nailers, blockings, and curbs, to minimize number of joints, and attach the members with the types, and spacing, of fasteners specified herein.
- E. Install blocking, grounds and furring, as required for proper attachment of the work of other trades, in accordance with the requirements provided by the respective related trades.
1. Spacing for furring and strapping shall not exceed 16 inches on center.
- F. Field cuts of fire retardant treated lumber: Do not rip or mill fire retardant treated lumber. Only end cuts, drilling holes and joining cuts are permitted.
- G. Install concealed from view plywood with specified fasteners spaced not more than 10 inches on centers.
- H. Install fire-treated plywood backer boards with counter-sunk galvanized fasteners, of specified sizes, spaced not more than 12 inches on centers.

3.3 INSTALLATION – EQUIPMENT BACKBOARDS

- A. Provide panel mounting backboards for HVAC, Fire Prevention, Electrical and telephone/data equipment. Fabricate panels using fire-retardant treated 3/4 inch thick panels mounted to fire-retardant treated 2 by 4's. Provide a nominal space of 3-1/2 inches behind panels to permit wiring.

3.4 CLEANING

- A. Daily clean work areas by sweeping and disposing of scraps and sawdust.
- B. Upon completion of the work of this Section in any given area, remove tools, equipment and all rubbish and debris from the work area; leave area in broom-clean condition.

3.5 SCHEDULES

- A. Wood treatment schedule:
1. Fire retardant treat ALL concealed and exposed wood blocking, nailers, lumber and plywood.

2. Fire retardant treat all equipment backer boards.
- B. Wood blocking schedule: The following schedule lists common items for which blocking is required and may not be indicated on the Drawings. It is not the intention of this schedule to list all conditions requiring blocking or limit the extent of blocking required for completion of the Work; provide all wood blocking, edgings, nailers, required for receipt of various finishes and surfacing materials. Securely anchor wood blocking and run continuous between framing.
 1. Blocking sizes indicated below are minimum sizes for conditions which not otherwise sized or indicated on Drawings. In case of conflict, sizes identified on Drawings govern.

Items	Nominal size of blocking with fastener notes
Products bracketed to walls:	3/4 inch plywood extending full height from floor to top of wall framing. Install brackets with 1/4 inch dia. toggle bolts

END OF SECTION 061000

SECTION 064023 - ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. The work of this Section consists of shop fabricated millwork and architectural woodwork where shown on the Drawings, as specified herein, and as required for a complete and proper installation.
- B. Furnish and install the following:
 - 1. Custom fabricated back bar assembly including cabinetry, decorative metals, overhead television mount, framing for back bar, bottle steps, support for quartz surfacing bar tops, plastic laminated casework, and support for electrical work and equipment.
 - a. Provide LED Lighting fixtures in display and under bar top, including recessed in cabinet light switch, drivers, and wiring step-down transformers for built-in LED lights in casework and furniture.
 - b. Coordinate with food service equipment furnished under separate contract with Owner.
 - 2. Exposed blocking and blocking concealed by the work of this Section required for the installation of architectural woodwork.
 - 3. Hardware for work of this Section, including foot rail at bar.
- C. No attempt is made in this Section to list all elements of architectural woodwork required on this project or to describe how each element will be installed. It is the responsibility of the Contractor to determine for itself the scope and nature of the work required for a complete installation from the information provided herein and in the Drawings.

1.3 RELATED REQUIREMENTS

- A. Section 06 10 00 - ROUGH CARPENTRY: Concealed wood blocking and nailers.
- B. Section 06 61 19 - QUARTZ SURFACING FABRICATIONS: Quartz surfacing material countertops
- C. Section 09 22 16 - NON-STRUCTURAL METAL FRAMING: Metal framing for drywall construction work.

- D. Section 09 29 00 - GYPSUM BOARD: Wall board construction work, having taped and compounded joint finish.
- E. Division 22 - PLUMBING: Plumbing fixtures and piping.
- F. Division 26 - ELECTRICAL: Electrical connections for lighting.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. AAMA 2603 - Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum (as amended).
 - 2. ASTM D523 - Standard Specification for Specular Gloss.
 - 3. ASTM D6007 - Standard Test Method for Determining Formaldehyde Concentrations in Air from Wood Products Using a Small-Scale Chamber
 - 4. ASTM E1333 - Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber
 - 5. California Technical Bulletin TB117-2013 - Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Materials Used in Upholstered Furniture.
 - 6. ANSI/HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood.
 - 7. APA Grades and Specifications.
 - 8. National Lumber Grades Authority, American Lumber Standards, and Grading Rules and Standards of the various lumber associations whose species are being used, with grade-marks for same.
 - 9. Scientific Equipment and Furniture Association: SEFA 8 Standards - Wood Casework.
 - 10. U.S. Department of Commerce Simplified Practice Recommendation R-16, for sizes and use classifications of lumber; and Product Standard (PS):
 - a. PS-1 - Construction and Industrial Plywood Standard.
 - b. PS-20 - American Softwood Lumber Standard.
- B. Inclusionary References: The following reference materials are hereby made a part of this Section by reference thereto:
 - 1. AWI/AWMAC/WI joint publication: North America Architectural Woodwork Standards, version 3.1, as amended by published errata, referenced herein as NAAWS.
- C. Definitions:
 - 1. AWI: American Woodwork Institute.
 - 2. AWMAC: Architectural Woodwork Manufacturers Association of Canada, Alberta, Canada.
 - 3. FSC: Forest Stewardship Council.
 - 4. HPVA: Hardwood Plywood & Veneer Association.
 - 5. WI: Woodwork Institute.
 - 6. NAUF: No added Urea Formaldehyde.
 - 7. "Wet" countertops: Counters which have plumbing sinks and fixtures.

8. "Dry" countertops: Counters which have no plumbing.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 1. General: Coordinate the work of this Section with the respective trades responsible for installing interfacing and adjoining work for proper sequence of installation, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.
- B. Sequencing:
 1. Field Measurements: Where possible the woodwork manufacturer shall take field measurements before preparation of shop drawings and fabrication to ensure proper fitting of Work.
 - a. Allow for adjustments within specified tolerances wherever taking of field measurements before fabrication might delay Work.
 2. Field dimensions which are not controlled by Project conditions: The woodwork manufacturer is responsible for details and dimensions not controlled by Project conditions and shall show on his shop drawings all required field measurements beyond his control.
 - a. The Contractor shall acknowledge the woodwork fabricator's need for accurate field dimensions prior to custom fabrication.
 - b. The Contractor and the woodwork manufacturer shall cooperate to establish and maintain these field dimensions.
- C. Scheduling:
 1. Coordinate the work of this Section with the respective trades responsible for installing interfacing work, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following in compliance with AWI/AWMAC/WI NORTH AMERICAN ARCHITECTURAL WOODWORK STANDARDS (NAAWS), version 3.1, Section 1 – Submittals, and as specified under provisions of Section 01 33 00 – SUBMITTAL PROCEDURES:
 1. Product Data: Manufacturer's product data sheets, specifications, performance data, for each item furnished hereunder, including, but not limited to: Fastenings, adhesives, hardware, and accessories.
 2. Shop drawings bearing dimensions of actual measurements taken at the project, include at least the following, which are in addition to shop drawing requirements described in NAAWS:
 - a. 1/4 inch scale elevations and plans of each casework item.
 - b. Large scale design details of minimum 1-1/2 inch to 1-foot scale, showing abutting materials, installation conditions, clearances. Show details of drawers and doors.
 - c. Full size or half-full size sections, showing individual components, profiles and jointing.
 3. Selection Samples:
 - a. Plastic laminate chips for initial color selection by Architect.

- b. Melamine chips for initial color selection by Architect.
 - c. Provide additional samples as requested by Architect for initial selection of material colors and finishes.
- 4. Verification Samples:
 - a. 12 by 12 inch samples of wood tambour illustrating maximum range of color variations and applied finish.
 - b. 12 by 12 inch samples of glass shelving, and glass for bar back screen divider.
 - c. 12 by 12 inch samples of plastic laminate (of each color required for project).
 - d. 12 by 12 inch samples of Melamine board.
 - e. One each of all cabinet hardware. (approved cabinet hardware samples will be returned to Contractor and may become part of the Work).
- 5. Manufacturer's Instructions: Provide installation instructions and templates for hardware and field applied items.
- 6. Special Procedure Submittals:
 - a. Provide substantiated proof that purchase orders have been placed, for all of the specified hardware, facing materials, metals and glazing materials. Deliver specified information within 30 calendar days of Notice to Proceed or Date of Agreement whichever is earlier.
- B. Closeout Submittals: Submit the following under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS.
 - 1. Bonds and Warranty Documentation:
 - a. Manufacturer's Warranties and Guarantees as specified elsewhere herein this Section.

1.7 QUALITY ASSURANCE

- A. Quality Standards: All materials, workmanship and finishes shall meet AWI/AWMAC/WI AWI/AWMAC/WI NORTH AMERICAN ARCHITECTURAL WOODWORK STANDARDS (NAAWS), version 3.1, as amended by published errata, for "Premium" Quality Grade.
- B. Qualifications:
 - 1. Fabricator/Installer: AWI member specializing in architectural woodwork of type specified herein having a minimum of 5 years documented experience.
- C. Sustainability Standards Certifications:
- D. Pre-installation off-site Inspection of Work: The Architect reserves the right to make visits to the millworker's facility by pre-arrangement during fabrication of the Work.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. General: The woodwork manufacturer, woodwork installer and the Contractor are jointly responsible to make certain that woodwork is not delivered until the building and storage areas are sufficiently dry so that the woodwork will not be damaged by excessive changes in ambient humidity and relative moisture content.
 - 2. Concrete, masonry, plaster, tile and marble setting and polishing and other wet work shall be completed and dry before delivery, storage and installation of woodwork items.
 - 3. Sequence deliveries to avoid delays and to minimize on-site storage.

- B. Storage and Handling Requirements:
 - 1. Ship and handle all materials and fabricated items in a manner which will prevent damage thereto, and store all materials and fabricated items at a dry, elevated, ventilated, and protected interior location.
- C. Damaged material: Remove all damaged materials from job site immediately, unless Architect specifically authorizes correction thereof and usage on project.

1.9 SITE CONDITIONS

- A. Temperature: Maintain ambient temperature above 55 degrees Fahrenheit for 5 calendar days before, and during installation of architectural woodwork; maintain temperature after installation until Owner's Final Acceptance.
- B. Relative Humidity: Maintain a relative humidity between 25 and 55 percent for a minimum period of 5 calendar days before, and during, installation of architectural woodwork; maintain relative humidity after installation until Owner's Final Acceptance.

PART 2 - PRODUCTS

2.1 2.1 WOOD MATERIALS – GENERAL REQUIREMENTS

- A. A. General requirements:
 - 1. 1. Solid wood components: New, dressed four sides (S4S), and free from warping and other defects.
 - 2. 2. Panel Products: Composite panel products and plywood shall be "no added urea-formaldehyde", including all concealed components.
 - a. a. Composite panel products include but are not limited to particle board (PB), Medium Density Fiberboard (MDF), wheatboard and strawboard and similar manufactured products.
 - 3. Moisture Content:
 - a. Solid hardwood(s) scheduled for transparent finish: Moisture content shall not exceed 8 percent when delivered to Project.
 - b. Typical (hardwood and softwoods): Moisture content of wood shall be between 5 and 10 percent when delivered to the project.
- B. Wood Species:
 - 1. Exposed wood scheduled for opaque finish (for frames, shelves, fillers, edge trim, drawer construction and additional conditions indicated): Wood shall be clear without knots or surface defects. and conform to AWI/AWMAC/WI "Architectural Woodwork Standards," latest edition, for PREMIUM GRADE, as installed. Acceptable wood species are limited to the following:
 - a. Natural Birch" Yellow Birch (*Betula alleghaniensis*), Plain Sliced/Sawn.
 - b. Natural Maple (*Acer saccharum*), Plain Sliced/Sawn.
 - c. Yellow Poplar (*Liriodendron tulipifera*), Plain Sliced/Sawn, clear straight-grained, C-Select or better.
 - 2. Exposed plywood panels scheduled for opaque finish: Medium density overlay plywood, in thicknesses indicated in Drawings.
 - 3. Medium Density Fiberboard (MDF) panels for profile machining: of thickness and profiles indicated on the Drawings, conforming to ANSI A208.2 Grade 155, complying

with CARB ATCM 93120 Phase 2 / TSCA Title VI emission requirements, fabricated from 100 percent recycled fiber, using formaldehyde free synthetic resin or Ultra-Low Emitting Formaldehyde (ULEF) Resin, having a minimum density of 49 pounds per cubic foot (784 kg/m3).

- a. Flame spread rating (ASTM E84): Class C.
- b. Screw holding capacity:
 - 1) On face: 350 pounds.
 - 2) On edge: 275 pounds
- c. Acceptable products include the following or approved equal.
 - 1) Roseburg Forest Products Company, Medford, OR., product "Medita Ultra".
4. Medium Density Fiberboard (MDF) Interior Moisture Resistant Panels: No-Added-Urea-Formaldehyde (NAUF), of thickness indicated on the Drawings, conforming to ANSI A208.2, Grade 155, product class MR50, and ASTM D1037, fabricated from 100 percent recycled fiber, using formaldehyde free synthetic resin such as methyl diisocyanate (MDI), having a minimum density of 48 pounds per cubic foot (769 kg/m3).
 - a. Flame spread rating (ASTM E84): Class C.
 - b. SCS or equivalent certified for recycled fiber content.
 - c. Screw holding capacity:
 - 1) On face: 350 pounds.
 - 2) On edge: 275 pounds
 - d. Acceptable products include the following or approved equal.
 - 1) Arauco (Flakeboard Brand) Bennettsville, SC, product "Vestex MR50"
 - 2) Georgia Pacific, product: "UltraStock MR+Free".
 - 3) Roseburg Forest Products Company, Medford, OR., product "Medex"
- C. Concealed supports for edge and corner backing shall be kiln dried birch or poplar, meeting AWI Premium Grade Standards.
- D. Blocking and furring at base and walls shall comply with American Softwood Lumber Standard PS 20-70 and with specific grading requirements of SPIB: Kiln dried (KD15), Structural Light Framing, N°. 2 grade, free of warping and large knots.
- E. Internal concealed framing for casework: Kiln-dried, (KD15), eastern pine, poplar, eastern spruce, or southern pine, conforming to AWI Premium grade.
- F. Fir plywood for concealed from view applications in conjunction with the various casework items: APA C-C PLUGGED EXT.

2.2 PLASTIC LAMINATE FACING

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 1. Arborite Corporation, Quebec, Canada.
 2. Formica Corporation, Cincinnati, OH.
 3. Laminart, (Division of Wilsonart LLC), Schaumburg, IL.
 4. Panolam Industries International, Inc. (Pionite and Nevamar Brands), Shelton CT.
 5. Wilsonart, LLC. Temple TX.

- B. Manufacturers and laminate colors/patterns: As indicated on Drawings or as otherwise selected by Architect.
- C. Plastic laminate, general purpose, conforming to NEMA LD3.1 -2005 Grade GP50, nominal 0.050 inch thickness, in a low non-directional texture in color price group selected by the Architect.
 - 1. General purpose grade laminate shall be used for all exposed to view surfaces including
 - a. Exposed outward face of cabinet fronts and closure trim.
 - b. Cabinet doors (all sides).
 - c. Drawer fronts (all sides).
 - d. Interior surfaces of open cabinets (without doors).
 - e. Plastic laminated trim.
 - 2. General purpose grade laminate shall be used for counter tops except where colored core laminate is indicated.
- D. Plastic laminate, unfinished balancing (backer) sheet, conforming to NEMA LD3-1985 undecorated laminate, Grade BK20, 0.020 inch nominal thickness.

2.3 POLYESTER LAMINATE (MELAMINE)

- A. Polyester laminate (melamine): Thermosetting acid resistant polyester resin impregnated laminate, permanently bonded to substrate.
 - 1. Polyester laminate to be 9 to 11 mils in thickness, 62% resin content, colorfast.
 - 2. The following requirements, standards and tests shall apply:
 - a. U.S. Federal: F.S.L. P-508
 - b. U.S. Food & Drug: Section 175.300
 - c. NEMA: LQ1-1977
 - d. NEMA: LD3-1980
- B. Provide colored polyester laminate as scheduled below and where additionally indicated on Drawings. Color shall be white, black, buff or grey as selected by Architect.
 - 1. Polyester laminate shall be used for the interior surfaces of all 'closed cabinets,' where general purpose grade laminate is not required.
 - 2. All cabinet shelving shall be polyester laminate.
 - 3. Back side of Bar below bar tops (working side)
- C. Melamine panel backing: At fabricator's option, one of the following:
 - 1. Mattformed three layer medium density wood particle panel (PB), graded M2 per ANSI A 208.1 with a minimum density of 48 pounds per cubic foot.
 - 2. Moisture resistant medium density fiberboard (MDF) conforming to ANSI A208.2 product class MD, having a minimum density of 44 pounds per cubic foot.

2.4 BACKING FOR LAMINATES AND VENEERS

- A. Veneer backing for all applications: "Veneer Core Plywood", "MPX-Core" or "ApplePly" hardwood plugged plywood complying with ANSI/HPVA HP-1.
 - 1. Thicknesses:
 - a. 3/4 inch thick at cases.
 - b. 1 inch thick at shelves under 30 inches wide.
 - c. 1-1/4 inch thick at shelves 30 inches or more wide.

- d. 3/4 inch thick drawer fronts.
 - e. Doors 36 inches tall and less: 3/4 inch thick panels.
 - f. Doors over 36 inches tall: 1-1/4 inch thick panels.
- 2. Edge banding, Minimum 3/8 inch thickness, all exposed edges: hardwood matching veneer.
 - a. Shelving: Edge band all 4 edges.
- B. Countertop backing: APA C-C PLUGGED EXT, fir plywood, sanded.
- C. At all toe spaces: APA MARINE A-A EXT, fir veneer marine grade plywood, with plugged cores and sanded faces, 3/4 inch thick.

2.5 CABINET HARDWARE

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - 1. Accuride Corp., Santa Fe Springs, CA.
 - 2. CompX International, Inc., Dallas TX.
 - 3. Doug Mockett & Company, Inc., Manhattan Beach, CA.
 - 4. Engineered Products Company, Flint MI.
 - 5. Glynn-Johnson, Indianapolis IN.
 - 6. Grass America Inc., Kernersville NC.
 - 7. H.B. Ives Company, Wallingford CT.
 - 8. Häfele America Company, Archdale NC.
 - 9. Blum, Inc., Stanley NC.
 - 10. Knappe & Vogt, Grand Rapids, MI.
 - 11. (Lamp) Sugatsune America, Inc. Carson, CA..
 - 12. Mepla Inc., High Point NC.
 - 13. Outwater Plastic Industries Inc., Bogata NJ.
 - 14. Stanley Hardware, New Britain CT.
- B. Door and drawer pulls: Provide manufacturer(s) and model(s) indicated on Drawings.
- C. Catches: Magnetic touch latch type.
- D. Casework (European, concealed type) hinges:
 - 1. General; number of hinges: Provide number of hinges recommended by manufacturer for size and weight of door, but not less than the following:
 - a. Doors up to 36 inches height, or weight not to exceed 11 pounds: 2 hinges.
 - b. Doors up to 60 inches height, or weight not to exceed 20 pounds: 3 hinges.
 - c. Doors up to 72 inches height, or weight not to exceed 33 pounds: 4 hinges.
 - d. Doors up to 90 inches height, or weight not to exceed 48 pounds: 5 hinges.
 - 2. Hinge for full overlay cabinet doors: Self closing concealed hinge having maximum 110 degree angle of opening, 3 way adjustment. Hinges shall be equal to Blum "Soft-Close BLUMotion Clip-Top Overlay Hinge" with straight arm, model N°. 71B3550.
 - a. Maximum door thickness 1 inch (26 mm).
- E. Pad silencers for doors: 10 mm (3/8 inch) diameter, self-adhesive resilient plastic or nylon buttons, at least 2 per door, in clear color.
- F. Drawer Slides (provide one pair per drawer except as noted otherwise):

1. For heavy loads including credenzas, file cabinets, store fixtures, linen closets and tool drawers: Full extension type, 150 pounds per pair minimum rated capacity (flat mount), steel ball bearing rollers, drawer hold in feature.
 - a. Acceptable slides, include the following, or approved equal:
 - 1) For drawers up to 24 inches wide:
 - a) Accuride N°. 4032.
 - b) Knappe and Vogt N°. 8500.
 - c) Häfele N°. 4034.
 - 2) For drawers up to 27 inches wide:
 - a) Accuride N°. 4032.
 - b) Knappe and Vogt N°. 8500.
 - c) Häfele N°. No equal.
 - 3) For drawers over 27 inches wide, up to 42 inches wide.
 - a) Accuride N°. 7957.
 - b) Knappe and Vogt N°. 8520.
 - c) Häfele N°. No equal.
 - b. Finish: black baked enamel.

G. Cabinetry Shelf supports.

1. Adjustable shelf supports: Manufacturer's standard, adjustable seismic shelf supports shall be double pin, bio-carbonate/plastic locking type, able to accommodate both 3/4 inch and 1 inch thick shelves. These clips work in conjunction with row-bored 5 mm diameter holes on 32mm centers, in cabinet side panels.
 - a. Bainbridge Manufacturing, Inc. Waterville WA, part number 3220.
 - b. Hardware Concepts, Miami, FL, part number 5030-095.
 - c. Richelieu America Ltd., Mount Clements, MI, part number T803.
2. Shelf supports for glass shelving: High strength nylon with embedded steel pin, equal to Blum Model N°. 34.0040 in clear color, for 5 mm diameter hole.

- H. Removable Panel Fasteners: Screw-in-place nylon two-piece ball and socket access panel fastener. ITW Fastex US, Des Plaines, IL., product "Tree-Lok", with standard ball (part #320-322880-00-2099) and receptacle (part # 320-221401-00-2099), or approved equal.

2.6 CABINETRY LOCKS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Olympus Lock Inc., Seattle, WA.
 2. CompX International, Inc., Dallas TX.
 3. Dom Security Locks, North America, Brockville, Ontario, Canada.
 4. Häfele America Company, Archdale NC.
 5. Illinois Lock Company, Wheeling IL.
- B. Locks: Manufacturer's standard ANSI/BHMA Grade 1 five (5) pin-tumbler deadbolt type lock. All cabinet doors and drawers shall be locked, unless otherwise noted on drawings.
1. Small pin-tumbler or interchangeable core deadbolt style with heavy duty deadbolt.
 - a. Disc-tumbler type locks will not be accepted.
 2. Lock types:
 - a. Door locks: ANSI number E07121
 - b. Drawer locks: ANSI number E07041

- c. Framed Glass Hinged Doors: ANSI/BHMA Grade 1 cam lock.
- d. Sliding Framed Glass Doors: Locks shall be plunger type sliding showcase locks.
- e. Sliding Unframed Glass Doors: Locks shall be ratchet type sliding showcase locks.
- 3. Finish: "Black", US 19 finish (Satin black, flat black coated) / BHMA 622 / BHMA 631.
- 4. Keying:
 - a. General: Coordinate all keying with the Owner.
 - 1) Master key all locks. Master key system must accommodate minimum of 2,000 key changes

2.7 COUNTER AND WORK SURFACE SUPPORT BRACKETS

- A. Counter support brackets:
 - 1. Construction: Fabricated from steel or aluminum with vertical leg designed to attach to side of supporting stud and be concealed by gypsum board or other wall finish.
 - a. Bracket sizes:
 - 1) For up to 18 inch deep counters: 12 by 12 inch length legs having load capacity of not less than 450 pounds.
 - 2) For up to 24 inch deep counters: 18 by 18 inch length legs having load capacity of not less than 450 pounds
 - 3) For up to 30 inch deep counters: 18 inch vertical leg and 24 inch length horizontal leg having load capacity of not less than 450 pounds.
 - 4) For up to 36 inch deep counters: 12 inch vertical leg and 30 inch length horizontal leg with supporting pole, having load capacity of not less than 375 pounds.
 - 2. Basis of Design: Rakks Flush Mount Counter Supports by Rakks/Rangine Corp, Needham MA, product: "Flush Mount Counter Supports" with powder coat finish.
 - a. Fabricated from horizontal aluminum T section and vertical aluminum L section.
 - b. Bracket sizes:
 - 1) Model EH-1212FM for up to 18 inch deep counters.
 - 2) Model EH-1818FM for up to 24 inch deep counters.
 - 3) Model EH-1824FM for up to 30 inch deep counters.
 - 4) Model EH-1230PS (with support pole), for up to 36 inch deep counters.
 - 3. Acceptable Manufacturers/products, or approved equal:
 - a. Rakks/Rangine Corp, Needham MA.
 - b. Outwater LLC., Woodridge NY.
 - c. Federal Brace, Belmont NC.
 - 4. Factory applied finishes: Exposed surfaces shall be free of scratches and other serious blemishes and be factory/shop finished with:
 - a. Black anodized coating complying with AAMA 611-12 - MM10C22A44.

2.8 ACCESSORIES

- A. PVC Edging for shelving and doors of plastic laminate casework:
 - 1. Manufactured by
 - a. Wilsonart, LLC. Temple TX,
 - b. The Cloverdale Company (Band-it Brand), Cloverdale VA.
 - c. Charter Industries, Albany NY.
 - 2. Thicknesses:
 - a. 2mm thick for door, drawer and shelf edges;

- 1) At all shelves, apply to all 4 edges.
 - b. 1mm for exposed edges of casework bodies.
 3. Edges: Square.
 4. Custom colors to match plastic laminate colors.
 - B. Adhesive for installation of plastic laminate: Rigid bond Polyvinyl acetate (PVA) type only.
 1. Contact cements are only permitted at countertops with sinks or similar "wet condition" areas; and field installed applications as required.
 - C. Glue for lamination and fabrication of wood and plywood items: Exterior Grade, phenolic resin glue.
 - D. Sealant, for joints between countertops and dissimilar materials: One component acetoxysilicone rubber, mildew resistant, ASTM C920, Type S, Class 25, Grade NS, use NT, G and A with a minimum movement capability of ± 25 percent, and a Shore A hardness of 20, in manufacturer's standard colors as selected by the Architect.
 1. Only use sealant and primers that comply with the following limits for VOC content:
 - a. Architectural Sealants: 250 g/L.
 - b. Sealant primer: 250 g/L
 2. Sealants containing aromatic solvents, fibrous talc, formaldehyde, halogenated solvents, mercury, lead, cadmium, chromium and their compounds, are not permitted.
 3. Joint Sealer Type SF (Silicone, Food contact): One component silicone rubber, acceptable to local health officials, conforming to U.S. Food and Drug Administration regulation 21 CFR 175.105 and 175.300, and ASTM C920, Type NS, Class 25, Use NT, G, O and A with a minimum movement capability of ± 25 percent, and a Shore A minimum hardness of 20, equal to the following:
 - a. Dow Corning, product, "732".
 - b. GE Silicones, product "Series SCS1000".
 - c. Tremco, product "Tremsil 200".
 - E. Fasteners:
 1. Concealed joint fasteners: Threaded steel.
 2. Bolts, nuts, washers, lags, pins, and screws: Of size and type to suit application chrome finish in exposed-to-view locations.
- 2.9 FABRICATION - GENERAL
- A. Do not fabricate materials until all specified submittals have been submitted to, and approved by, the Architect.
 - B. Coordinate the fabrication of casework with that of the various trades responsible for installing materials and items which will be inserted into, or applied to, the casework surfaces. Obtain and verify templates, dimensions, and instructions from the respective trades before making cut-outs, holes, slots, and other cutting in the casework.
 - C. Shop assemble custom casework for delivery to site. Deliver in assemblies as large as possible for entrance into the designated areas. Provide for concealed job connections of adjacent units.
 - D. Prepare woodwork in the shop for all necessary electrical installations, and glazing..

- E. Fabricate, install and finish all work so that both sides of countertops, panels, doors, shelves and other casework are of balanced construction, to prevent warping.
- F. Cap exposed plywood, and particle board edges.
- G. Fit corners and joints hairline, secure with concealed fasteners.
- H. Finish all solid wood and plywood surfaces smooth, and free from all machine and tool marks that will show through facing materials.
- I. Make all joints tight, and form to conceal shrinkage. Glue all miters having a dimension of 4 inches or more from heel to point.
- J. Provide shop fabricated counters, shop mitered components, closure trims with ample allowance for field cutting and fitting. Provide additional trim as required for scribing and site cutting.
- K. Finished work shall be free from visible adhesive and pencil marks.

2.10 FABRICATION - CASEWORK

- A. Fabricate casework in accordance with requirements of AWI/AWMAC/WI "Architectural Woodwork Standards," latest edition, in grades specified herein, under the Article entitled "QUALITY ASSURANCE," and the following additional requirements:
 - 1. Cabinets shall be in flush overlay construction, with drawer fronts and hinged doors overlapping openings a minimum of 1/4 inch all four sides.
 - 2. Fabricate cabinets in integral units, each completely enclosed, without the use of common partitions.
 - 3. Drawers:
 - a. Laminated drawer fronts: High density laminate over 3/4 inch specified core material. Drawer fronts shall be applied to separate drawer body component sub-front.
 - b. Drawer bottoms (plastic laminated casework): 1/4 inch thick color polyester laminate, housed and glued into front, sides and back.
 - c. Underside of drawer to receive continuous hot melt glue at joint between bottom and back/sides/front for sealing and rigidity.
 - d. Reinforce drawer bottoms as required with intermediate spreaders.
 - 4. Doors: Square edge design, 3/4 inch thick, without any profiling and shall fully overlap the cabinet frame.
 - a. Laminate doors: Fabricate doors with particle board core and front and rear faces high-pressure laminate, of selected color.
 - b. Maintain a maximum 1/8" reveal between pairs of doors, between door and drawer front, or between multiple drawer fronts within the cabinet.
 - 5. Base cabinets: Provide full horizontal top frame with glued and doweled joints, 3/4 inch plywood end panels and bottom. Bottom shall be glued and doweled and let into routed end panels. Provide 4 inch high toe rail, securely screwed to the end panels and to the bottom panel by concealed glue blocks.
 - 6. Wall cabinets: Provide same finishes as base cabinets, with 3/4 inch thick top and bottom veneered plywood panels. Top and bottom panels shall be glued and doweled and let into routed end panels. Back of case shall be recessed and let into routed end panels and further secured with glue blocks.

7. Door and drawer spreaders: Provide minimum 3/4 thick full width cabinet body spreaders immediately behind all door/drawer and multiple drawer horizontal joints to maintain exact body dimensions, and close off reveal. Front edge to be match face of adjacent cabinet doors/drawers.

2.11 FABRICATION OF PLASTIC LAMINATE CLAD ITEMS

- A. Do not fabricate materials until all specified submittals have been submitted to, and approved by, the Architect.
- B. Except as otherwise specified hereunder, fabricate plastic laminate clad items in strict accordance with the details on the Drawings, the approved shop drawings, and workmanship standards set forth in AWI/AWMAC/WI "Architectural Woodwork Standards," latest edition, in grade(s) specified herein.
- C. Shop fabricate all plastic laminate clad items. Adhere plastic laminate to substrate backing sheets by cold-press-method. Use of contact cements are not permitted. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Apply laminate backing sheet to reverse side of all laminated, panels, shelving and tops.
- D. Cap edges with specified banding, matching color of plastic laminate panels.
 1. Provide wood banding where scheduled, or as otherwise detailed.
 2. Casework facing: Machine apply flat PVC banding, using waterproof hot melt adhesive.
 3. Drawer and door fronts: Machine apply to all four edges, using waterproof hot melt adhesive, corner radiused profile for consistent design and safety.
 4. Shelving: Machine apply to all four edges, using waterproof hot melt adhesive, corner radiused profile for consistent design and safety.
- E. Fit corners and joints hairline. Make all joints and miters tight, secure with concealed fasteners.

2.12 SHOP APPLIED FINISHING

- A. Opaque exposed-to-view finish: AWI/AWMAC/WI "Architectural Woodwork Standards," Premium Grade Factory/Shop Finish System Number 2 Opaque, "Pre-catalyzed Lacquer" system having a gloss effect matching Architect's control sample.
 1. Basis of Design Finish: M.L.Campbell, Fort Erie, Ontario, Canada product "MagnaMax Pre-Cat Pigmented lacquer", or approved equal, recommended by woodwork fabricator to match Architect's finished control sample. Finish system to include:
 - a. One coat sealer: Pre-catalyzed primer/undercoater, tinted to be slightly lighter than finish color.
 - b. Sand sealer (minimum 240 grit).
 - c. First application topcoat, applied 3.0 to 6.0 mils wet.
 - d. Sand topcoat (minimum 320 grit).
 - e. Second application topcoat, applied 3.0 to 6.0 mils wet.
 - f. Sand topcoat (minimum 320 grit).
- B. Metals: Powder coat finish: Factory / Shop-applied electrostatically-applied thermoset powder coat:

1. Standard: FGIA|AAMA 2604-22 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
2. Warranty: Finish System Warranty: FGIA|AAMA 2604 Polyester Triglycidyl Isocyanurate (TGIC) powder coating 5 year coating warranty assigned specifically to project, covering film integrity (including chipping, crazing, pitting, and delamination), chalk resistance and color fading, color change for a period of 5 years.
3. Basis of Design: As scheduled on Drawing A9.00 – HARD FINISH SCHEDULE.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Inspect all surfaces and verify that they are in proper condition to receive the work of this Section.
 1. Verify adequacy of blocking, backing and support framing for all finish carpentry work.
 2. Examine pre-fabricated woodwork before installation and verify all packing has been removed.
 3. Do not install base cabinets and other floor mounted casework unless the finished floor is in place.
 4. Beginning of installation means acceptance of existing substrate and project conditions.

3.2 PREPARATION

- A. Before installing work under this section, woodwork shall be conditioned to average prevailing humidity conditions in areas of installation.
- B. Protect other Work against undue soilage and damage by the exercise of reasonable care and precautions. Clean, repair, or replace any work so damaged and soiled to the acceptance of the Architect.

3.3 INSTALLATION - GENERAL

- A. Install work in accordance with the latest AWI/AWMAC/WI joint publication: Architectural Woodwork Standards in grade specified herein, under the Article entitled "QUALITY ASSURANCE".
- B. Woodwork shall be installed plumb, level, true and straight without distortions.
 1. Use concealed shims as required
 2. Work shall be installed to a tolerance of 1/8 inch in 8 feet for plumb and levelness, including tops.
 3. There shall be no variations in flushness of adjoining surfaces.
- C. Tops and woodwork shall be scribed and trimmed to fit adjoining work.
 1. Where cuts occur, refinish surfaces and repair damaged finishes
- D. Secure woodwork to anchors or built-in blocking or blocking directly attached to substrates.

1. Secure woodwork to grounds, furring, stripping and blocking as required with countersunk, concealed fasteners and blind nailing performing a complete installation.

3.4 INSTALLATION - CASEWORK AND COUNTERTOPS

- A. Install casework without distortion so that doors and drawers fit openings properly and are accurately and evenly aligned. 1. Install end cabinet panels with a continuous bead of Sealant Type SF applied to bottom edge that abuts finish flooring. Immediately remove all excess sealant from surfaces of the casework and flooring.
- B. Adjust casework hardware centering the doors and drawers in the openings, and provide unencumbered operation.
- C. Complete the installation of hardware and accessory items as indicated.
- D. Tops: Anchor tops securely to base units and to other support systems as required.

3.5 TOLERANCES

- A. Maximum variation from true position 1/16 inch with a maximum of 1/32 inch offset from true alignment with adjoining surfaces intended to be flush.

3.6 ADJUSTING

- A. To whatever extent work was not completed at shop or prior to installation of woodwork, perform and complete the specified finishing of woodwork.
- B. Repair damaged and defective woodwork where possible eliminating defects functionally and visually.
 1. Where not possible to repair damaged or defective work, replace with matching new work.
 2. Adjust joinery for uniform appearance.
- C. Adjust doors and drawers for smooth and balanced movement, lubricate hardware for use.

3.7 CLEANING

- A. Daily clean work areas by sweeping and disposing of scraps and sawdust.
- B. Upon completion of the work of this Section in any given area, remove tools, equipment and all rubbish and debris from the work area leave area in broom-clean condition.
- C. Remove protective material from pre-finished surfaces, immediately prior to Final Acceptance.
- D. Carefully clean exposed and semi-exposed wood surfaces, in strict accordance with fabricator's instructions. Touch-up shop-applied finishes to restore damaged or soiled areas, matching adjoining finish.

- E. Wash down plastic laminate with a solution of mild detergent in warm water, applied with soft clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- F. Clean and polish hardware, and bright metal trim components.

3.8 PROTECTION

- A. Protect installed woodwork and maintain specified conditions, in a manner acceptable to both fabricator and installer. Ensure that work of this Section will not be damaged or soiled, and is completely free of defects at the time of final acceptance of Project by the Architect.

END OF SECTION 064023

SECTION 06 61 19 – QUARTZ SURFACING FABRICATIONS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Furnish and install the following:
 - 1. Quartz aggregate surfacing countertops.
 - 2. Sealant, for joints between countertops, backsplashes and abutting surfaces.
- B. Make all cut-outs within solid surfacing items as required to accommodate sinks, and other plumbing fixtures, from templates provided by the respective trades.

1.3 RELATED REQUIREMENTS

- A. Section 06 10 00 - ROUGH CARPENTRY: Wood blocking and nailers.
- B. Section 06 40 00 - ARCHITECTURAL WOODWORK: Cabinetry, shelving and other shop fabricated casework.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM C99/C99M - Standard Test Method for Modulus of Rupture of Dimension Stone.
 - 2. ASTM C170/C170M - Standard Test Method for Compressive Strength of Dimension Stone.
 - 3. ASTM C241/C241M - Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic.
 - 4. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products.

5. ASTM C484 - Standard Test Method for Thermal Shock Resistance of Glazed Ceramic Tile.
6. ASTM C531 - Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing's, and Polymer Concretes.
7. ASTM C650 - Standard Test Method for Determination of Resistance to Chemical Substances.
8. ASTM C880/C880M - Standard Test Method for Flexural Strength of Dimension Stone.
9. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
10. ASTM C1026 - Standard Test Method for Measuring the Resistance of Ceramic and Glass Tile to Freeze-Thaw Cycling.
11. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
12. All applicable federal, state and municipal codes, laws and regulations regarding flammability and smoke generation of interior finishes.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 1. General: Coordinate the work of this Section with the respective trades responsible for installing interfacing and adjoining work for proper sequence of installation, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.
- B. Meetings and Conferences:
 1. Pre-installation meetings of other Sections: Installer of the Work of this Section is required to attend pre-installation conference(s) specified under the following Specification Sections:
 - a. Section 06 40 00 – ARCHITECTURAL WOODWORK.
- C. Sequencing:
 1. Field Measurements: The fabricator is responsible for details and dimensions not controlled by Project conditions and shall show on his shop drawings all required field measurements beyond his control
 2. The Contractor shall acknowledge the fabricator's need for accurate field dimensions prior to custom fabrication.
 3. The Contractor and the fabricator shall cooperate to establish and maintain these field dimensions.
 - a. Allow for adjustments within specified tolerances wherever taking of field measurements before fabrication might delay Work.
- D. Scheduling:
 1. Coordinate schedule of construction, size of access and route to place of installation to prevent delay of installation due to physical impediments. Any work involving the demolition and reconstruction of partitions, walls, floors, roofing, windows, or doors to place and install the work of this Section shall be performed at no additional cost to the Owner.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Literature: Manufacturer's product data sheets, specifications, performance data. Identify available colors, shades, and gloss
 - 2. Shop drawings: Large scale design details of minimum 1-1/2 inch-to-1 foot scale, showing abutting materials, installation conditions, clearances. Show profiles, jointing and fastening methods.
 - a. Coordination: Submit coordination drawings indicating plumbing and miscellaneous steel work indicating locations of wall rated or non-rated, blocking requirements, locations and recessed wall items and similar items
 - 3. Selection samples:
 - a. Quartz surfacing samples for initial color selection by Architect.
 - b. Sealant material: Manufacturer's standard strips of sealant, in all available colors, for selections by the Architect.
 - c. Provide additional samples as requested by Architect for initial selection of material colors and finishes.
 - 4. Verification samples:
 - a. 12 by 12 inch samples of quartz surfacing materials.
 - 5. Qualification Submittals.
- B. Closeout Submittals: Submit the following under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS.
 - 1. Maintenance Data: Manufacturer's care and maintenance data, including repair and cleaning instructions.
 - 2. Bonds and Warranty Documentation:
 - a. Manufacturer's Warranties and Guarantees as specified elsewhere herein this Section.

1.7 QUALITY ASSURANCE

- A. Fabricator and Installer; with a minimum of 3 years documented experience demonstrating previously successful work of the type specified herein, and approved by product manufacturer.
 - 1. Fabricator and Installer for solid surfacing products shall be trained and certified by solid surfacing manufacturer.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
 - 2. Do not deliver solid surfacing materials to the project until all concrete, masonry, plaster and other wet work has been completed and dry.
 - 3. Deliver materials in original unopened packages, containers or bundles bearing brand name, and identification of manufacturer, with labels and package seals intact and legible.
- B. Storage and Handling Requirements:

1. Store and handle materials following manufacturer's recommended procedures, and in accordance with material safety data sheets.
2. Protect materials from damage due to moisture, direct sunlight, excessive temperatures, surface contamination, corrosion and damage from construction operations and other causes.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Maintain ambient temperature above 55 degrees Fahrenheit for 5 calendar days before, during, and after installation of solid surfacing fabrications; maintain temperature until Owner's Final Acceptance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design (Specified Manufacturer): To establish a standard of quality, design and function desired, Drawings and specifications have been based on Cambria Inc., Eden Prairie, MN., product "Cambria".
- B. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 1. Cambria Inc., Eden Prairie, MN., product "Cambria".
 2. Cosentino USA, Stafford TX., product "Silestone".
 3. Dal-Tile Corporation, Dallas TX., product "One Quartz"
 4. E. I. du Pont de Nemours and Company, Wilmington, DE., product "Quartz" (formerly "Zodiaq").
 5. CaesarStone LTD, Concord Ontario Canada, product "CaesarStone".
 6. Wilsonart, LLC. Temple TX, product "Quartz".
 7. Hanwha L&C Surfaces US, Atlanta, GA., Product "HanStone Quartz".

2.2 QUARTZ AGGREGATE SURFACING MATERIALS

- A. Quartz surfacing material: Non-porous surfacing material homogeneously composed of a blend of quartz based silica sand, color additives, and polyester resin, formed into flat slabs.
 1. Solid surfacing material shall be NSF (National Sanitation Foundation) listed under publication 51 - Plastic Materials and Components used in Food Equipment and bear the "component" mark.
 2. Color(s): As selected by the Architect from manufacturer's full color range.
 3. Anti-microbial protection: equal to Microban by Microban International, Inc., integral to sheet.
 4. Physical characteristics:
 - a. Static coefficient of friction: 1.02 dry, 0.51 wet.
 - b. Water absorption: Maximum 0.12 percent, tested to ASTM C373.
 - c. Compressive strength (dry): Minimum 27,300 psi, tested to ASTM C170/C170M.
 - d. Modulus of rupture: Minimum 6300 psi, tested to ASTM C99/C99M.
 - e. Flexural strength: Minimum 5300 psi, tested to ASTM C880/C880M.

- f. Stain resistance: Not affected by 10 percent hydrochloric acid or 10 percent KOH, tested to ASTM C650.
 - g. Thermal shock resistance: Pass 5 cycles, tested to ASTM C484.
 - h. Abrasive index: 65-Ha = 25, tested to ASTM C241/C241M.
 - i. Thermal expansion: 1.670×10^{-5} in/in/deg F, tested to ASTM C531.
 - j. Deicing resistance: Rating of 0.
 - k. Freeze/thaw resistance: Unaffected, tested to ASTM C1026.
 - l. Flame spread rating: Class 1, tested to ASTM E84 or NFPA 255.
- B. Sheet thicknesses shall be as specified below or as otherwise indicated on Drawings.
- 1. Countertops: One piece monolithic design 3 cm thick with solid backing.
 - a. Countertop edges: build-up strip adhered to countertop with manufacturer's recommended joint adhesive. Trim edges with router using round-over bit as detailed on Drawings.
- C. Adhesive for build-up of quartz surfacing sheets: color matched two-component seam adhesive as provided by solid surfacing manufacturer.
- D. Adhesive for installation of trim components, neoprene panel adhesive or structural silicone glazing sealant, as recommended by solid surfacing manufacturer.

2.3 ACCESSORIES

- A. Sealant for joints between countertops and dissimilar materials with backing materials as specified in Section 07 92 00 - JOINT SEALANTS.
- 1. Joint Sealer Type SF (Silicone, Food contact): One component silicone rubber, acceptable to local health officials, conforming to U.S. Food and Drug Administration regulation 21 CFR 175.105 and 175.300, and ASTM C920, Type NS, Class 25, Use NT, G, O and A with a minimum movement capability of ± 25 percent, and a Shore A minimum hardness of 20, equal to the following:
 - a. Dow Corning, product, "732".
 - b. GE Silicones, product "Series SCS1000".
 - c. Tremco, product "Tremsil 200".
- B. Bolts, nuts, washers, lags, pins, and screws: Of size and type to suit application chrome finish in exposed-to-view locations.
- C. Fir plywood for backing: EWA C-C PLUGGED EXT, manufactured with exterior-grade urea-formaldehyde-free (NAUF) resin adhesives. Product shall contain no formaldehyde additives.
- 1. Thicknesses: As indicated on Drawings.
- D. Concealed supports for edge and corner backing shall be kiln dried birch or poplar.
- E. Heat Reflecting Tape: Manufacturer's standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.
- F. Insulating Nomex Fabric: Manufacturer's standard for use with conductive tape in insulating solid surface material from adjacent heat source.

2.4 FABRICATION

- A. Coordinate the fabrication of solid surfacing products with that of the various trades responsible for installing materials and items which will be inserted into, or applied to, the countertop surfaces. Obtain and verify templates, dimensions, and instructions from the respective trades before making cut-outs, holes, slots, and other cutting in the countertops.
- B. Shop fabricate all solid surfacing items in strict accordance with the details on the Drawings, the approved shop drawings, and recommendations of the solid surfacing manufacturer
 - 1. Shop install sinks using seamed undermount design, ensure edges of sink are smooth and flush with counter; lipped design is not acceptable.
 - 2. Prepare solid surfacing fabrications for installation of plumbing fixtures.
- C. Fit corners and joints hairline. Make all field joints and miters tight, secure with concealed fasteners.
- D. Provide shop fabricated counters, shop mitered components, closure trims with ample allowance for field cutting and fitting. Provide additional trim as required for scribing and site cutting.
- E. Route all edges to be butted for a smooth, clean fit. Sand edges with 120 grit sandpaper to rough up surfaces for adhesive bonding. Clean with denatured alcohol.
- F. Prepare and apply adhesive in compliance with manufacturer's written instructions. Clamp all components using manufacturer's approved clamping methods at all joints and build-up laminations, maintain clamping until adhesive is set. Avoid over-tightening clamps and squeezing out adhesive.
- G. Remove excess adhesive when dry with router. Follow with belt sander using 120 grit, diagonal to joint. After adhesive is leveled and smooth with surface, proceed with final shaping and finishing.
- H. After shaping, smooth finish of cut surfaces equal to manufacturer's original finish. Sand surfaces smooth with wet 400 grit sandpaper. Remove superficial scratches and sander markings, buff with nylon buffing pads as recommended by solid surfacing manufacturer. Wipe surfaces clean and dry with cloths.
- I. Finished work shall be free from visible adhesive and pencil marks.
- J. Field touch-up: Shall be the responsibility of the installer and shall include the filling, and touch-up of exposed job made nail or screw holes, refinishing of surfaces resulting from job fitting, repair of job inflicted scratches and marks, and final cleaning up of the finished surfaces.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

- A. General: Install work in accordance with manufacturer's instructions.
- B. Solid surfacing shall be installed plumb, level, true and straight without distortions:

1. Use concealed shims as required
 2. Work shall be installed to a tolerance of 1/8 inch in 8 feet for plumb and levelness, including tops.
 3. There shall be no variations in flushness of adjoining surfaces.
- C. Tops and trim shall be scribed and trimmed to fit adjoining work.
1. Where cuts occur, refinish surfaces and repair damaged finishes
- D. Secure quartz surfacing fabrications to blocking directly attached to substrates.
1. Secure fabrications using concealed fasteners.
 2. Anchor tops securely to base units and to other support systems as required.
- E. After installation and leveling of quartz surfacing fabrications has been completed; apply a continuous bead of specified sealant to all joints which abut walls or partitions. Tool the sealant to a uniformly dense surface, level with the edges of the casework. Immediately remove all excess sealant from solid surfacing surfaces.

3.2 TOLERANCES

- A. Maximum variation from true position 1/16 inch with a maximum of 1/32 inch offset from true alignment with adjoining surfaces intended to be flush.

3.3 CLEANING

- A. Daily clean work areas by sweeping and disposing of scraps.
- B. Clean excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant and solid surfacing manufacturers.
- C. Wash down exposed surfaces with a solution of mild detergent in warm water, applied with soft clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

3.4 PROTECTION

- A. Protect installed fabrications in a manner acceptable to fabricator and installer, which shall ensure no damage or deterioration at the time of Final acceptance of Project by the Architect.

END OF SECTION 066119

SECTION 07 92 00 – JOINT SEALANTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. General: The work of this Section consists of sealants and backing materials where shown on the Drawings, as specified herein, and as required for a complete and proper installation.
 - 1. This Section specifies general requirements, definition of joint sealer types, and application requirements for sealant work specified within other individual specification sections.
- B. Prepare sealant substrate surfaces, including removal of existing sealant and backing, and thorough cleaning of joints.
- C. Furnish and install sealant and backing materials.

1.3 RELATED REQUIREMENTS

- A. Section 02 41 19 - SELECTIVE DEMOLITION: Removal of existing finishes, partitions and walls as indicated in the Drawings
- B. Section 07 84 00 - FIRESTOPPING: Firestopping sealants and related backing materials.
- C. Section 09 29 00 - GYPSUM BOARD: Application of concealed acoustical sealant used in conjunction with gypsum board work at abutting surfaces (perimeter of partitions and walls).
- D. Section 09 91 00 - PAINTING: Caulks used in preparation of applied finish coatings.

1.4 REFERENCES

- A. The standards referenced herein are included to establish recognized quality only. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
- B. Reference Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 -

REFERENCES. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

1. ASTM C510 – Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants.
2. ASTM C717 – Standard Terminology of Building Seals and Sealants.
3. ASTM C719 – Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
4. ASTM C790 – Guide for Use of Latex Sealants
5. ASTM C804 – Practices for Use of Solvent-Release Type Sealants.
6. ASTM C834 – Standard Specification for Latex Sealants.
7. ASTM C919 – Standard Practice for Use of Sealants in Acoustical Applications.
8. ASTM C920 – Standard Specification for Elastomeric Joint Sealants.
9. ASTM C1193 – Standard Guide for Use of Joint Sealants.
10. ASTM C1247 – Standard Test Method for Durability of Sealants Exposed to Continuous Immersion in Liquids.
11. ASTM C1248 – Standard Test Method for Staining of Porous Substrate by Joint Sealants.
12. ASTM C1330 – Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.
13. ASTM D1056 – Standard Specification for Flexible Cellular Materials – Sponge or Expanded Rubber.
14. ASTM C1521 – Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints
15. ASTM D3960 – Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
16. ASTM G155 – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

C. Inclusionary References: The following reference materials are hereby made a part of this Section by reference thereto:

1. SWRI – Sealant and Caulking Guide Specification.

1.5 SUBMITTALS

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 – SUBMITTAL PROCEDURES:

1. Product Data: Manufacturer's product data sheets, specifications, performance data, chemical and physical properties and installation instructions for each item furnished hereunder.
 - a. Include limitations for storage, joint opening preparation, and installation of sealants and joint components. Indicate where primers will be used or submit printed statement from sealant manufacturer that no primers are required for adequate adhesion based on field installed or mockup evaluation and testing.
2. Selection Samples: Sample card indicating Manufacturer's full range of colors available for selection by Architect.
3. Verification Samples: 12 inch long samples of sealant for verification of color, installed where directed by Architect.
4. Stain resistance testing results for each natural stone material with specified sealants. Include additional testing for hydrophobic action after stone/sealant wetting and provide photographic records of tests.

5. Certificates: Manufacturer's certification that the Products supplied meet or exceed specified requirements.
6. Test and Evaluation Reports:
 - a. Compatibility and adhesion test reports: Test reports from sealant manufacturer indicating that sealant proposed for use have been tested for compatibility and adhesion with actual samples of substrates to be used on this project. Include sealant manufacturer's interpretation of test results, and recommendations for primers and substrate preparation specific to this Project.
- B. Closeout Submittals: Submit the following under provisions of Section 01 78 23 – OPERATION AND MAINTENANCE DATA.
 1. Bonds and Warranty Documentation: Manufacturer's standard Warranties and Guarantees.

1.6 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.
- B. Sole Source: Provide sealants from a single manufacturer for all work of this Section to the greatest extent possible. Each individual type of sealant installed in the Work shall be from a single manufacturer.
- C. Qualifications:
 1. Installer/Applicator: Minimum of 3 years documented experience demonstrating previously successful work of the type specified herein.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Each container and package must bear an unbroken seal, test number and label of the manufacturer upon delivery to the site. Failure to comply with these requirements shall be sufficient cause for rejection of the material in question, by the Architect and his requiring its removal from the site. New material conforming to said requirements, shall be promptly furnished at no additional cost to the Contract.
- B. Store sealants within sealant manufacturer's recommended optimum temperature range for at least 16 hours before use. Store backer rod and bond breaker tape in clean dry areas at 70 deg. F so that will not become damp, wet, or frost covered

1.8 SITE CONDITIONS

- A. Do not install single component solvent curing sealant in enclosed building spaces.
- B. Environmental Requirements: Maintain temperature and humidity recommended by the sealant manufacturer during and 24 hours after installation. Do not proceed with installation of joint sealers under the following conditions:
 1. When ambient and substrate temperature conditions are below 40 degrees F.
 2. When joint substrates are wet due to rain, frost, condensation, or other causes.
 3. In damp or rainy weather for exterior sealants.

- C. Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from substrates.

1.9 WARRANTY

- A. Furnish the following warranties under provisions of Section 01 77 00 - CLOSEOUT PROCEDURES:
 - 1. Warranties shall be effective starting from Date of Project Substantial Completion and are effective for specified term lengths.
- B. Manufacturer's warranties shall guarantee sealants installed are free of manufacturing defects and conforms to the published physical properties and referenced standards effective at time of installation.
 - 1. Sealant performance: Manufacturer's warranties shall include coverage for the following listed failures, when sealants are applied in accordance with manufacturer's written instructions. Warranty to include coverage for:
 - a. Sealant will not become brittle, tear or crack due to normal exposure or normal expansion or contraction.
 - 2. Warranty period:
 - a. Silicone sealants on vertical surfaces: 20 years.
 - b. Urethane sealants on vertical surfaces: 5 years.
 - c. Urethane sealants on horizontal surfaces: 5 years.
- C. Special Manufacturer's Warranty - Five years from date of Substantial Completion manufacturer agrees to furnish material only to repair or replace those joint sealants that do not comply with the performance or other specified requirements in the Section. Warranty: Include coverage of installed sealants that fail to achieve air tight and watertight seal, exhibit loss of cohesion or adhesion, or do not cure. Include coverage of sealants that revert to an uncured state. Warranty shall be transferable with no dollar limit and shall be non-pro-rated. Warranty shall not require Owner's signature to be effective.
- D. Special Installer's Warranty: Provide 3 year warranty or bond which shall include coverage of installed sealant and accessories which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.
 - 1. Installer's warrant shall include coverage for sealant that fails cohesively or adhesively. Installer agrees to provide material and labor to repair or replace joint sealants that do not comply with the performance or other specified requirements in the Section.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Specified Manufacturers and Products: To establish a standard of quality, design and function desired, Drawings and specifications have been based on the products specified under this section for each individual sealant type, for the applications scheduled at the end of Section, and as may be additionally identified on the Drawings.

- B. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Bostik, Inc., Wauwatosa, WI.
 2. Dow Corning Corporation, Auburn MI.
 3. GE Construction Sealants, Huntersville, NC. (GE)
 4. International Protective Coatings, Inc., Oakhurst, NJ
 5. Mason Industries, Inc., Hauppauge, NY.
 6. Master Builders Solutions Construction Systems US, LLC., Shakopee, MN (Master Builders).
 7. Momentive Performance Materials USA LLC (GE Silicones) Garrett, IN.
 8. Owens Corning, Toledo, OH.
 9. Pecora Corporation, Harleysville PA.
 10. Phenomenal Brands, Baltimore, MD.
 11. Sika Corp, Lyndhurst NJ.
 12. Tremco, Inc., Beachwood OH.

2.2 SEALANT MATERIALS

- A. Sealant Materials, General Requirements:
1. Only use sealant and primers that comply with the following limits for VOC content:
 - a. Architectural Sealants: 250 g/L.
 - b. Roofing Sealants: 420 g/L.
 - c. Roadway Sealants: 250 g/L.
 - d. Sealant primer: 250 g/L.
 2. Sealants containing aromatic solvents, fibrous talc, formaldehyde, halogenated solvents, mercury, lead, cadmium, chromium and their compounds, are not permitted.
- B. Joint Sealer Type AA (Acrylic acoustical): One component acrylic latex, permanently elastic, non-staining, non-shrinking, non-migrating and paintable, equal to one of the following
1. Owens Corning, product: "QuietZone Acoustical Sealant."
 2. Pecora, product "AC-20 FTR".
 3. Tremco, product "Tremco Acoustical Sealant".
- C. Joint Sealer Type AF (Acrylic acoustical for penetrations in acoustical Fire rated construction): Intumescent firestop sealant and caulks: Acrylic based, water resistant sealant, which will not re-emulsify after drying.
1. Acceptable products, or approved equal:
 - a. Bio Fireshield, product "Biostop 500".
 - b. Hilti, Inc., product "FS-ONE Intumescent Firestop Sealant" or "FS 657 Fireblock".
 - c. International Protective Coatings, Inc., product: "FS 1900 Series Sealant Intumescent Elastomeric Firestop".
 - d. Specified Technologies, Inc., product "SpecSeal SSS".
 - e. 3M Company, product "Fire Barrier Caulk CP25WB+".
 - f. Tremco Inc., product "Tremstop 1A".
- D. Joint Sealer Type AP (Acrylic Painters caulk): One component acrylic latex caulking compound, conforming to ASTM C834 Type P, Grade NF, paintable within 24 hours after application, with a minimum movement capability of ± 12.5 percent, equal to one of the following:
1. Bostik, product, "Chem-Calk 600".

2. Master Builders, product, "MasterSeal NP 520".
 3. Pecora, product "AC-20+".
 4. Tremco, product, "Tremflex 834".
- E. Joint Sealer Type PU35 (Polyurethane 1-component): Low modulus single component gun-grade polyurethane sealant, non-sagging, conforming to ASTM C920, Type S, Class 35, Grade NS, use NT, M, A and O with a minimum movement capability of ± 35 percent, equal to the following:
1. Master Builders, product "MasterSeal NP1".
 2. Sika, product "Sikaflex 1a".
 3. Tremco, product "Vulkem 116 FC", or "Dymonic 100".
- F. Joint Sealer Type SF (Silicone, Food contact): One component silicone rubber, acceptable to local health officials, conforming to U.S. Food and Drug Administration regulation 21 CFR 175.105 and 175.300, and ASTM C920, Type NS, Class 25, Use NT, G, O and A with a minimum movement capability of ± 25 percent, and a Shore A minimum hardness of 20, equal to the following:
1. Dow Corning, product, "732".
 2. GE Silicones, product "Series SCS1000".
 3. Tremco, product "Tremsil 200".

2.3 ACCESSORIES

- A. Compressible joint bead back-up: Compressible closed cell polyethylene, extruded polyolefin or polyurethane foam rod complying with ASTM C1330, Type C (closed cell material with a surface skin, non-gassing round foam, compatible with sealant), 25 to 33 percent greater in diameter than width of joint. Shape and size of compressible back-up shall be as recommended by manufacturer for the specific condition used. Provide one of the following, or equal.
1. Construction Foam Products (Division of Nomaco, Inc.), Zebulon, NC, product "HBR Closed Cell".
 2. Industrial Thermo Polymers Ltd., Brampton, Ontario CN, product "ITP Standard Backer Rod".
 3. BASF Construction Chemicals (Sonneborn), Shakopee MN, product "Sonolastic Closed Cell Backer Rod".
 4. W.R. Meadows Inc., Hampshire, IL, product "Sealtight Kool-Rod".
- B. Primers: Furnish and install joint primers of the types, and to the extent, recommended by the respective sealant manufacturers for the specific joint materials and joint function.
- C. Bond-breaker tape, and temporary masking tape: Of types as recommended by the manufacturer of the specific sealant and caulking material used at each application, and completely free from contaminants which would adversely affect the sealant and caulking materials.
1. Liquid bond breaker and duct tape are not permitted.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Inspect existing joints to be renovated.
 - 1. Verify joint sealants, backing, and other materials containing PCBs and other hazardous materials have been removed.
 - 2. Verify joint substrates and adjoining materials are structurally sound.
 - 3. Verify joints to be renovated can be satisfactorily repaired with specified methods and materials.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General:
 - 1. Weather conditions must be dry and of the temperature, as recommended by sealant manufacturer, during application operations.
 - 2. Surface receiving work of this section must be absolutely dry and dust free. All joints receiving sealant/caulking materials and primers shall be subject to the approval of the sealant manufacturer for proper use of specified materials.
- B. Thoroughly clean all joints, removing all loose mortar, oil, grease, dust, frost, and other foreign materials that will prevent proper adhesion of primers and sealant materials.
 - 1. Clean ferrous metals of all rust and coatings by wire brush, grinding or sandblasting. Remove oil, grease and protective coatings with cleaners recommended by sealant manufacturer.
 - 2. Where sealant is indicated to replace existing, thoroughly remove existing sealant and backing, scrape and clean surfaces. Renovate sealant joints in accordance with manufacturer's instructions and reviewed shop drawings. Remove all existing sealant residue from joint surfaces using chemical cleaners and solvents which are acceptable to sealant manufacturer.
- C. Prime joint substrates, as recommended in writing by joint-sealant manufacturer, as based on preconstruction joint-sealant-substrate tests or as based upon prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- D. Verify that joint backing and release tapes are compatible with sealant.
- E. Perform preparation in accordance with ASTM C804 and ASTM C790 for solvent and latex base solvents, respectively.

3.3 PREPARATION FOR REPLACEMENT OF EXISTING SEALANT

- A. Remove existing joint sealants and backing as shown on drawings and identified during pre-installation conference and inspection (Article 3.1 herein above). Do not remove silicone joints to be recapped and joints to be covered with silicone seals.
- B. Cut existing sealant close to joint edges.
- C. Clean joint with power or hand wire brush, grinding, saw cutting, or solvent cleaning to depth at which replacement backing and sealant are to be installed.
- D. Blow out dust, loose particles, and debris with moisture and oil-free compressed air. Remove any pieces of caulk and backer rod lodged in joint.
- E. Repair deteriorated or damaged substrates as recommended by sealant manufacturer to provide suitable substrate for new sealant. Allow patching materials to fully cure.

3.4 INSTALLATION

- A. General: Conform to SWRI requirements, and sealant manufacturer's written requirements for installation.
- B. Install joint bead back-up in all joints in excess of 5/8-inch depth, and joints that have no back-up therein, placing the joint bead in the joint in a manner that will assure a constant depth 1/8 inch greater than the sealant and caulking material depth tolerances.
 - 1. Set beads into joints continuously, by slightly stretching during placement, to permit compression against sides of joint, without surface wrinkles or buckles.
 - 2. Do not stretch back-up material into joints.
- C. Install bond breaker in joints where shown in the Drawings and wherever recommended by the sealant manufacturer to prevent bond of the sealant to surfaces where such bond might impair the Work.
- D. Apply masking tape or other precautions to prevent migration or spillage of materials onto adjoining surfaces.
- E. Apply urethane sealants, silicone sealants, and latex caulking materials into joints in accordance with manufacturer's instructions, using mechanical or power caulking gun equipped with nozzle of appropriate size, with sufficient pressure to completely fill the joints.
 - 1. The depth of sealant and caulking materials shall be in accordance with manufacturer's recommendations for the specific joint function, but in no case exceed 1/2-inch in depth, nor less than 1/4-inch, regardless of the joint width.
 - 2. Maintain the outer edge of the sealant and caulking materials, where side faces of joints are in the same plane, back 1/8-inch from the faces.
 - 3. Apply sealant in continuous beads without open joints, voids or air pockets so as to provide a watertight and airtight seal for the entire joint length.
 - 4. After placement of the sealant and caulking materials, concave-tool the surfaces to uniform density, using a water-wet tool. Do not use detergents or soapy water for the tooling operations.
 - 5. Remove the temporary masking tape immediately after tooling, and before the sealant or caulking material has taken initial set.

- F. Take care not to block-off weep tubes or any through wall opening constructed to allow weeping of accumulated water.

3.5 INSTALLATION AT ACOUSTICAL CONSTRUCTION

- A. Seal sound-rated partitions on both sides where facings abut dissimilar materials. Fill void with 1/4 inch minimum to 3/8 inch maximum round bead of sealant, as required.
- B. Seal at the following locations:
 - 1. Around the perimeter, in the angle formed by panels and abutting dissimilar materials.
 - 2. At all intersections, and all penetrations of floor, ceiling, walls, columns.
 - 3. At all panel terminations in door and window frames, and at control joint to panels
 - 4. Around all cutouts for lights, cabinets, pipes, plumbing, HVAC ducts, electrical boxes, and similar penetrations in wall construction.

3.6 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under the provisions of Section 01 40 00 – QUALITY REQUIREMENTS.
 - 1. Sealants not evidencing adhesive failure from testing will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.
- B. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed elastomeric sealant joints as follows:
 - a. Perform 10 tests for the first 1000 linear feet joint length for each type of exterior joint sealant and substrate.
 - b. Perform 1 test for each 1000 linear feet of joint length thereafter for each type of exterior joint sealant and substrate.
 - 2. Test Method: Test joint sealants according to hand-pull method described below:
 - a. Make knife cuts from one side of the joint to the other, followed by two cuts approximately 2 inches (50 mm) long at sides of joint and meeting cross cut at one end. Place a mark 1 inch (25 mm) from cross-cut end of 2-inch (50 mm) piece.
 - b. Use fingers to grasp 2-inch (50 mm) piece of sealant between cross-cut end and 1-inch (25 mm) mark; pull firmly at a 90 degree angle or more in direction of side cuts while holding a ruler alongside of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
 - c. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - 3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
 - 4. Inspect tested joints and report on the following:
 - a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test

- each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
- b. Whether sealants filled joint cavities and are free of voids.
 - c. Whether sealant dimensions and configurations comply with specified requirements.
5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
 6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- C. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.
- D. Owner's testing: At the Owner's discretion, Owner intends to engage an independent third-party sealant inspector and testing agency to perform inspections and testing of the sealant joint assemblies and interfacing work scope, including but not limited to the following:
1. Water infiltration testing of sealant as part of envelope assemblies.
 2. Field adhesions testing.
 3. Visual inspections of the work.

3.7 CLEANING

- A. Clean all surfaces of adjacent surfaces which have been marked or soiled by the work of this Section, removing all excess sealant and caulking materials with solvents which will not damage the surfaces in any way.

3.8 CURING AND PROTECTION

- A. During the operation of sealant work, protect the work of other trades against undue soilage and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged and soiled.
- B. Cure sealants in accordance with manufacturer's instructions to obtain maximum bond to surfaces, cohesive strength and durability at earliest possible date. Do not cover until cured and adhesion is verified if atmospheric cure is required.

3.9 SCHEDULE

- A. General: Seal joints indicated and all interior and exterior joints, seams, and intersections between dissimilar materials.
- B. Sealant Type Groups:
1. "A" sealants: Acrylic.
 - a. Type AA: Acoustical.

- b. Type AF: Acoustical for penetrations in acoustical Fire rated construction.
 - c. Type AP: Painter's Caulk.
 - 2. "PU" sealants: Polyurethane.
 - a. Type PU35: Polyurethane single component, 35% movement.
 - 3. "S" sealants: Silicone.
 - a. Type SF (Silicone, Food contact).
- C. Sealant Colors:
 - 1. Colors for Sealant (typical): As selected by the Architect from manufacturer's standard colors, except as specified otherwise herein below.
 - 2. Color for Sealant Types "AA" and "AP": White.
 - 3. In concealed installation, and in partially or fully exposed installation where so approved by the Architect, standard gray or black sealant may be used.
- D. Specialty Joint Conditions:
 - 1. Type AF: Acoustical for penetrations in acoustical Fire rated construction.
 - 2. Sealant at tiling: Type ST.
- E. Interior joints (Listed by primary building material abutting sealant joints):
 - 1. Gypsum Board:
 - (Joint Condition: Sealant Type)
 - a. Gypsum board to metal or wood trim: AP
 - b. Gypsum board to abutting surfaces at exposed tops and bottoms non-rated partitions and walls: AA
 - a. Gypsum board to abutting surfaces at fire rated construction: AF
 - b. Gypsum board to stone: PU35
 - c. At gaps and spaces between gypsum board to interior door and window frames, penetrating conduits and piping, building specialty items, ductwork, and similar items: AP
 - 2. Acoustical ceilings:
 - a. Acoustical ceiling edge angle to irregular wall surface AP
 - 3. Architectural millwork and casework:
 - a. Casework to abutting surfaces (except bar tops): AP or PU35
 - b. Casework to abutting surfaces (at bar tops): SF
 - 4. Interior Wood:
 - a. Wood to wood (natural or stained finishes) PU35
 - b. Wood to wood (painted opaque finishes) AP or PU35
 - c. Wood to metal PU35
 - d. Wood base to wall surfaces AP or PU35
- F. END OF SECTION 066119

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. General: The work of this Section consists of hollow metal doors and frames where shown on the Drawings, as specified herein, and as required for a complete and proper installation.
- B. Provide the following products:
 - 1. FlushUL-Labeled and non-labeled steel doors and frames, complete with internal reinforcing, hardware cut-outs; and installed.

1.3 RELATED REQUIREMENTS

- A. Section 06 10 00 - ROUGH CARPENTRY: Wood blocking, and nailers.
- B. Section 07 92 00 - JOINT SEALANTS.
- C. Section 09 29 00 - GYPSUM BOARD: Gypsum grout fill for hollow metal frames occurring in gypsum drywall assemblies.
- D. Section 09 91 00 - PAINTING: Applied finish coatings.
- E. Building-in of frame anchors to wall and partition construction: By trade responsible for wall and partition erection.
- F. Door Hardware: As referenced within drawings.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.

1. ANSI A 117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcing.
3. ANSI/SDI A250.8 - R2008 (formerly SDI 100) - Recommended Specifications for Standard Steel Doors and Frames.
4. ANSI / SDI A 250.10, Standard 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. ASCE-7 - Minimum Design Loads and Associated Criteria for Building and Other Structures.
7. ASTM A109/A109M - Standard Specification for Steel, Strip, Carbon (0.25 Maximum Percent), Cold-Rolled.
8. ASTM A568/A568M - Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
9. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
10. ASTM A924/A924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
11. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
12. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
13. ASTM C1363 - Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.
14. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
15. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
16. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
17. SDI 111 Series (111A-111F): Recommended Details, Steel Doors and Frames.
18. SDI 117-93: Manufacturing Tolerances for Standard Steel Doors and Frames.
19. NFPA publication 80 - Fire Doors and Windows.
20. NFPA publication 105 - Standard for the Installation of Smoke Door Assemblies.
21. UL publication 10B - Fire Tests of Door Assemblies.
22. UL publication 10C - Positive Pressure Fire Tests of Door Assemblies.
23. UL 1784 - Air Leakage Tests of Door Assemblies.
24. All applicable federal, state and municipal codes, laws and regulations for exits.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. General: Coordinate the work of this Section with the respective trades responsible for installing anchorages furnished by this Section; make arrangements for delivery, receipt and installation of inserts and anchorages to prevent delay of the Work.

2. Coordinate the work of this Section with the respective trades responsible for furnishing hardware and installing doors and frames.
3. Ensure that the work performed hereunder is coordinated with issued templates authorized by the hardware supplier.
4. Do not fabricate doors or frames before receiving a copy of the approved hardware schedule, submitted by the hardware supplier, reviewed by the Contractor and accepted by the Architect. Verify that issued templates are coordinated with the approved schedule; immediately notify the Architect, in writing, of any conflicts.

B. Sequencing:

1. Field Measurements:
 - a. Take field measurements before preparation of shop drawings and fabrication of frames scheduled for existing openings, to ensure proper fitting of Work.
2. Allow for adjustments within specified tolerances wherever taking of field measurements before fabrication might delay Work.

1.6 SUBMITTALS

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Product Data: Manufacturer's product data sheets, specifications, for doors, frames and shop applied finishes.
2. Shop Drawings:
 - a. Door and Frame Schedule: A complete schedule coordinated with, and using same identifier designations as, the door and frame schedule contained in the Contract Drawings.
 - b. Large scale details of each type door and frame construction, indicating all gages, reinforcing, and anchorage.
 - 1) Indicate cutouts for louvers.
3. Certificates: Manufacturer's written certification stating that doors, frames, and all related items to be furnished hereunder, meet or exceed the requirements specified under this Section; that specified galvanized and shop priming has been performed; and that all U.L. fire-resistive requirements for the indicated Labels have been met.

B. Closeout Submittals: Submit the following under provisions of Section 01 78 23 - OPERATION AND MAINTENANCE DATA.

1. Bonds and Warranty Documentation: Manufacturer's standard warranty.

1.7 QUALITY ASSURANCE

A. General: Notify the Architect where conflicts apply between referenced standards, existing materials, and existing methods of construction.

B. Prime Paint Performance:

1. Test sheet steel specimens, with the product manufacturer's production primer, replicating Finish 'as shipped', in accordance with ANSI A250.10.
2. Meet acceptance criteria described in ANSI A250.10.
3. Include a description of the test specimens, procedures used in testing in independent third party test reports and Certificates of Compliance, and indicate compliance with the contract documents specified acceptance criteria.

- C. Sole Source: Obtain doors and frames specified in this Section from a single manufacturer.

1.8 DELIVERY, STORAGE AND HANDLING

A. Delivery and Acceptance Requirements:

1. Prior to shipping, identify each frame and door with a removable metal or plastic label which corresponds with door schedule identifying opening number and location.
2. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
3. Deliver doors and frames boxed or crated to provide protection during transit and job storage.
4. Inspect doors and frames upon delivery for damage. Minor damage may be repaired provided the refinished items are equal in respects to new work and acceptable to the Architect; otherwise remove and replace damaged items.

B. Storage and Handling Requirements:

1. Store and handle materials following manufacturer's recommended procedures.
2. Store doors and frames at the building site upright and under cover. Place the units on wood dunnage and cover in a manner that will prevent rust and damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:

1. Hollow metal doors and frames:
 - a. Amweld Building Products, Inc., (A Division of Amweld International, LLC), Coppell TX.
 - b. Ceco Door Products (A Division of Assa Abloy Group Company), Milan TN.
 - c. Curries Company (A Division of Assa Abloy Group Company), Mason City IA.
 - d. De La Fontaine Industries, Woburn, MA.
 - e. Flemming Door Products, (A Division of Assa Abloy Group Company), Woodbridge, Ontario Canada.
 - f. Republic Doors and Frames, McKenzie TN.
 - g. Steelcraft (A Division of Schlage Lock Company), Cincinnati OH.

2.2 DESCRIPTION

A. Sustainability Requirements:

1. Recycled content of Ferrous Metals: Use maximum available percentage of recycled steel. Steel incorporated into the work shall contain not less than 25 percent of recycled steel.

2.3 DOORS

- A. General: Refer to the Drawings for design of doors, sizes, glazing cut-outs in doors, and details.
- B. Interior Doors 1-3/4 inch thick (44.4 mm): ANSI 250.8, Level 2, Model 1 (Full Flush), ANSI A250.4 Physical Performance Level B, (Heavy Duty) having 18-gage, minimum 0.042 inch (1.0 mm) steel faces,
 - 1. Construction: Full flush commercial type, 1-3/4 inches thick, unless noted otherwise, meeting or exceeding the materials, gages, construction, and testing requirements of the referenced ANSI and SDI publications.
 - a. Interior Door Core Construction: Manufacturer's sound absorption core (acoustical core).
 - 1) Minimum STC rating of 45 for door and frame assembly with acoustical gasketing hardware.
- C. Hardware reinforcing: Welded in place steel reinforcement, hot rolled pickled and oiled steel per ASTM A1011/A1011M. Provide G-60, hot-dipped galvanized reinforcing for all exterior openings, and locations where galvanized doors and frames are scheduled. Reinforcing shall be not less than the following minimum steel thicknesses:
 - 1. Hinges: 7 gage, minimum 0.167 inch (4.2 mm) thick.
 - 2. Closers: Box/channel-shape reinforcing, 12 gage, minimum 0.093 inch (2.3 mm) thick.
 - 3. Locks: Box/channel-shape reinforcing,
 - a. Cylindrical locks: 16 gage, minimum 0.053 inch (1.3 mm) thick.
 - b. Mortise locks: 14 gage, minimum 0.067 inch (1.6 mm) thick.
 - 4. Kick plates: 18 gage, minimum 0.042 inch (1.0 mm) thick.
 - 5. All other hardware: 14 gage, minimum 0.067 inch (1.6 mm) thick.
 - 6. Locations for reinforcing shall be determined from information and templates provided under Section 08 71 00 - DOOR HARDWARE.
- D. Fabrication
 - 1. Fabricate exposed faces of door panels from cold-rolled steel only.
 - 2. Fabricate concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel (at manufacturer's option).
 - 3. Fabricate doors with hardware reinforcement welded in place.
 - 4. Attach fire rated label to each door unit.
 - 5. Close top and bottom edge of exterior doors with flush end closure. Seal joints watertight.

2.4 HOLLOW METAL FRAMES

- A. General: Refer to the Drawings for various types of frames, sizes, and profiles, and other characteristics of frames and related items.
 - 1. Frame type (all frames): Shop welded frames with mitered joints arc-welded, reinforced and ground smooth.
- B. Materials for frames, reinforcement, anchors, anchor clips and related items: commercial grade cold-rolled steel conforming to ASTM A109/A109M or commercial grade hot-rolled and pickled steel conforming to ASTM A1011/A1011M.
 - 1. Frame gage:
 - a. Interior frames: 16-gage, 0.053 inch thick (1.3 mm).

2. Hinge reinforcement: 7 gage, minimum 0.167 inch (4.2 mm) thick.
3. Lock and strike reinforcement: 12 gage, minimum 0.093 inch (2.3 mm) thick.
4. Door closer reinforcement: 12 gage, minimum 0.093 inch (2.3 mm) thick.
5. Floor clips: 16 gage, minimum 0.053 inch (1.3 mm) thick.
6. Splice plates or channels: same gage as door frame.
7. Dust cover boxes: 26 gage, minimum 0.016 inch (0.4 mm) thick.

C. Frame construction:

1. Shop-fabricate frames as whole single units per door opening, except when frame size is too large to ship as a single unit. Oversized frames may be shipped in large sections as practicable for field assembly with concealed splice plates or channels.
 - a. Frame corner construction: Refer to paragraph A of this Article.
2. Reinforcements, stiffeners, and base angle clips: Welded to interior surfaces of frames to provide a stable base and so as to not interfere with installation of hardware.
3. Appearance of finished frames: Strong, rigid, completely free from warp and buckle, with miters well-formed and in true alignment, and with surfaces smooth and free from defects of any kind.
4. Silencer holes: Prepare frames for silencers at non-gasketed doors, coordinate with Section 08 71 00 – DOOR HARDWARE and Hardware Schedule. Provide three single silencers for single doors, and mullions of double doors on strike side. Provide two single silencers on frame head at double doors without mullions.

D. Anchorage:

1. Anchor clips for frames in metal stud partitions: 16-gage (minimum 0.053 inch [1.3 mm] thick) steel z-shaped clips factory welded onto frame, 1-1/2 inch upturned and downturned legs, or equivalent type standard with the manufacturer, contained within the frames, for screw attachment to metal studs under Section 09 22 16 - NON-STRUCTURAL METAL FRAMING.
2. Provide the following number of anchors, clips, or bolts, per jamb:
 - a. For frames 7'-6" in height or less: 3 anchors per jamb.
 - b. For frames 7'-6" in height or less and having doors exceeding 3'-0" feet width, and for cross corridor frames: 4 anchors per jamb.
 - c. For frames greater than 7'-6", up to 10'-0" in height: 4 anchors per jamb.
 - d. For frames greater than 7'-6", up to 10'-0" in height, and having doors exceeding 3'-0" feet width, and for cross corridor frames: 5 anchors per jamb.
 - e. For frames over 10'-0" in height: 5 anchors per jamb.

2.5 FABRICATION

- A. General: Do not fabricate materials until all specified submittals have been submitted to, and approved by, the Architect.
- B. Fabrication Tolerances, Maximum variation for doors and frames: Maximum diagonal distortion 1/16 inch measured with straight edge, corner to corner.

2.6 FINISHES

- A. Preparation: Pressure-sand all surfaces of all doors, frames, accessory items, anchors, and related items, to remove blemishes and foreign matter and provide paint grip. Spot-fill imperfections with metallic filler, and sand smooth. Thoroughly clean the surfaces by applying hot or cold phosphate treatment standard with the manufacturer.

- B. Following cleaning apply one dip or spray coat of rust-inhibitive metallic oxide, zinc chromate, or synthetic resin primer to all surfaces, including those which will be concealed after erection. Bake, or oven dry, the primer at time and temperature recommended by the manufacturer for developing maximum hardness and resistance to abrasion.

PART 3 - EXECUTION

3.1 GENERAL ERECTION/INSTALLATION FRAMES AND DOORS

- A. General: Install frames and doors in accordance with the manufacturer's recommendations, ANSI/SDI-100, ANSI A250.8, SDI-105, NFPA-80 and the Door Hardware Institute recommendations. Install with a maximum diagonal distortion of 1/16 inch measured with a straight edge, corner to corner.
 - 1. Install doors and frames plumb, square and level.

3.2 ERECTION/INSTALLATION METAL DOOR FRAMES

- A. Steel Place in-position all steel frames, in accordance with the approved shop drawings and frame schedule.
 - 1. During the installation of metal door frames, after the manufacturer's steel shipping bars have been removed. Install spreaders at door opening, carefully dimensioned to permit square and plumb installation of door frames and doors.
 - a. Provide rigid temporary bracing for frames as required to ensure maintenance of positioning, and remove only after frames have been permanently anchored.
 - b. For doors located in masonry work, maintain frame position with temporary bracing until frames are built-into-place, and grout has sufficiently cured to maintain frame position.
 - c. Spreaders shall remain in place until doors are installed.
 - 2. Coordinate installation of frames with the various trades installing abutting wall construction for anchor placement.
 - a. Secure hollow metal frames with the following number of anchors per jamb.
 - 1) For frames 7'-6" in height or less: 3 anchors per jamb.
 - 2) For frames 7'-6" in height or less and having doors exceeding 3'-0" feet width, and for cross corridor frames: 4 anchors per jamb.
 - 3) For frames greater than 7'-6", up to 10'-0" in height: 4 anchors per jamb.
 - 4) For frames greater than 7'-6", up to 10'-0" in height, and having doors exceeding 3'-0" feet width, and for cross corridor frames: 5 anchors per jamb.
 - 5) For frames over 10'-0" in height: 5 anchors per jamb.

3.3 GENERAL INSTALLATION DOORS AND HARDWARE

- A. General: Install doors and door hardware in accordance with manufacturer's instructions and requirements of referenced organizations..
 - 1. Center doors in the opening or frame with contact surfaces fit tight and even without forcing or warping the components.
 - 2. Replace doors and frames that do not conform to hardware height requirements.

- B. Hang doors and install hardware when concrete work, plastering, tile setting, and other operations have been completed which increase humidity and dust in building.
- C. Drill and tap screw holes in steel frames and doors for surface mounted hardware.
- D. Install hardware at the location (heights) indicated on Drawings, or as otherwise required by regulatory requirements.
- E. Install hardware (except hinges) after field painting of doors and frames, or field sealing of doors has been completed.
- F. Carefully fit and securely attach hardware items to doors and frames.
- G. Closers including those with hold-open features:
 - 1. Where closers are mounted on doors, mount with hex nuts and bolts; fasten foot to frame with machine.
 - 2. Mount to provide maximum door opening permitted by building construction or equipment.
 - 3. Use regular arm mounting except where door swing is less than 90 degrees or closer is on interior of exterior door or door is equipped with roller latch.
- H. Thresholds:
 - 1. Install thresholds in a bed of sealant with machine screws and expansion shields.
 - 2. Cut thresholds to closely fit jambs.
 - 3. Drill and cut for door holders and bottom bolts where required.
- I. Gasketing and seals:
 - 1. Accurately cut and fit gasketing and seals. Carefully aligned for full contact and tight seal and secure firmly to maintain weatherproof, waterproof, and lightproof seal without preventing smooth and easy operation of doors.
 - 2. Provide suitable blocking where necessary to clear hardware; and make adjustments as required to meet special conditions encountered.
 - 3. Sound control devices: Install sound rated door gasketing and bottom seal, and adjust to obtain the specified sound rating.

3.4 INSTALLATION TOLERANCES

- A. Gaps and Clearances, Swinging Doors:
 - 1. Metal Doors (Fire Resistance Rated):
 - a. Maximum clearance under bottom of door: 3/4 inch.
 - b. Maximum clearance under bottom of door to saddle or threshold: 1/4 inch, plus or minus 1/8 inch.
 - c. Clearance between door and frame: 1/8 inch, plus or minus 1/16 inch.
 - d. Clearance for meeting edges of doors is 1/8 inch, plus or minus 1/16 inch.
- B. Gaps and Clearances, Vertical Sliding Doors (non-rated): Maximum clearance between door and wall when closed: 3/8 inch.
- C. Gaps and Clearances, Horizontal Sliding Doors (non-rated):
 - 1. Maximum clearance under bottom of door to floor: 3/4 inch.
 - 2. Maximum clearance between door and wall when closed: 1/4 inch.

3.5 ADJUSTING

- A. Adjust Doors, including hardware to operate as designed without binding or deformation of the members.
- B. After installation, clean surfaces, remove temporary labels, paint spots and other defacement.
- C. Clean prefinished and plated items and items fabricated from stainless steel, aluminum and copper alloys, as recommended by the manufacturer.
- D. Prior to Final Inspection make final check and adjustment of all hardware, clean operating items as necessary to restore proper function and finish of hardware.

3.6 TOUCH-UP FINISHES

- A. Field touch-up of doors, scheduled for opaque finishes, will be performed under Section 09 91 00 - PAINTING and includes the filling and touch-up of exposed job made nail or screw holes, refinish of raw surfaces resulting from fitting or job inflicted scratches and marks.
- B. Field touch-up of doors, scheduled for transparent finishes, will be performed by an authorized representative of the door fabricator. Touch-up includes refinishing surfaces resulting from fitting, or job inflicted scratches and marks.

3.7 CLEANING

- A. General: Clean work under provisions of Section 01 73 00 - EXECUTION.
- B. Upon completion of the work of this Section in any given area, remove tools, equipment, packing materials, and all rubbish and debris from the work area; leave area in broom-clean condition.
 - 1. Daily clean work areas by sweeping and disposing of debris.
- C. Clean adjacent surfaces soiled by hardware installation.

3.8 PROTECTION

- A. Protect doors and hardware from damage until completion of the project. Comply with provisions of Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS.

END OF SECTION 081113

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. The work of this Section consists of non-load bearing metal framing for partitions, ceilings, and soffits, where shown on the Drawings, as specified herein, and as required for a complete and proper installation. Work includes, but is not limited to the following.
- B. Furnish and install:
 - 1. Metal furring and framing where indicated on the Drawings, including cross bracing and knee bracing.
 - 2. Suspended metal framing for ceilings and soffits, including hanger attachments, wire hangers, and screwable metal tee grid system.
 - 3. Reinforcing plate blocking.
 - 4. Deflection track assemblies at tops of metal stud partitions.
 - a. Provide fire-rated assemblies at fire-rated, corridor, and smoke partitions.
 - b. Provide non fire-rated assemblies at all other partitions.

1.3 RELATED REQUIREMENTS

- A. Section 02 41 19 - SELECTIVE DEMOLITION: Removal of existing finishes, partitions and walls as indicated in the Drawings.
- B. Section 06 10 00 - ROUGH CARPENTRY: Wood blocking and framing, where indicated.
- C. Section 09 29 00 - GYPSUM BOARD: Gypsum board, applied over metal framing installed by this Section 09 22 16 including: gypsum board, and related trim components.
- D. Section 09 51 00 - ACOUSTICAL CEILINGS: Suspended acoustical tile ceiling, including related metal suspension system.
- E. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING: Supply and return air registers. (Located within project drawings)
- F. Division 26 - ELECTRICAL: Independent hangers for suspended lighting fixtures. (Located within project drawings)

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
1. ASTM A568/A568M – Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
 2. ASTM A653/A653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 3. ASTM A641/A641M – Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 4. ASTM A1003/A1003M – Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
 5. ASTM C636/C636M – Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 6. ASTM C645 – Standard Specification for Nonstructural Steel Framing Members.
 7. ASTM C1002 – Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 8. ASTM C754 – Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 9. ASTM D226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
 10. ASTM E90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements. \
 11. ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials.
 12. GA 203 – Installation of Screw-Type Steel Framing Members to Receive Gypsum board.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
1. Coordinate the work of this Section with the respective trades responsible for installing interfacing work, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work
 2. Work of this Section shall be closely coordinated with the work of Section 09 29 00 - GYPSUM BOARD to assure the steady progress of the Contract.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.

1.7 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.
- B. Seismic Compliance: Nonstructural components that are permanently attached to structures and their support attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance to local jurisdiction.
- C. Sole Source: Obtain products required for the Work of this Section from a single manufacturer.
- D. Qualifications:
 - 1. Installer/Applicator: Minimum of 3 years documented experience demonstrating previously successful work of the type specified herein.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
- B. Storage and Handling Requirements:
 - 1. Store and handle materials following manufacturer's recommended procedures, and in accordance with material safety data sheets.
 - 2. Protect materials from damage due to moisture, surface contamination, corrosion and damage from construction operations and other causes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - 1. Metal components and related items (including non-rated deflection track assemblies):
 - a. ClarkDietrich Building Systems, LLC, West Chester, OH.
 - b. Marino\Ware, Division of Ware Industries, South Plainfield NJ.
 - c. Cemco Steel Framing and Metal Lath, City of Industry, CA.
 - d. Telling Industries, Willoughby, OH.
 - e. Studco Building Systems US LLC, Webster, NY.
 - f. Super Stud Building Products, Inc., Edison NJ.
 - 2. Suspended framing system for ceilings and soffits:
 - a. Armstrong World Industries, Inc., Lancaster, PA. (Armstrong).
 - b. Certainteed Corporation, Valley Forge, PA. (Certainteed).
 - c. Rockfon North America, Chicago IL. (Rockfon).
 - d. USG Corporation, Chicago IL., (USG).

- B. The design and details as shown on the drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

2.2 DESCRIPTION

- A. Regulatory Requirements
 - 1. Obtain certificate of compliance from authority having jurisdiction indicating approval of specified products.
- B. Sustainability Requirements:
 - 1. Recycled content of Steel: Use maximum available percentage of recycled steel. Steel framing products incorporated into the work shall contain not less than 30 percent of recycled steel.

2.3 FRAMING MATERIALS

- A. "Hat shaped" Furring channels: 7/8 x 2-3/4 inch, roll-formed, hat-shaped, furring channel 25 gage hot-dip galvanized steel conforming to ASTM C645.
- B. Studs: 'C-shaped' screw studs, hot-dip galvanized steel complying to ASTM C645, 20 gage-equivalent (nominal 0.02 inches [0.75 mm] factory ribbed and/or embossed for performance equivalent to 20 gage (0.0329 inch [0.84 mm] minimum thickness studs), of widths indicated on the Drawings.
 - 1. Framing members shall have a G-40 (hot-dipped galvanized) minimum protective coating conforming to ASTM A653/A653M and ASTM A1003/A1003M (Table 1), or approved "G40EQ" equivalent coating.
 - 2. Acceptable products include the following or approved equal:
 - a. ClarkDietrich Building Systems, LLC, product "ProStud20" series.
 - b. MarinoWare, Division of Ware Industries, product: "ViperStud Viper20".
 - c. Cemco Steel Framing and Metal Lath, product; "ViperStud Viper20".
 - d. Telling Industries, product; "Supreme Stud".
 - e. Super Stud Building Products Inc., product: "Edge EQ, EDS20P".
 - 3. Provide full 20 gage (0.0329 inch [0.84 mm] minimum thickness studs where required under the indicated UL assemblies to meet fire resistance ratings.
- C. Runners for metal studs: 'U-shaped' hemmed, hot-dip galvanized steel track conforming to ASTM C645, of gage and width to match respective stud sizes, or heavier gage per design requirements, having 1-1/4 inch leg, provided at tops and bottoms of all studs and at heads of all openings in stud partitions.
- D. Internal reinforcement for various stud conditions, and bracing as required: 10 gage, minimum, galvanized steel.
- E. Furnish cross bracing and knee bracing, as required to assure a completely rigid assembly on metal stud partitions and furred areas.

2.4 DEFLECTION TRACK ASSEMBLIES

- A. Non Fire-Rated Assemblies

1. Deflection Track: Manufacturer's standard top runner with extended flanges designed to prevent cracking of gypsum board applied to interior partitions resulting from deflection of the structure above fabricated from steel sheet complying with ASTM A653/A653M or ASTM A568/A568M. Thickness as indicated for studs, and width to accommodate depth of studs, and the following configuration.
 - a. Top runner with extended deep flanges that have one of the following: V-shaped offsets that compress, slots 1 inch on center that allow fasteners for stud attachment; 16 gage sliding clip assemblies attached to top track and clipped to stud, or double track systems as required to meet anticipated vertical movement.
2. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - a. Cemco Steel Framing and Metal Lath, product; "Slotted Track CST".
 - b. ClarkDietrich Building Systems, LLC, product; "Deep Leg Deflection Track System", "Fast Top Clip", or "DoubleTrack System".
 - c. Marino\Ware, Division of Ware Industries, product: "Slotted Track".
 - d. Metal-Lite, Inc., product: "Slotted Track".
 - e. Super Stud Building Products Inc., product: "ITTC 450 Top Track Deflection Clip".
 - f. Telling Industries, product; "Supreme Deep Leg Track".
 - g. The Steel Network, Inc., product; "VertiTrack VT", "VertiTrack VTD", or "VertiClip SLD".

2.5 CEILING AND SOFFIT SUSPENDED SCREWABLE T-GRID SYSTEM

- A. Hanger attachments: Galvanized steel hanger eyes, of size and capacity to safely sustain a live load of at least 150 pounds per hanger attachment.
- B. Hangers: Soft temper, pre-stretched galvanized carbon steel wire, conforming with ASTM A641/A641M, with a yield stress load of at least three times design load, but not less than 12 gage.
- C. Grid system for direct attachment of gypsum board for ceilings and soffits: Comprised of double web main furring tees, 1 1/2 inches high by 1-3/8 inches flange face by 0.020 inch thick; double web cross tees, 1 1/2 inches high by 15/16 inch flange face by 0.020 inch thick; 0.020 inch thick wall channels, with 1 1/2 inches interior web height; and all splices, clips, and related items. Provide Underwriters Laboratories Label fire-rated assemblies for locations requiring fire-rated ceilings and soffits.
 1. Armstrong products "Frameall Drywall Grid", and "Shortspan Drywall Framing System".
 2. Certainteed product "1-1/2" Drywall Suspension System"
 3. Rockfon product "Chicago Metallic Drywall Grid".
 4. USG, product "USG Drywall Suspension System", and "Direct Mount System"

2.6 ACCESSORIES

- A. Metal sheet plate blocking and bracing, where indicated: galvanized sheet 0.0312 inch thickness (20 gage).
- B. Fasteners:
 1. Expansion-type fasteners for securing vertical concrete and masonry surfaces.

2. Concrete stub nails for securing runners to concrete.
 3. N^o.7 by 7/16 inch Pan head self-drilling screw to attach metal framing components.
- C. Reinforcing plates for sheet metal blocking (in lieu of rated wood blocking, at Contractor's option): 20 gage cold rolled sheet steel, provide minimum 6 inch width, or as otherwise indicated on the drawings.

PART 3 - PART 3 – EXECUTION

3.1 INSTALLATION, QUALITY STANDARDS

- A. General: Perform erection procedures for the various gypsum board system conditions, except as otherwise specified, as set forth in GA 201, GA 206, the written instructions of gypsum board manufacturer, together with the additional requirements specified herein and as indicated on the Drawings.
- B. Wherever fire-resistive rated assemblies are indicated on the Drawings, erect gypsum board systems in strict accordance with the manufacturers' UL listed test constructions for the required fire rating on each specific assembly.

3.2 INSTALLATION OF FURRING

- A. Install metal furring channel horizontally, with channels spaced not more than 16-inches centers, and attaching the channels to the masonry or concrete substrates with expansion type fasteners spaced not more than 8 inches on centers. Shim beneath channels as needed to ensure that a uniform receiving plane is maintained throughout.

3.3 INSTALLATION OF PARTITION FRAMING, GENERAL

- A. Install metal runners at floor and ceiling to structural elements with suitable fasteners located 2 inches from each end and intermediate fasteners spaced no greater than 24 inches.
- B. Install metal stud framing with open side facing in same direction, engaging floor and ceiling runners.
 1. Stud spacing:
 - a. Typical: 16 inches on-center.
 - b. For tile backing board substrate to receive tile or stone finishes: 16 inches on-center.
 2. When necessary to splice studs, nest stud with 8 inch overlap and screw studs together with screws on both flanges.
 3. Where studs are installed directly to exterior masonry walls, install asphalt felt between stud and wall.
- C. Install studs in direct contact with all door and window frame jambs, abutting partitions, partition corners and existing construction elements; screw fasten with screw through both flanges of studs and track, top and bottom.

- D. Securely anchor studs to jamb and head anchors of steel door frames. Over head of frames and openings in partitions, install a horizontal section of runner with a web flange bent at each end, horizontally and secure to strut studs with two screws in each bent web. Provide cripple studs over wall openings.
- E. Where horizontal studs are used for wall reinforcing or framing, cut pieces of stud and install horizontally between vertical studs. Cope horizontal studs to fit between flanges of vertical studs. Bend ends of horizontal studs or install clip angles in order to secure by screwing to vertical studs.
- F. Furnish and install additional cross bracing and knee bracing and other framing elements, as required to assure a completely rigid assembly on metal stud partitions and furred areas, whether or not such bracing has been indicated on the Drawings, and for proper receipt of items which will be attached to partition surfaces.

3.4 INSTALLATION OF DEFLECTION TRACK

- A. Isolate interior metal stud framing and shaft wall framing from building structure to prevent transfer of loading imposed by structural movement due to deflection.
 - 1. Install deflection track top runner in accordance with manufacturer's instructions and as required to attain lateral support and avoid axial loading.
 - 2. Install fire-rated deflection track top runner in accordance with manufacturer's instructions at top of fire-rated, corridor and smoke partitions.

3.5 INSTALLATION OF REINFORCING PLATE BLOCKING

- A. At Contractor's option in lieu of specified fire-resistance treated wood blocking. Install steel reinforcing plates in partitions and furred walls for the support of wall mounted objects as follows:
 - 1. Wherever such reinforcing plates are indicated on the drawings.
 - 2. In lieu of scheduled wood blocking, except at door frames.
 - 3. In locations where wall bumpers are to be installed for the protection of wall surfaces from swinging doors.
 - 4. All wall mounted casework locations.
 - 5. All wall mounted acoustical room components.
- B. Secure gage sheet metal reinforcing plates to steel studs with 1-1/4", Type "S" bugle head screws.

3.6 INSTALLATION - CEILING SUSPENSION SYSTEM

- A. Coordinate layout and installation of suspension system components for suspended ceilings with other work supported by, or penetrating work of this section. Re-adjust ceiling suspension system, prior to the installation of the gypsum board and after installation of mechanical and electrical equipment and fixtures by the respective trades.
 - 1. Incorporate specified acoustical accessories as indicated on Drawings, as specified herein, and as recommended under Appendix A – Acoustics Review.
- B. Install all components of concealed grid system in accordance with the manufacturer's instructions, with current ASTM C636 requirements, with design and installation of

suspended grid system safely sustaining a membrane loading of at least 7.9 pounds per square foot.

- C. Install hangers not more than 24 inches on centers over locations of main tee members. Install hanger wires to hanger attachment with triple twists. Install additional wires as required to provide support for main tees, at intervals not exceeding four feet, wherever main tees must be interrupted in order to install other work and at all other locations as may be directed by the Architect.
- D. Install main tees parallel to long dimension of the area, at spacing not to exceed 48 inches on-center. Secure with hanger wire as the work progresses. Install cross tees as recommended by the system manufacturer, except spacing shall not exceed 16 inches on-center.

3.7 TOLERANCES

- A. Install partition and ceiling framing and furring with a maximum variation from true flatness of 1/8 inch per 10 feet, noncumulative.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. The work of this Section consists of gypsum board (drywall) and trim finishes for partitions, ceilings, and soffits, where shown on the Drawings, as specified herein, and as required for a complete and proper installation. Work includes, but is not limited to the following scope.
- B. Patch all existing gypsum board finishes disturbed by new construction.
 - 1. Patch cracks, holes and defects in existing gypsum wall-board surfaces which are to remain and which are indicated or as additional required by field conditions requiring a painted or applied wall-covering finish.
- C. Furnish and install:
 - 1. Taped, compounded and sanded gypsum board finishes.
 - 2. Tile backer board at granite.
 - 3. All trim and accessory components related to gypsum board work.
 - 4. Acoustical joint sealant and backing at perimeter of gypsum board partitions.
- D. Install access panels occurring in gypsum board work furnished by Section 08 31 00 - ACCESS DOORS AND PANELS, and by trades requiring the same.

1.3 RELATED REQUIREMENTS

- A. Section 01 73 00 - EXECUTION: Waste Management and Recycling during Final Cleaning.
- B. Section 02 41 19 - SELECTIVE DEMOLITION: Removal of existing finishes, partitions and walls as indicated in the Drawings.
- C. Section 06 10 00 - ROUGH CARPENTRY: Supplemental fire-resistant treated wood blocking supporting gypsum board.
- D. Section 09 22 16 - NON-STRUCTURAL METAL FRAMING:
 - 1. Non-load bearing partition, ceiling and soffit framing and furring.
 - 2. Deflection track assemblies at tops of metal stud partitions.
- E. Section 09 51 00 - ACOUSTICAL CEILINGS: Suspended acoustical tile ceilings.

- F. Section 09 91 00 - PAINTING: Applied finish coatings.
- G. Division 21 - FIRE SUPPRESSION: Sprinkler heads in ceiling system.
- H. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING: Supply and return air registers.
- I. Division 26 - ELECTRICAL: Independent hangers for suspended lighting fixtures.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 - 1. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
 - 2. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
 - 3. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.
 - 4. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - 5. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - 6. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - 7. ASTM C1278/C1278M - Standard Specification for Fiber-Reinforced Gypsum Panel.
 - 8. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
 - 9. ASTM C1629/C1629M - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.
 - 10. ASTM C1766 - Standard Specification for Factory-Laminated Gypsum Panel Products.
 - 11. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 12. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - 13. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 14. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
 - 15. GA 220 - Recommended Specifications for Gypsum Board Winter Related Job Problems.
 - 16. GA 600 - Fire Resistance and Sound Control Design Manual.
 - 17. The Gypsum Construction Handbook, (USG), Seventh Edition.
 - 18. UL - Fire Resistance Directory.
 - 19. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
 - 20. All applicable federal, state and municipal codes, laws and regulations regarding flammability and smoke generation of interior finishes.

- B. Inclusionary References: The following reference materials are hereby made a part of this Section by reference thereto:
 - 1. GA 201 - Gypsum Board for Walls and Ceilings.
 - 2. GA 214 - Recommended Specifications for Levels of Gypsum Board Finish, Glass Mat and Fiber-Reinforced Gypsum Panels.
 - 3. GA 216 - Recommended Specifications for the Application and Finishing of Gypsum Board.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. General: Coordinate the work of this Section with the respective trades responsible for installing interfacing and adjoining work for proper sequence of installation, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.
 - 2. Work of this Section shall be closely coordinated with the work of Section 09 22 16 - NON-STRUCTURAL METAL FRAMING, to assure the steady progress of the Contract.
- B. Sequencing: Do not install gypsum board until all pipes, ducts, conduits, and other such items which are to be enclosed thereby, have been permanently installed, inspected and approved.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.
 - 2. Shop Drawings:
 - a. Details of any special conditions associated with fireproofing.
 - b. Mark-up a set of blackline interior elevations indicate corrections to grid layout and provide dimensioning showing locations of all proposed control joints and expansion joints.
 - c. Provide interior elevation drawings for interior elevations which are not included as part of the Contract Drawing set.

1.7 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.
- B. Sole Source: Obtain products required for the Work of this Section from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum board.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:

1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
2. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.

B. Storage and Handling Requirements:

1. Store materials inside, under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes.
 - a. Neatly stack board materials flat to prevent sagging.
2. Handle board materials so to prevent damage to edges, ends and surfaces.
3. Protect trim, accessories and corner beads from being bent or damaged.

1.9 SITE CONDITIONS

- A. Environmental Conditions: In accordance with GA 216, maintain minimum ambient temperature of 50 degrees Fahrenheit 48 hours before, during taping and compounding, and until completely dry thereafter.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
1. Gypsum board products:
 - a. United States Gypsum Company, Chicago IL. (USG).
 - b. National Gypsum Company, Charlotte NC. (Gold Bond and ProForm Brands).
 - c. G-P Gypsum Corporation, Atlanta GA.
 - d. CertainTeed Saint-Gobain, Malvern PA.
 2. Joint sealants:
 - a. Tremco, Beachwood OH.
 - b. Pecora Corporation, Harleysville PA.
 - c. Owens Corning, Toledo OH.
 - d. Specified Technologies, Inc. (STI), Somerville NJ.
- B. The design and details as shown on the Drawings and the model numbers specified herein are to establish the standards of design and quality and not to limit competition.

2.2 DESCRIPTION

- A. Regulatory Requirements
1. Fire resistance ratings: Where gypsum board systems with fire-resistance ratings are indicated, provide materials and assemblies of the rating required, tested per ASTM E119, which are identical to those indicated by reference to Gypsum Association file numbers in "Fire Resistance Design Manual" or to design designation in the Underwriters Laboratories "Fire Resistance Directory" or in listing of other testing

agencies acceptable to authorities having jurisdiction and to the Owners' insurance underwriters.

2. Seismic Compliance: Nonstructural components that are permanently attached to structures and their support attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance to local jurisdiction.

B. Sustainability Requirements:

1. Gypsum Board Recycled Content: Minimum 10 percent post-consumer recycled content, or minimum 40 percent pre-consumer recycled content at contractor's option.

2.3 BOARD MATERIALS

- A. Non-rated and Fire rated gypsum board (for wall fire resistant ratings 120 minutes and less): UL fire resistance rated, ASTM C1396 'Type X' board, 5/8 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges.

1. Acceptable products include the following, or approved equal:
 - a. USG Sheetrock brand "Firecode Core"
 - b. National Gypsum Company, Gold Bond brand product "Fireshield Gypsum Board".
 - c. G-P Gypsum Corporation product, "ToughRock Fireguard".
 - d. CertainTeed Saint-Gobain, product "Type X Drywall".

- B. Sag-resistant gypsum board ceiling panels: NON-RATED 1/2 inch thick, 48 inch width, of lengths to minimize end joints, with tapered edges, conforming to ASTM C1396.

1. Acceptable products include the following or approved equal:
 - a. USG Sheetrock brand product "Ultralight Panels Mold Tough".
 - b. National Gypsum Company, Gold Bond brand product "High Strength Ceiling Board".
 - c. G-P Gypsum Corporation product, "ToughRock CD Ceiling Board".
 - d. CertainTeed Saint-Gobain, product "Easi-Lite Lightweight Interior Ceiling Drywall".
2. At fire-resistant rated ceilings, provide 5/8 inch thick fire-rated gypsum board as specified herein.

2.4 TRIM AND EDGE COMPONENTS

- A. Structural laminate corner and edge trim:

1. Specified manufacturer: To establish a level of strength, quality and visual characteristics desired, Drawings and Specifications are based on visual characteristics desired, Drawings and Specifications are based on CertainTeed Corporation, Malvern PA, product: "NoCoat Structural Laminate (SLAM)".
2. Provide tapered high-strength co-polymer core, joint tape, and formulated surface paper composite trim in shapes and sizes required by gypsum board corners, edges, and end conditions encountered; including:
 - a. Inside corners.
 - b. Outside corners.
 - c. "L" shaped trim.
 - d. Flexible Outside corners.
 - e. Multi-directional corner caps.

2.5 ACCESSORIES

A. Tapes and compound:

1. Joint tape (at paper-faced gypsum): Nominal 2 inch wide, high strength, cross-fibered paper drywall tape.
2. Joint tape (at fiberglass faced gypsum): Nominal 2 inch wide, self adhering (adhesive backed), fiberglass mesh tape.
3. Joint Compound for setting fiberglass joint tape:
 - a. CertainTeed Saint-Gobain, Malvern PA., product "ProRock Moisture and Mold Resistant 90".
 - b. Georgia Pacific Gypsum LCC., Pittsburgh PA, product "Densarmor Cote"
 - c. CTS Cement Manufacturing Corporation, Cypress CA., product "Rapid Set OnePass".
4. Joint Compound for setting paper joint tape: 'Speed-setting type compound', field mixed.
 - a. Acceptable products, or approved equal:
 - 1) USG product "Durabond 20".
 - 2) ProForm Brand product "ProForm QuickSet 20".
 - 3) Georgia Pacific Gypsum LCC, product "ToughRock All-Purpose Dry Mix"
5. Joint Compound for finishing: field mixed joint compound or factory pre-mixed compound.
 - a. Field-mixed compounds: acceptable products, or approved equal:
 - 1) USG product "Durabond 90".
 - 2) ProForm Brand product "ProForm QuickSet 90".
 - 3) Georgia Pacific Gypsum LCC, product "ToughRock Setting Compound 90".
 - b. Factory pre-mixed compounds: acceptable products, or approved equal:
 - 1) USG product "Ready-Mixed Joint Compound".
 - 2) ProForm Brand product "ProForm All Purpose Compound".
 - 3) Georgia Pacific Gypsum LCC, product "ToughRock Ready Mix All-PurposeCompound"

B. Fasteners (interior board systems):

1. Type S, bugle head screws complying with ASTM C1002, for applying gypsum board to metal framing, ceiling grid system, and furring channels.
 - a. Not less than 1 inch long for single layer gypsum board.
 - b. Not less than 1-5/8 inch [41mm] long for double-layer gypsum board.
2. Type S-12, fine thread self-drilling screws complying with ASTM C1002, for applying gypsum board to light gage metal framing.
 - a. Not less than 1 inch [25 mm] long for 1/2 inch thick single layer gypsum board.
 - b. Not less than 1-1/4 inch [31mm] long for 5/8 inch thick single layer gypsum board.
 - c. Not less than 1-5/8 inch [41mm] long for double-layer gypsum board,

C. Laminating adhesive: Ready mix joint compounds as specified herein above.

D. Joint Sealers (Acoustical Sealant): One component acrylic latex, permanently elastic, non-staining, non-shrinking, non-migrating and paintable.

1. Acceptable products include the following, or approved equal.
 - a. Hilti Inc., Tulsa OK., product: CP506 - Smoke and Acoustic Sealant."
 - b. Owens Corning, product: "QuietZone Acoustical Sealant."
 - c. Pecora Corporation, Harleysville PA.; product: "AC-20 FTR".

- d. Specified Technologies, Inc. (STI), product: "Smoke 'N" Sound Acoustical Sealant".
- e. Tremco, Beachwood OH.; product: "Acoustical Sealant".

2.6 SOURCE QUALITY CONTROL

- A. Obtain gypsum board and finishing products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

PART 3 - PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that all items which are to be enclosed by Work of this Section, have been permanently installed, inspected and approved.
- B. Inspect framing and other substrates; verify that they are in proper condition to receive the work of this Section.
- C. Beginning of installation means acceptance of existing substrate and site conditions.

3.2 PREPARATION

- A. During the operation of gypsum board work, protect all wood, metal, glass, flooring, and other finished materials against undue soilage and damage by the exercise of reasonable care and precautions. Repair or replace any work so damaged and soiled.

3.3 INSTALLATION - GENERAL

- A. General: Perform erection procedures for the various gypsum board system conditions, except as otherwise specified, as set forth in GA 201, GA 216, GA 220, GA 600, and the written instructions of gypsum board manufacturer, together with the additional requirements specified herein and as indicated on the Drawings.
- B. Where fire-resistive rated assemblies are indicated, erect gypsum board systems in strict accordance with the manufacturers' UL listed test constructions for the required fire rating on each specific assembly.
 - 1. At intersections of dissimilar wall types, gypsum wallboard assembly of the higher fire resistant rating is to run through the intersection maintaining required fire separation.
 - 2. Fire rated construction shall be continuous from floor deck to underside of floor deck above or to underside of roof deck as applicable, and as detailed.
 - 3. Shaft wall construction shall be continuous from bottom of shaft wall to top of shaft wall without interruption, except where otherwise detailed on Drawings.
- C. Install specified control joints where indicated on Drawings and where run of partitions, or furred surfaces exceeds 30 feet. Show locations of all control joints on shop drawings.
 - 1. Locate control joints at corners of head frames of doors.

2. Run vertical control joints continuously to top of partition, shaft wall or furred area, as applicable.

3.4 INSTALLATION OF GYPSUM BOARD

- A. Screw fasten only, gypsum board to framing and furring, with ends and edges occurring over firm bearing. At all door jambs screw fasten gypsum panels 8 inches on center to both box studs
 1. Erect single layer fire-resistance rated gypsum board vertically.
 2. Erect standard and moisture resistant layer board in most economical direction.
 3. Erect ceiling and soffit gypsum boards to meet UL requirements, where applicable, stagger end joints over supports. Secure gypsum board with fasteners inserted through ceiling buttons; anchor fasteners directly to framing or suspended support system.
- B. Wherever items penetrate the gypsum board surfaces, use extra care in cutting the gypsum board to ensure a uniformly-dimensioned joint between the penetrating item and the gypsum board, and fill joints with specified sealant material. Verify the expected deflection factor of the penetrating members, and cut the gypsum accordingly, to prevent damage thereto from the deflecting members.

3.5 INSTALLATION OF STRUCTURAL LAMINATE TRIM

- A. Application: Using the taping knife, apply joint compound to drywall, slightly beyond where the edge of the corner will be or use a hopper to fill the bead. Place corner trim on wall, ensuring it is aligned tightly to the ceiling. Press into position. Use the roller to embed the trim. Or embed using even pressure, running the knife over it at a 45° angle. Use the taping knife to skim over the edge with joint compound. Let dry thoroughly. Use the wider finishing knife to skim over the edge again. Let dry thoroughly. Lightly sand ready for field-applied paint.

3.6 PATCHING EXISTING GYPSUM WALLBOARD

- A. Patch existing gypsum wallboard surfaces disturbed by new construction.
- B. All patching material shall be flush with, and match, existing surfaces to be patched.
- C. Install metal framing necessary for the support of new wallboard. \
- D. Finish new wallboard as specified. Finish shall match surrounding surfaces for texture.

3.7 APPLICATION OF ACOUSTICAL SEALANT

- A. General: Install sealant and backing in accordance with the recommendations of ASTM C919 and sealant manufacturer's recommendations.
 1. Perform preparation in accordance with ASTM C790. Thoroughly clean all joints, removing all loose mortar, oil, grease, dust, frost, and other foreign materials that will prevent proper adhesion of primers and sealant materials.

2. If so recommended and furnished by the specific sealant manufacturer, apply primer to all joint surfaces, taking care not to stain adjacent surfaces.
- B. Seal all partition perimeters prior to taping or compounding. Where perimeters are edged with metal trim, apply sealant and backing material between trim and dissimilar material.
- C. Seal all penetrations in partition types designated for "acoustical" insulation. Penetrations to receive sealant include electrical boxes, plumbing, heating and air conditioning ducts, telephone, intercom hookups and similar items.
 1. Install joint bead back-up in all joints in excess of 5/8-inch depth, and joints that have no back-up therein, placing the joint bead in the joint in a manner that will assure a constant depth 1/8 inch greater than the sealant and caulking material depth tolerances.
 - a. Set beads into joints continuously, by slightly stretching during placement, to permit compression against sides of joint, without surface wrinkles or buckles.
 - b. Do not stretch back-up material into joints.
 - c. Install bond breaker wherever recommended by the sealant manufacturer to prevent bond of the sealant to surfaces where such bond might impair the Work.
 2. Apply sealant in continuous beads without open joints, voids or air pockets
 - a. The depth of sealant and caulking materials shall be in accordance with manufacturer's recommendations for the specific joint function, but in no case exceed 1/2-inch in depth, nor less than 1/4-inch, regardless of the joint width.
 3. Remove the temporary masking tape immediately after tooling, and before the sealant or caulking material has taken initial set.

3.8 APPLICATION OF JOINT TREATMENT

- A. Install joint tape at all joints where gypsum boards abut and where boards form internal corners, whether or not such joints will be concealed from view.
- B. Apply compound to all joints, edges, corners, fastener head depressions and abrasions in the surfaces, whether or not such conditions will be concealed from view. Sand completely smooth all compound surfaces, which will be exposed to view, and leave ready to receive applied coatings or finish.
- C. Provide the minimum levels of gypsum board finishes as defined by the Gypsum Association recommended specifications GA-214 and GA-216, per the following:
 1. At areas hidden from view, except as otherwise specified: Level 1.
 2. At areas hidden from view, requiring a fire rating: Level 1.
 3. At concealed plenum spaces above ceilings attic spaces: Level 1.
 4. At non-occupied spaces (i.e. attics): Level 1.
 5. At tile backer surfaces scheduled to receive tile: Level 2.
 6. At surfaces scheduled to receive wallcoverings: Level 4.
 7. At surfaces scheduled to receive painted finishes: Level 4, except at each of the following conditions, provide Level 5 finish:
 - a. At surfaces scheduled to receive painted finishes with egg-shell, semi-gloss and gloss sheen: Level 5.
 - b. Boards having glass-fiber facing scheduled to receive a painted finish.
 - c. Wall surfaces with a light cove at the ceiling level.
 - d. Additional locations as noted on Drawings.

3.9 TOLERANCES

- A. Maximum variation for gypsum board partitions and ceilings from true flatness: 1/8 inch per 10 feet, noncumulative.

3.10 CLEANING

- A. Daily clean work areas by sweeping and disposing of debris, scraps, and deposits of compound and gypsum fill.
- B. After completion of the work of this Section, remove equipment, and clean all wall, partition, and floor areas free from deposits of gypsum fill, and other materials installed under this Section.

END OF SECTION 092900

SECTION 095100 - ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. General: The work of this Section consists of acoustical ceiling systems where shown on the Drawings, as specified herein, and as required for a complete and proper installation.
- B. Patching acoustical tile ceilings to match existing ceilings where disturbed by demolition and Work of this Contract. This Section includes both concealed and exposed spline ceilings, suspension systems and associated edge moldings.
 - 1. In rooms where existing partitions have been removed, instead of patching, the Contractor shall replace the entire ceiling and suspension system in the room with new.

1.3 RELATED REQUIREMENTS

- A. Section 02 41 19 - SELECTIVE DEMOLITION: Demolition of work abutting existing ceilings and demolition of existing ceilings for new construction.
- B. Section 09 22 16 - NON-STRUCTURAL METAL FRAMING: Metal ceiling and soffit framing for gypsum board, including hanger attachments, wire hangers, and screwable metal tee grid system.
- C. Section 09 29 00 - GYPSUM BOARD: Suspended drywall construction ceilings and soffits.
- D. Section 07 92 00 - JOINT SEALANTS: Sealant at gaps between new acoustical ceiling edge angles and all irregular walls.
- E. Division 21 - FIRE PROTECTION: Sprinkler heads in ceiling system.
- F. Division 23 - MECHANICAL: Air diffusion devices in ceiling.
- G. Division 26 - ELECTRICAL:
 - 1. Fire alarm and smoke detection equipment mounted in ceiling system.
 - 2. Light fixtures and independent hangers for suspended fixtures.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
1. ASTM A641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 2. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 3. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable.
 4. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method "UL Classified".
 5. ASTM C523 (Withdrawn Standard) - Method of Test for Light reflectance of Acoustical Material by the Integrating Sphere Reflectometer.
 6. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
 7. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 8. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
 9. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Material "UL Classified"
 10. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 11. ASTM E413 - Classification for Rating Sound Insulation.
 12. ASTM E580 - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.
 13. ASTM E1111 - Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
 14. ASTM E1264 - Standard Classification of Acoustical Ceiling Products.
 15. ASTM E1414/E1414M - Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum. "UL Classified".
 16. UL Fire Resistance Directory and Building Material Directory.
 17. All applicable federal, state and municipal codes, laws and regulations regarding flammability and smoke generation of interior finishes.
- B. General References The following reference materials are hereby made a part of this Section by reference thereto:
1. CISCA (Ceilings and Interior Systems Contractors Association) - Acoustical Ceilings: Use and Practice.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate the work of this Section with the respective trades responsible for installing interfacing and adjoining work for proper sequence of installation, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

- B. Sequencing:
 - 1. Field Measurements
 - a. Take field measurements before preparation of shop drawings and fabrication, where possible, to ensure proper fitting of Work.
 - b. Allow for adjustments within specified tolerances wherever taking of field measurements before fabrication might delay Work.
 - 2. Coordinate the work of this Section with the respective trades responsible for installing interfacing work, to allow work which will be concealed by the ceilings to be completed prior to commencing installing the ceilings in such locations.
- C. Scheduling:
 - 1. Install acoustical units after interior wet work is dry.
 - 2. Schedule work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated and overhead work is completed, tested and approved.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties for each item furnished hereunder.
 - 2. Shop drawings: Mark-up a set of blackline reflected ceiling plans indicate corrections to grid layout and provide dimensioning, show interrelation of mechanical and electrical items related to the ceiling systems.
 - 3. Verification Samples:
 - a. 12 by 12 inch samples of acoustical units, illustrating material and finish.
 - b. Full size samples of existing acoustical units for comparison with supplied materials.
 - c. 12 inch long samples of existing exposed spline suspension system components including runners and edge trim for comparison with supplied materials.
- B. Closeout Submittals: Submit the following under provisions of Section 01 78 23 - OPERATION AND MAINTENANCE DATA.
 - 1. Bonds and Warranty Documentation:
 - a. Manufacturer's Warranties and guarantees as specified elsewhere herein this Section.
- C. Maintenance Material Submittals: Submit the following under provisions of Section 01 78 23 - OPERATION AND MAINTENANCE DATA. Clearly label and package extra materials securely to prevent damage. Deliver to the Owner extra ceiling tiles and suspension framing for future repairs and maintenance, from the same manufacturer as those installed, in the following amounts.
 - 1. Acoustical ceiling tiles: 3 percent of each type and color, installed, but not less than 1 case of ceiling tile.
 - 2. Acoustical ceiling grid: 3 percent of each type and color, installed, but not less than 24 linear feet.
 - 3. Provide to the Owner, all extra salvaged ceiling panel and suspension components which have not been utilized in the Work.

1.7 QUALITY ASSURANCE

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.
- B. Sole Source: Obtain products required for the Work of this Section from a single manufacturer, or from manufacturers recommended by the prime manufacturer of acoustical ceiling panels.
- C. Qualifications:
 - 1. Installer/Applicator: Minimum of 3 years documented experience demonstrating previously successful work of the type specified herein, and approved by product manufacturer.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Do not deliver items to the site, until all specified submittals have been submitted to, and approved by, the Architect.
 - 2. Do not deliver acoustical ceiling panels to the project until all concrete, masonry, plaster and other wet work has been completed and dry.
 - 3. Deliver acoustical ceiling panels in original, unopened packages and store protected in a fully enclosed space.
- B. Storage and Handling Requirements:
 - 1. Protect materials from damage due to moisture, direct sunlight, excessive temperatures, surface contamination, corrosion and damage from construction operations and other causes.
- C. Damaged material: Remove any damaged or contaminated materials from job site immediately, including materials in broken packages, packages containing water marks, or show other evidence of damage, unless Architect specifically authorizes correction thereof and usage on project.

1.9 SITE CONDITIONS

- A. Maintain uniform temperature of minimum of 60 degrees Fahrenheit and humidity of 20 to 40 percent prior to, during, and after installation.

1.10 WARRANTY

- A. General: Submit warranties under provisions of Section 01 77 00 - CLOSEOUT PROCEDURES.
- B. Manufacturer Warranty:
 - 1. In addition to the specific guarantee requirements of the GENERAL CONDITIONS and SUPPLEMENTAL GENERAL CONDITIONS, the Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other

liabilities which the Contractor may have by law or other provisions of the Contract Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - 1. Acoustical ceiling panels:
 - a. Armstrong World Industries, Inc., Lancaster PA. (Armstrong).
 - b. Certainteed Corporation, Valley Forge, PA. (Certainteed).
 - c. Rockfon North America., Chicago IL. (Rockfon).
 - d. USG Interiors Inc., Chicago IL. (USG).
 - 2. Suspension systems:
 - a. Armstrong World Industries, Inc., Lancaster PA. (Armstrong)
 - b. Certainteed Corporation, Valley Forge, PA. (Certainteed).
 - c. Rockfon North America (Chicago Metallic Brand), Chicago IL.
 - d. USG Interiors Inc., (Donn Brand) Chicago IL.

2.2 DESCRIPTION

- A. General Description: Manufacturer's standard panels of configuration indicated that comply with ASTM E1264 classifications as designated by types, patterns, acoustical ratings, and light reflectance as indicated.
- B. Sustainability Requirements:
 - 1. Recycled content of acoustical ceiling panels: Use maximum available percentage of materials by weight. Products incorporated into the work shall contain not less than 50 percent of recycled content.
 - 2. Recycled content of steel used in grid framing: Use maximum available percentage of recycled steel. Steel framing products incorporated into the work shall contain not less than 25 percent of recycled steel.

2.3 PERFORMANCE/DESIGN CRITERIA

- A. Fire Resistance: Where fire-resistance ratings are indicated or required by authorities having jurisdiction, provide materials and construction which are identical to assemblies whose fire-resistance ratings have been tested in compliance with ASTM E119 by independent agencies acceptable to the Architect and authorities having jurisdiction.
- B. Surface Burning Characteristics: Provide UL Classified material whose surface burning characteristics, when tested in compliance with ASTM E84 are Class A.
- C. Where the following ratings are specified, provide materials and construction which are identical to those tested by Underwriters Laboratories or equivalent independent testing agencies acceptable to the Architect.

1. Noise Reduction Coefficient (NRC): Ratings have been tested in compliance with ASTM C423.
2. Ceiling Attenuation Class (CAC) : Ratings have been tested in accordance with ASTM E1414.
3. Light Reflectance (LR): Ratings has been tested in compliance with ASTM C523.

2.4 ACOUSTICAL CEILING PANELS

- A. Typical Ceiling Tiles:
 1. Panel size: 24 by 24 inch by minimum 1 inch thick.
 2. Panel edge: Square tegular edge.
 3. Description: ASTM E-1264 Type A, Form 2.2, Pattern G, Class A flame spread, wet formed mineral fiber, smooth textured panel, non-combustible, vinyl latex paint finish.
 4. Color: White.
 5. Minimum light reflectance: LR 0.85.
 6. Acoustical characteristics:
 - a. NRC: 0.85.
 - b. CAC: 35.
 7. Acceptable products, or approved equal:
 8. Basis of Design: Armstrong product "Calla" product number 2822.
 - a. Certainteed product "Symphony F".
 - b. USG product "Mars High-NRC".
- B. Ceiling Tile to match existing (for infill and repairs): Conforming to ASTM E1264 Class A ceiling panel with texture, finish and color to closely match existing, Submit full size samples to Architect for verification of match.

2.5 CEILING GRIDS

- A. Typical Ceiling Grid, and ceiling grid to match existing 15/16 inch exposed tee grid: Hot dipped galvanized and finished in baked polyester paint, white color matching ceiling panel; acceptable products include the following or approved equal:
 1. Armstrong; 15/16" Prelude XL Exposed Tee System.
 2. Chicago Metallic; 200 Snap-Grid System.
 3. USG; DX Series.

2.6 ACCESSORIES

- A. Edge moldings: Standard edge trim: Grid system manufacturer's standard L-shape edge trim compatible with exposed grid system and color matched.
 1. Armstrong; Model 7800.
 2. Chicago Metallic; Model 1430.
 3. USG; Model M7.
- B. Hanger attachments: Of the most appropriate types for the specific receiving surfaces.
- C. Hangers: ASTM A641 Soft temper, pre-stretched galvanized carbon steel wire, with a yield stress of at least 3 times design load, but not less than 12 gage.
- D. Supplementary carrying channels: 2 inches deep, 16 gage cold-rolled channels, galvanized.

- E. Supplementary support channels: 3/4 inches deep, 16 gage cold-rolled channels, galvanized.
- F. Joint Sealer: Type AA, as specified under Section 07 92 00 - Joint Sealants.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Inspect all surfaces and verify that they are in proper condition to receive the work of this Section.
 - 1. Beginning of installation means acceptance of existing substrate and project conditions.

3.2 PREPARATION

- A. Protection of In-situ Conditions: During the operation of work of this Section, protect existing finishes against undue soilage and damage by the exercise of reasonable care and precautions. Clean, or repair all existing materials which are soiled or otherwise damaged by Work of this Section, to match original profiles and finishes. Existing materials and finishes which cannot be cleaned, or repaired shall be removed and replaced with new work to match existing.
- B. Surface Preparation:
 - 1. Carefully examine all receiving surfaces, to which attachments will be made hereunder, and determine the most practical way of making such attachments. Request Architect's approval of any attachment method which differs from that indicated on the approved shop drawings before proceeding with installation.
 - 2. Permit acoustical ceiling tile to reach room temperature and a stabilized moisture content prior to installation.
- C. Existing Acoustical Ceilings to be Salvaged or Patched:
 - 1. Where existing ceilings are disturbed by the work of this Contract and are not scheduled to be replaced with new ceilings; remove ceilings including suspension system, as required. Remove only that portion of the acoustical materials and suspension system as is necessary for the required work. Coordinate with all trades to determine the extent of area to be removed.
 - 2. Store materials in a neat manner and protect from damage and after all related work has been completed, reinstall the existing ceiling materials.
 - 3. Where acoustical panels, acoustical tiles and suspension system have been removed because of new construction and cannot be reinstalled, install new material to match existing. All materials to be used for patching and matching shall be approved by the Architect in advance of work.

3.3 INSTALLATION

- A. Locate system on room axis, leaving equal sized border units of not less than one-half tile width.

- B. Install all components of the suspended grid systems in accordance with the manufacturer's instructions, the approved shop drawings, conforming to ASTM C636 requirements. Ensure a deflection not to exceed 1/360 span of 48-inch simple span.
- C. Install specified edge moldings wherever ceilings intersect a wall or partition surface, and around all items having any dimension of 4 inches or more which penetrate the ceilings, including circular penetrations. Set moldings absolutely level, using as long lengths as practicable, and secure with fasteners recommended by manufacturer for the type of substrate.
 - 1. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
 - 2. Screw-attach moldings to substrate at intervals not over 16 inches on center. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.
- D. Install hanger attachments to overhead construction in accordance with the approved shop drawings, spacing the attachments not more than 48 inches on centers over location of each main tee member.
 - 1. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers to span the extra distance.
 - 2. Install hanger wire to attachments with triple twists.
- E. Install main tees parallel to the long dimension of each area, spacing the tees 48 inches on centers. Secure the bottom of hanger wires through slots in the main tee members and tie with triple twists. Level the main tees as the work progresses.
- F. Uniformly space the cross tees at 24 inches on centers, and secure the cross tees into the main tees as recommended by the system manufacturer.
- G. Provide sealant at gaps between new acoustical ceiling edge angles and all irregular walls.
- H. Fit acoustical ceiling tile units in place, free from damaged edges or other defects detrimental to appearance and function. Install acoustical ceiling tile level, in uniform plane, and free from twist, warp or dents.
 - 1. Field cut tegular type tile with a tegular reveal at all edge conditions.
 - 2. Where required by governmental agencies having jurisdiction, install retention clips, provide two clips per ceiling panel installed on opposite sides of panel.

3.4 TOLERANCES

- A. Maximum variation from flat and level surface: 1/8 inch in 10 feet.
- B. Maximum variation from plumb of grid members caused by eccentric loads: 2 degrees.

3.5 CLEANING

- A. Properly clean surfaces of panels and open grids free from dirt and handling marks. Wherever surfaces cannot be cleaned by normal methods or have defects, remove and replace with new components.

- B. Upon completion of the work of this Section in any given area, remove tools, equipment and all rubbish and debris from the work area; leave area in broom-clean condition.
- C. Clean work under provisions of Section 01 73 00 – EXECUTION.

3.6 PROTECTION

- A. Protect finished work under provisions of Section 01 50 00 - TEMPORARY FACILITIES AND CONTROLS.

END OF SECTION 095123

SECTION 09 65 19 – RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient Rubber Tile.
 - 2. Resilient Rubber Wall Base

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of product indicated.
- C. Product Schedule: For resilient products. Use same designations indicated on Drawings.

1.4 QUALITY ASSURANCE

- A. Installation Qualification: Contractors for floor covering installation should be experienced in managing commercial flooring projects and provide professional installers, qualified to install the various flooring materials specified. An installer is “qualified” if trained, or a certified by Tarkett or a certified INSTALL (International Standards & Training Alliance) resilient floor covering installer.
- B. Mockups: Provide resilient products with mockups specified in other Sections.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by Tarkett, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

1.6 PROJECT CONDITIONS

- A. Install resilient products after other finishing operations, including painting, have been completed.
- B. Maintain ambient temperatures within range recommended by Tarkett, but not less than 65 deg F (18 deg C) or more than 85 deg F (29 deg C) in spaces to receive resilient products during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- C. Maintain the ambient relative humidity between 40% and 60% during installation.
- D. Until Substantial Completion, maintain ambient temperatures within range recommended by Tarkett, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

PART 2 - PRODUCTS

2.1 RESILIENT SHEET FLOORING

Manufacturer:

Tarkett North America

30000 Aurora Rd.

Solon, Ohio 44139

Web: www.tarkettna.com

Phone:

(800) 899-8916

(440) 543-8916

2.2 TARKETT SOLID COLOR RUBBER TILE TEXTURES (R-01)

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Tarkett; Raised Round, or equal.
- B. Classification specify: ASTM F1344, Type I-A, homogeneous solid color rubber tile.
- C. Thickness/Wearlayer: 0.125 inch (3.17 mm).
- D. For size specify: 24 in. x 24 in. (61cm x 61 cm)
- E. Colors and Patterns: Black, raised round.
- F. Test data:
 - 1. Hardness (ASTM D2240): ≥ 85 Shore A
 - 2. Abrasion Resistance (ASTM D3389): Passes
 - 3. Thickness Tolerance (ASTM F386): Passes
 - 4. Resistance to Chemicals (ASTM F925): Passes
 - 5. Static Load Resistance (ASTM F970): 250 psi
 - 6. Resistance to Heat (ASTM F 1514): $\Delta E \leq 8$
 - 7. Size/Squareness Tolerance (ASTM F2055): Passes
 - 8. Dimensional Stability (ASTM F2199): Passes

9. Static Coefficient of Friction (ASTM D 2047): ≥ 0.8 SCOF
10. Flamability (ASTM E648, Critical Radiant Flux): Class 1 (≥ 0.45 W/cm²)
11. Limited Commercial Warranty: 5 years

2.3 RESILIENT TRADITIONAL VINYL WALL BASE (R-02)

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Tarkett Traditional Thermoplastic Vinyl Wall Base, or equal.
- B. Performance requirements meets ASTM F1861 Standard Specification for Resilient Vinyl Wall Base, Type TV, Group 1.
- C. For thickness, specify: 0.125" (3.17 mm)
- D. For type, specify: Coved
- E. For height, specify: 6" (15.24 cm)
- F. For 6" heights, specify length: 100' (30.48 m)
- G. For corners, specify: Inside and Outside Corners
- H. Color: Black
- I. Test Data:
 1. Flexibility, ASTM F137: Passes 1/4 inch mandrel
 2. Resistance to light, ASTM F1515: Passes
 3. Resistance to chemicals, ASTM F925: Passes
 4. ASTM E 648, Standard Test Method for Critical Radiant Flux of 0.45 watts/cm² or greater, Class 1.

2.4 WATERPROOFING MEMBRANE

- A. Schluter® -KERDI, or equal to work with rubber flooring.
 1. Description: 0.008" (8 mil) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides, which meets or exceeds the requirements of the "American national standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10," and is listed by cUPC®, and is evaluated by ICC-ES (see Report No. ESR-2467 and PMG 1204).
 2. Waterproofing seaming membrane: a. Provide Schluter® -KERDI-BAND Seams and Corners, or equal, material 0.004" (4 mil) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides.
 3. Waterproofing Accessories:
 - a. Provide Schluter® -KERD-SEAL pipe seals, or equal

2.5 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation.

- B. Adhesives: As recommended by Tarkett to meet site conditions, or as recommended by equal manufacturer
 - 1. Tarkett 965 Flooring and Tread Adhesive
 - 2. Tarkett 975 Two-Part Urethane Adhesive
 - 3. Tarkett 996 Two-Part Epoxy Adhesive
 - 4. Tarkett 901 SpraySmart Adhesive

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- B. 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.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION FOR RUBBER FLOORING

- A. Prepare substrates according to manufacturer's written instructions to ensure proper adhesion of Resilient Flooring.
 - 1. Prepare concrete substrates in accordance with ASTM F 710.
 - a. Concrete treads must be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitence, mold, mildew, and other foreign materials that may affect dissipation rate of moisture from the concrete, discoloration or adhesive bonding.
 - b. Mechanically remove contamination on the substrate that may cause damage to the resilient flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.
 - 2. Wood subfloors must be rigid, free of movement.
 - a. Single wood and tongue and groove subfloors should be covered with ¼" (6.4 mm) or ½" (12.7 mm) APA approved underlayment plywood.
 - b. Do not install over OSB (Oriented Strand Board), particle board, chipboard, lauan or composite type underlayments.
- B. Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are same temperature as the space where they are to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 PREPARATION FOR RUBBER WALL BASE

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient wall base.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- D. Vacuum clean substrates to be covered by resilient products immediately before installation.

3.4 WATERPROOFING MEMBRANE INSTALLATION

- A. Comply with manufacturer's written instructions for installing waterproofing membrane. Ensure that membrane is wrapped up walls a minimum of 4".

3.5 RESILIENT TILE FLOORING INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient tile flooring.
- B. Resilient Rubber Floor Tile:
 - 1. Install with manufacturer's recommended adhesive specified for the site conditions and follow adhesive label for proper use.
 - 2. Roll the flooring in both directions using a 100 pound three-section roller.

3.6 RESILIENT BASE INSTALLATION

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

3.7 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.



3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
 1. No traffic for 24 hours after installation.
 2. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
- D. Wait 72 hours after installation before performing initial cleaning.
- E. A regular maintenance program must be started after the initial cleaning.

END OF SECTION 096519

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

1.2 SUMMARY

- A. Section Includes: This Section consists of painting work where shown on the Drawings, as specified herein, and as required for a complete and proper installation. Painting work includes, but is not limited to the surface preparation and application of coated finishes, and subsequent touch-up, of interior and exterior items and surfaces as indicated on the Contract Drawings and as scheduled herein.
 - 1. Touch-up work includes touch-up painting after furniture installation and Owner's occupancy. Contractor shall include in its base bid price all costs for touch-up work involving 2 painters for 2 full working days on site.
 - 2. No attempt is made in this Section to list all surfaces, fixtures and equipment requiring painting on this project. It is the responsibility of the Subcontractor to determine for itself the scope and nature of the Work required for a complete installation from the information provided herein and in the Drawings.
- B. Surfaces and Materials: In general, without limiting the generality thereof, the following surfaces, fixtures and equipment require a painted finish:
 - 1. Existing, and patched partition and wall surfaces, ceilings and soffits, including all surfaces disrupted and repaired in the process of installing equipment, building systems and their components as part of the Work.
 - 2. New and existing doors and frames.
 - 3. New and existing wood trim.
 - 4. Exposed to view sprinkler piping.
 - 5. Exposed to view electrical conduit and raceways.
 - 6. Access panels and frames.
- C. DO NOT PAINT the following surfaces and materials.
 - 1. Concealed from view surfaces, except as indicated otherwise in the Contract Documents or as specified herein.
 - 2. Chrome or nickel plating, stainless steel, bronze, brass.
 - 3. Aluminum other than mill finished or factory primed.
 - 4. Factory finished mechanical and electrical equipment, pumps, machinery and similar items which occur in mechanical, storage or equipment rooms or areas.
 - 5. Factory finished materials, specialties, and accessories unless otherwise specified.
 - 6. Tile, terrazzo, resilient flooring, wood flooring, and other integrally finished floor, wall and ceiling finishes.

7. Prefinished millwork items.
8. Fire resistant testing and certification labels, code required labels, safety warning labels, performance rating plates, nomenclature plates, identification plates, and similar other labels.

1.3 RELATED REQUIREMENTS

- A. Section 02 41 19 - SELECTIVE DEMOLITION.
- B. Section 07 92 00 - JOINT SEALANTS: Requirements for sealant and backing materials.
- C. Section 09 29 00 - GYPSUM BOARD:
 1. Patching of existing gypsum board partitions, ceilings and soffits where required by demolition work.
 2. Gypsum board partitions, ceilings and soffits, including joint treatment and sanding where new construction is indicated.
- D. Division 22 - PLUMBING: Prefinished items such as plumbing fixtures, sprinkler heads, convectors, anemostates and similar surfaces and materials.
- E. Division 26 - ELECTRICAL: Prefinished items such as light fixtures, switch gear, electrical distribution cabinets and similar surfaces and materials.
- F. Respective sections: Factory-finishing of mechanical, plumbing, fire protection and electrical equipment.

1.4 REFERENCES

- A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. The standards referenced herein are included to establish recognized minimum quality only. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. Equivalent quality and testing standards will be acceptable, subject to their timely submission, review and acceptance by the Architect.
 1. ANSI/ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.
 2. ASTM D2016 - Test Method for Moisture Content of Wood.
 3. SSPC-Vis1 - Pictorial Surface Preparation Standards for Painting Steel Structures.
 4. SSPC-SP2 - Steel Structures Painting Manual, Volume 2, Systems and Specifications.
 5. All applicable federal, state and municipal codes, laws and regulations for flammability and smoke generation of interior finishes.
- B. Definitions:
 1. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials specified herein, whether used as prime, intermediate or finish coats.
 2. Sheen: Specular gloss readings in accordance with ASTM D52.
 - a. Flat: less than 5 (measured at 85 degrees).
 - b. Eggshell: 5 – 20 (measured at 60 degrees).
 - c. Satin: 15-35 (measured at 60 degrees).
 - d. Low Luster: 25 – 35 (measured at 60 degrees).

- e. Semi-Gloss: 30 -65 (measured at 60 degrees).
- f. Gloss: 65 or more (measured at 60 degrees).

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. General: The applicator of work specified herein is responsible to ensure that all paints, enamels, and coatings, proposed to be applied hereunder, are compatible with coatings used for shop-primed items and items which have been prime-coated under the work of other trades.
 - 2. Immediately notify the Architect in writing of conditions which may require a change in the specifications of this Section before proceeding with the work. Failure to do so, in a timely fashion, so as not to interfere with the schedule of work of this Contract, shall be construed as acceptance of the coatings specified. Perform all corrective measures, at no cost to the Owner, for any defects in the work, resulting from the use of such materials.
- B. Scheduling:
 - 1. Sequence painting work to ensure primers and painting is not applied until building is enclosed, sufficient heat is provided, all dust-generating activities have terminated, wet work is dry and cured, and work overhead is completed.
 - a. Painting work should be scheduled so as to minimize touch-ups. Interior painting is to be without flashmarks. Should flashmarks occur due to touch-ups, the Contractor shall be required to redo the entire surrounding wall surface.
 - b. Concrete, masonry, plaster, tile and marble setting and polishing and other wet work shall be completed and dry before commencement of painting work.
 - c. Finish flooring and ceiling work may be scheduled by Contractor to be completed after painting. In such cases, paint subcontractor is required to perform touch-ups as necessary following floor and ceiling installations, without additional cost to Owner.
- C. Do not order materials until all required schedules have been properly submitted, reviewed by the Contractor and Approved by Architect.

1.6 SUBMITTALS

- A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Literature: Manufacturer's product data sheets, specifications, performance data, physical properties, material compositions, and application instructions for all finishing products to be applied hereunder.
 - a. Include certification of data indicating Volatile Organic Compound (VOC) content of all paint materials.
 - 2. Samples:
 - a. Manufacturer's color selector for custom mixed colors for Architect's color scheduling.
 - b. Opaque coatings: Two 9 x 12 inch finished samples on hardboard of each color scheduled in each finish for review and approval. Identify boards with finish type, color mix number and scheduled substrate surfaces or materials.

- c. Transparent finishes and stains: Two 9 x 12 inch finished samples on same species of solid wood and plywood to be furnished under Section 06 20 00 - FINISH CARPENTRY, of each color scheduled in each finish for review and approval. Identify boards with finish type, color mix number and scheduled substrate surfaces or materials.
- B. Submit the following under provisions of Section 01 78 23 - OPERATION AND MAINTENANCE DATA:
 - 1. Color chips: After final approval of all colors and tints by the Architect, submit to the Owner, color chips of all coatings used, with manufacturer's name and mix designation of the coating for the purpose of future reordering of coatings. Color chips shall be at least six (6) square inches in size, for each color and tint.

1.7 QUALITY ASSURANCE

- A. Applicator: Company specializing in commercial painting and finishing with 3 years minimum documented experience.
- B. Single source responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.
- C. Environmental Requirements for Volatile Chemicals:
 - 1. For interior applications use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24) and the following chemical restrictions:
 - a. Flat Paints and Coatings: VOC not more than 50 g/L.
 - b. Non-Flat Paints and Coatings: VOC not more than 150 g/L.
 - c. Anti-Corrosive Coatings: VOC not more than 250 g/L.
 - d. Clear wood finishes:
 - 1) Varnishes: VOC not more than 350 g/L.
 - 2) Lacquer: VOC not more than 550 g/L.
 - e. Floor coatings: VOC not more than 100 g/L.
 - f. Sealers:
 - 1) Waterproofing sealers: VOC not more than 250 g/L.
 - 2) Sanding sealers: VOC not more than 275 g/L.
 - 3) All other sealers: VOC not more than 200 g/L.
 - g. Stains: VOC not more than 250 g/L.
 - 2. Do not use water based paints formulated with aromatic hydrocarbons (organic solvent with a benzene ring in its molecular structure), formaldehyde, halogenated solvents, mercury or mercury compounds, or tinted with pigments of lead, cadmium, chromium VI and their oxides. Water based paints shall be low VOC and shall have a flash point of 61 degrees C or greater.
 - 3. Where it is necessary to use solvent-based paints, with less than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 - 4. The following shall be low VOC and not be formulated with aromatic hydrocarbons (organic solvent with a benzene ring in its molecular structure).
 - a. High performance water based acrylic coatings.
 - b. Pigmented acrylic sealers.
 - c. Catalyzed epoxy coatings.

- d. d. High performance silicone grafted epoxy coatings.
- 5. Restricted Components: Paints and coatings used on this Project shall not contain any of the following compounds. (Excluded from this restriction are residual quantities of naturally occurring elements and chlorinated organics which are found in chlorinated water supplies; contaminate levels shall be below that of the National Primary Drinking Water Standard):
 - a. 1,2-dichlorobenzene
 - b. Alkylphenol ethoxylates (APEs)
 - c. Formaldehyde-donors
 - d. Heavy metals, including lead, mercury, cadmium, hexavalent chromium and antimony in the elemental form or compounds
 - e. Phthalates
 - f. Triphenyl tins (TPT) and tributyl tins (TBT).

1.8 FIELD SAMPLES

- A. Provide field samples under provisions of Section 01 45 00 - QUALITY CONTROL for purpose of verifying selected colors.
- B. Paint on-site sample areas, minimum 40 square feet, illustrating selected color, and tint.
- C. Locate samples where directed. The Contractor shall provide in the base Contract, a total amount of samples equal to one sample per room.
- D. Accepted samples may not remain as part of the work.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site in sealed and labeled containers; container labeling shall include manufacturer's name, type of paint, color mix designation, expected coverage, surface preparation instructions, instructions for mixing and reducing, drying time, and clean-up recommendations.
- B. Store materials, conforming with applicable codes and fire regulations, in designated spaces. Keep storage area secure when direct access is not required or when not performing work under this Section. Take precautionary measures to prevent fire hazards and spontaneous combustion, maintain a dry-chemical type fire extinguisher in all areas where materials of this Section are being stored or used.
- C. Store paint materials in a well-ventilated area at minimum ambient temperature of 45 degrees Fahrenheit and a maximum of 90 degrees Fahrenheit.
- D. Do not use the sanitary system for mixing or disposal of refuse material. Carry water to mixing rooms and dump waste material in a suitable refuse receptacle. Remove oily rags and waste each day.

1.10 SITE CONDITIONS

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 degrees Fahrenheit for 24 hours before, during and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Apply paints and finishes above minimum temperature conditions in strict accordance with manufacturer's instructions.
 - 1. Do not apply exterior coatings during rain or snow, or when relative humidity is above 50 percent unless required otherwise by manufacturer's instructions.
- C. Provide sufficient lighting to maintain 80 foot-candles measured mid-height at substrate surface.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the requirements specified herein, manufacturers offering products which may be incorporated in the work include the following, or approved equal:
 - 1. Paints and general finishes:
 - a. Sherwin Williams, Cleveland OH.
 - b. Benjamin Moore & Company, Montvale, NJ.
 - c. PPG Paint, Pittsburgh PA.
 - 2. Tri-Sodium Phosphate (TSP) substitute:
 - a. Savogran, Norwood MA.
 - b. Custom Building Products, Seal Beach, CA.
 - c. Sunnyside Corp., Wheeling, IL
- B. Refer to project drawings and hard finish schedule for colors and locations.

2.2 MATERIALS

- A. Coatings: Ready mixed, except for field catalyzed coatings with good flow and brushing properties; capable of drying or curing free of streaks or sags. Color pigments shall be processed to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating. Provide best quality grade, where manufacturer makes more than one grade of any material specified.

2.3 ACCESSORIES

- A. Accessory materials: other materials not specifically indicated, but are required to achieve the finishes specified of commercial quality.
- B. Cleaning Materials: Tri-Sodium Phosphate (TSP) substitute. Acceptable products include the following, or approved equal:
 - 1. Savogran, Norwood MA, products "TSP-PF", or "Liquid TSP Substitute Cleaner".
 - 2. Custom Building Products, Seal Beach, CA., product "Custom T.S.P. Substitute".

3. Sunnyside Corp., Wheeling, IL, product "Phosphate Free TSP Substitute" or "TSP Substitute Liquid".

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect all surfaces and verify that they are in proper condition to receive the work of this Section. Notify Contractor of any condition that may potentially affect proper application of coatings.
- B. Measure moisture content of surfaces, do not apply finishes unless moisture content of surfaces are below the following maximums:
 1. Gypsum board and joint treatment: 12 percent.
 2. Interior wood: 15 percent.
- C. Beginning Work of this Section means acceptance of existing substrate surfaces and site conditions.

3.2 PREPARATION

- A. Furnish and lay suitable drop cloths in all areas where coating work is being done to protect floors and all other surfaces from damage during the work. Protect adjoining surfaces with painters mask tape.
- B. Prior to preparing surfaces or finishing, remove all finish hardware for painting doors and frames, except hinges and locks on exterior door; remove electrical plates, light fixture trim and fittings. Re-install hardware and other removed items after painted surfaces are thoroughly dry.
- C. Mix coatings thoroughly, unless otherwise directed by the manufacturer of the specific coating used, to ensure uniformity of color and mass. Strain previously opened coatings to remove skins, lumps, and other foreign matter prior to painting.
- D. Thin or reduce materials only as recommended by the specific material manufacturer, and only with the approval of the Architect.
- E. Impervious surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to thoroughly dry.
- F. New interior wood items scheduled to receive paint (opaque) finish.
 1. Smooth minor defects and remove all foreign matter by sanding, and if necessary, steel wool.
 2. Wash sap spots and knots with mineral spirits. When dry, touch up knots, pitch streaks, and sappy sections with commercial stain sealer.
 3. Fill up nail holes and cracks with wood putty or plastic wood after primer of first coat of finish is dry, and sand smooth.
- G. Existing interior wood items scheduled to receive paint finish.

1. Smooth minor defects by sanding. Remove all foreign matter with mineral spirits and fine sandpaper or steel wool.
 2. Touch up knots and pitch streaks with commercial stain sealer.
 3. Fill up nail wood defects, chips in layers of paint, and cracks with spackle. Ease edges of existing paint by application of spackle and sanding smooth.
- H. Gypsum board surfaces, new and existing: Fill minor defects with latex based spackle. Spot-seal all compound surfaces and repair areas in gypsum board, with specified first coat material before application of the first coat.

3.3 APPLICATION

- A. Apply all materials in strict accordance with the approved manufacturer's printed instruction, and in accordance with the best trade practices. Each coat shall be reviewed and approved by the Architect before succeeding coats are applied.
- B. Do not apply successive coating until the preceding coat is thoroughly dry, and in no case in less than 24 hours after the preceding coat.
- C. Number of coats should be a minimum of two (2) plus one (1) primer. An additional coat or coats may be required for proper color coverage of substrate as determined by the Architect, at no additional cost to the Owner. Examples of these conditions include, but are not limited to:
1. Dark colored substrates may require an additional primer or intermediate coat to stabilize color, if final applied top-coat color is light.
 2. Pre-finished or pre-primed products may require an additional field applied coat to stabilize the shop/factory applied base color prior to application of top-coat finishes.
 3. Dark color top coat finishes may require additional finish coat over white or light colored substrates to obtain correct color density.
- D. Apply each coat to a uniform finish; Apply primer and first coat of slightly lighter in color tint than the scheduled color of the final coat.
- E. Sand lightly between coats to achieve required finish and remove sanding dust prior to applying succeeding coat.
- F. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- G. Prime back surfaces of all interior and exterior woodwork scheduled for painted finish with primer.
- H. Prime back surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

3.4 CLEANING

- A. Upon completion of the work in each area, remove all coating splatters from glass, prefinished surfaces, bright metals, and from other surfaces that have not been painted or finished hereunder. Do not use abrasive paper or abrasive cleaner on any prefinished surface or bright metal. Remove all materials and debris; leave work area in a clean condition.

3.5 PROTECTION AND TOUCH-UP

- A. During painting work, protect the work of other trades against undue soilage and damage by the exercise of reasonable care and precautions. Properly clean, repair or replace any work so damaged and soiled.
- B. Protect all painted and finished surfaces against damage until the date of final acceptance of the work. The Architect will conduct a final review of all work performed hereunder. Re-coat or touch-up, all scratches and other blemishes on surfaces, and as directed by the Architect, any areas found which do not comply with the requirements of this Section, and bear all costs therefore.
- C. Any re-coating or touch-up work, required after the work of this Section has been reviewed and accepted by the Architect, will be paid for by the Contractor.

3.6 PAINTING SCHEDULE - GENERAL

- A. Colors: Schedule of colors is on Drawing A9.00 – FINISH SCHEDULE, and drawings identify colors for each area and surface. Tinting and matching shall be to the satisfaction of the Architect.
 - 1. Colors of priming coats (and body coats where specified) shall be lighter in tint than those of finish coat.
 - 2. Colorants: Pure, non-fading pigments, mildew-proof, ultra-violet resistant, finely ground in approved medium; and be limeproof, when used in coatings to be applied on masonry, concrete, plaster, and gypsum board surfaces.
- B. Manufacturer's designations used in Schedule are defined as follows:
 - 1. "Sherwin Williams": Sherwin Williams, Cleveland OH.
 - 2. "Moore": Benjamin Moore & Company, Montvale, NJ.
 - 3. "PPG": PPG Paints / PPG Industries, Inc., Pittsburgh PA.

END OF SECTION 099123