

# PROJECT MANUAL DD COORDINATION SET

## UAMS: Gastroenterology Clinic at Freeway Medical Tower (6<sup>th</sup> Floor)

BUILDING PACKAGE – VOLUME 1



UNIVERSITY OF ARKANSAS  
FOR MEDICAL SCIENCES

Architect  
**WER Architects**

Mechanical/Electrical/ Plumbing  
/Fire Protection/ Structural Engineers  
**ENFRA**

5800 W 10<sup>th</sup> St  
Little Rock, Arkansas  
February 12, 2026

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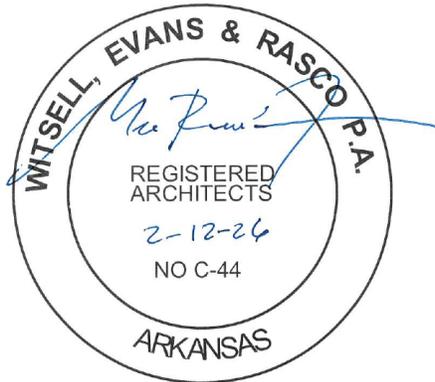
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CERTIFICATIONS PAGE

ARCHITECT

I HEREBY CERTIFY THAT THIS PROJECT MANUAL WAS PREPARED BY ME, OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF ARKANSAS.

NAME: G. RUSSELL FASON DATE: 02/12/2026 REG. NO C-44

END OF SECTION



**SECTION 00 2100  
INSTRUCTIONS TO BIDDERS**

**SUMMARY V.22**

**1.01 SEE AIA A701, INSTRUCTIONS TO BIDDERS FOLLOWING THIS DOCUMENT.**

**END OF SECTION**

## SECTION 00 2113.1

### OWNER'S INSTRUCTIONS TO BIDDERS

1. **BIDDING DOCUMENTS.** Bidders should obtain complete sets of Contract Documents from issuing office as indicated below. Complete sets of Contract Documents must be used in preparing bids; neither Owner nor Design Professional assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents. Obtaining Contract documents through any source other than the Design Professional listed in the Invitation to Bid is not advisable due to the risks of receiving incomplete or inaccurate information, and the bidder runs the risk of basing bidder's proposal on such information. The documents obtained through the Design Professional or his representative(s) or the UAMS Procurement Office are considered the official version and take precedence if any discrepancies occur. The fact that documents used for bidding purposes are named "contract documents" does not diminish in any way the right of the Owner to reject any or all bids and to waive any formality.
2. **EXAMINATION OF DRAWINGS, SPECIFICATIONS AND SITE OF WORK.** Bidder shall examine the Contract Documents and visit the project site of work. Bidder shall become familiar with all existing conditions and limitations under which the Work is to be performed and shall base bid on items necessary to perform the Work as set forth in the Contract Documents. No allowance will be made to Bidder because of lack of such examination or knowledge. The submission of a Bid shall be construed as conclusive evidence that the Bidder has made such examination.
3. **INTERPRETATION OF CONTRACT DOCUMENTS DURING BIDDING.**
  - 3.1 All references to the Owner shall be interpreted to mean **the Board of Trustees for the University of Arkansas acting for and on the behalf of the University of Arkansas for Medical Sciences (UAMS)**.
  - 3.2 If any person contemplating submitting a Bid is in doubt as to the true meaning of any part of the Contract Documents or finds discrepancies in or omissions from any part of the Contract Documents, he may submit to the Design Professional a written request for an interpretation or correction thereof not later than five (5) calendar days before Bid opening.
  - 3.3 Address all communications regarding the Contract Documents to the Design Professional:
    - a. Firm: WER Architects
    - b. Attn: James Swann
    - c. Ph. (501) 626-8339
    - d. email: jswann@werarch.com
  - 3.4 Interpretation or correction of the Contract Documents will be made only by Addendum. In the event of bid addendum, the addenda will be distributed by mailed, emailed, posted bid location, faxed, or delivered to each Bidder of record by the Design Professional with coordination to the UAMS Procurement Department. The Owner will not be responsible for oral explanations or interpretation of the Contract Documents.

- 3.3 Addenda issued during the bidding period will be incorporated into the Contract Documents. Bidder should acknowledge each addendum as required on Bid Response.
- 4. SUBSTITUTIONS**
- 4.1 Materials, products, and equipment described in the Contract Documents establish a standard of required function and a minimum desired quality or performance level, or other minimum dimensions and capacities, to be met by any proposed substitution. Acceptability of substitutions will not be considered during bidding period.
- 4.2 In some cases, prior approval of material or equipment, or both shall be obtained from Owner to obtain the desired color, size, visual appearance, and other features specified.
- 5. TYPE OF BID**
- 5.1 This work will be done by a J.O.C. that was bid by the system office and will be on the master contract.
- 5.2 Any estimate of quantities is approximate only and shall be the basis for receiving unit price bids for each item but shall not be considered by the Bidder as the actual quantities that may be required for the completion of the proposed work. Bidder shall state a unit price for every item of work named in the Proposal. Bidder shall include, in the unit prices, furnishing of labor, materials, tools, equipment, and apparatus of every description to construct, erect, and finish the Work. The unit price bid for the items shall be shown numerically and in the appropriate spaces provided on the J.O.C. Job Order Summary Form. Such figures shall be clear and distinctly legible so that no question can arise as to their intent or meaning. Unit price bids and totals shown in the J.O.C. Job Order Summary Form shall not include costs of engineering, advertising, printing, and appraising.
- 6. PREPARATION OF BID.** Bids will be submitted on the J.O.C. summary with attachments as needed. See J.O.C. summary sheet attached at the end of this Section.
- 6.1 Bids submitted by a "Joint Venture" shall be signed by representatives of each component part of the Joint Venture. The licenses of each component part of the Joint Venture shall also be listed in the bid submittal. Therefore, joint venture bidders shall indicate at least two (2) signatures and two (2) license numbers on the J.O.C. Summary. Exception: Joint Ventures who have been properly licensed with the Arkansas Contractors Licensing Board as a "Joint Venture" need only to indicate the joint venture license number on the J.O.C. Summary. Joint Venture bidders shall indicate at least two (2) signatures on the J.O.C. Summary even if they are licensed as a joint venture.
- 7. PERFORMANCE AND PAYMENT BOND.** Performance and Payment Bonds are not required for work valued at less than \$50,000, except for roofing projects. For work exceeding \$50,000, the bidder shall furnish a Performance and Payment Bond in the amount equal to 100 percent of contract price, identical to format available in SECTION 00 61 13 of this document, as security for faithful performance of the

Contract and payment of all obligations arising thereunder within ten days after receipt of the Intent to Award. The bond shall be written by a surety company qualified and authorized to do business in the State of Arkansas. The bond shall be executed by a resident local agent licensed by the State Insurance Commissioner to represent the surety company. The bond shall be written in favor of the Owner. Bidder shall file the bond with the Circuit Clerk in the county where the Work is to be performed. Failure to deliver said bonds, as specified, shall be considered as having abandoned the Contract and the bid security will be retained as liquidated damages. The bidder shall include in the bid the Performance and Payment bond amount so that the bid represents the total cost to the Owner of all work included in the contract.

8. **SUBCONTRACTORS.** Name of principal subcontractors shall be listed where indicated on the JOC Summary in accordance with Ark. Code Ann. § 22-9-204 and the contract documents. All prime contractors, as a condition to perform construction work for and in the State of Arkansas, shall use no other subcontractors when the subcontractor's portion of the project is \$25,000.00 or more, except those qualified and licensed by the Contractors Licensing Board in Mechanical (HVAC), Plumbing, Electrical and Roofing. A bidder should request clarification from the Design Professional or from UAMS Procurement Department, if no Design Professional exists for the project), if the bidder determines a type of work (mechanical –indicative of HVAC; electrical – indicative of wiring and illuminating fixtures; plumbing; roofing and sheet metal work - indicative of roofing application) is a component of the project, but space has not been provided on the J.O.C. Summary Form for the listing of such or if the J.O.C. Summary Form lists a type of work that is not a component of the project. Clarification should be made in accordance with Instruction 3.2.
  - 9.1 In the event the amount of the listed subcontract work is below \$25,000.00, the Prime Contractor shall place the names of the person or firm performing the work and indicate in the space provided on the J.O.C. Job Order Summary Form whether the listed work is under \$25,000.00.
  - 9.2 It shall be mandatory that any subcontractors listed in (A) – (D) on the JOC Summary by the Prime Contractor is awarded a contract under Ark. Code Ann. § 22-9-204. Prime Contractors who submit a bid listing unlicensed subcontractors or use unlicensed subcontractors on a state project or any subcontractor not licensed by the Contractors Licensing Board who perform work having a value of \$20,000.00 or more on a state project are subject to a civil penalty, after notice and hearing, of not less than \$250.00 nor more than \$500.00 and may be suspended from bidding on state projects. If one (1) or more of the subcontractors named by the prime contractor on his successful bid thereafter refuses to perform his contract or offered contract, the prime contractor may substitute another subcontractor, after having obtained prior approval from the design professional, and the owner.
  - 9.3. Electrical License Requirement
    - a. No person shall perform electrical work on the contract without possessing an Arkansas State Master or Journeyman License from the Arkansas State Electrical Examiners Board. All electrical work and apprentice electricians shall be supervised by a Master or Journeyman Electrician on a one-to-one ratio.
    - b. All electricians shall have a copy of their license with them and shall be required to show it to an appropriate inspector upon request.

- 9.4 Pursuant to Ark. Code Ann. § 22-9- 404, the Bidder may require listed subcontractors (mechanical, plumbing, electrical and roofing/sheet metal) whose bid to the Contractor exceeds \$50,000.00 to provide a Performance and Payment Bond to the Bidder.
9. **SUBMITTAL.** Submit JOC Summary and Job Order Form attached to the end of this Section.
10. **APPLICABLE LAWS.**
- 10.1 Labor. Contractors employed upon the work will be required to conform to the labor laws of the State of Arkansas and the various acts amendatory and supplementary thereto, and to all the laws, regulations, and legal requirements applicable thereto.
- 10.2 Discrimination. Bidder shall not discriminate against any employee, applicant for employment, or subcontractor as provided by law. Bidder shall be responsible for ensuring that all subcontractors comply with federal and state laws and regulations related to discrimination. Upon a final determination by a court or administrative body having proper jurisdiction that the Bidder has violated state or federal laws or regulations, the Owner may impose a range for appropriate remedies up to and including termination of the Contract.
- 10.3 Taxes. Bidder shall include in the bid all state sales tax, social security taxes, state unemployment insurance, and all other items of like nature. It is the intent that the bid shall represent the total cost to the Owner of all work included in the contract. There are no provisions for a contractor to avoid taxes by using the tax-exempt number of a state agency, board, commission, or institutions. Said taxes shall be included in the bid price.
- 10.4 State licensing laws for Contractors.
- 10.5 Disclosure. Potential Bidders are hereby notified that any bidder who desires to enter a contract not exempted from the disclosure requirements, that disclosure is a condition of the Contract, and that the Owner cannot enter any such contract for which disclosures are not made and the language of paragraphs a, b, and c below will be included in the body of any contract awarded. Potential Bidders are hereby notified that:
- a. Disclosure is required to be a condition of any present or future subcontract for which the total consideration is greater than ten thousand dollars (\$25,000.00).
  - b. The Contractor shall require any present or future subcontractor, for which the subcontract amount is greater than \$25,000.00, to complete and sign the Contract and Disclosure and Certification. The contractor shall ensure that any agreement, current or future between the contractor and a subcontractor for which the total consideration is greater than \$25,000.00 shall contain the following:

*Failure to make any disclosure required by Governor Executive Order 98-04, or any violation of any rule, regulation or adopted pursuant to that Order, shall be material breach of the term of this subcontract. The party who fails to make the required disclosure or who violates the rule, regulation, or policy shall be subject to all legal remedies available to the*

*contractor.*

- c. The Contractor shall transmit a copy of the subcontractor's disclosure form to the agency and a statement containing the dollar amount of the subcontract within ten (10) days upon receipt of subcontractor's disclosure.
- 10.6 The bidding, award and administration of the contract shall be made pursuant to Ark. Code Ann. §14-4-1401 et seq., Ark. Code Ann. § 22-9-101 et seq., and Ark. Code Ann. §22-2-101 et seq.
11. **EXECUTION OF CONTRACT.**
- 11.1 The apparent low Bidder shall be prepared, if so, required by the Owner, to present evidence of experience, qualifications, and financial ability to carry out the terms of the Contract. Attention is called to the fact that the bidder in signing the proposal, represents that he has the financial ability and experience to carry out the work throughout its several stages within the time for completion set forth on the JOC summary.
  - 11.2 The Contractor will be required to execute a Job Order Agreement in reference to the Master Contract. Job Order Agreement included with the Contract Documents and the Performance and Payment Bond and Certification of Insurance within ten days after receipt of the Intent to Award. Failure of the Contractor to do so may result in the Contractor being rejected and could result in disqualification.
  - 11.3 The successful Bidder will be required to furnish Owner with proof of insurance, as prescribed by the General Conditions and Supplementary General Conditions.

**END OF DOCUMENT**



J.O. C. Job Order - Summary

Project Name:

0

Project Number: 0

Contractor/Vendor:

Contractor Address:

Contractor Phone Number:

Contractor Email:

Date of Pricing: 1/0/1900

Construction Start Date:

Construction End Date:

Project Duration:

Costs (from Sub-contractor bidding)

Material	Labor	Equipment	Bare Total	O&P	Total Incl. O & P
0	0	0	0	0	0
Sub Contractor Input (TOTALS from previous page)					
General Contractor Cost Input <b>Without</b> Mark-up (Show supporting data on attached sheet):					
Subtotal for Construction Work (Row A + Row B):					
<b>Contractor's Coefficient %:</b>					
Total Value of Coefficient					
Adjusted Price Estimate (Row C + Row D):					
<b>Bond %</b>					
Total Value of Bond (Row E x Bond %):					
Other Cost Input <b>Without</b> Contractor's Mark-up (Show supporting data on attached sheet):					

**TOTAL FIXED PRICE PROPOSAL (Rows E + F + G):**

\$

Contractor Signature: \_\_\_\_\_

UAMS Project Manager: \_\_\_\_\_

Project duration (calendar days):

Estimated Start & End Date:

YES  NO **This project is subject to liquidated damages.**

Liquidated damages of \_\_\_\_\_ per calendar day

Price proposed in accordance to awarded Job Order Contract bid submission and any subsequent contract.

\* NOTE: Sales taxes are an allowed cost for payment to the Contractor; however, if sales tax is not actually paid by the Contractor on any item(s), then it shall be credited back to the Owner prior to processing the final payment to the Contractor.

**This is not a Notice to Proceed. A Purchase Order must be generated prior to Project Start.**

JOB ORDER

Date: \_\_\_\_\_

This job order confirms that the Board of Trustees of the University of Arkansas, acting for and on behalf of UAMS (“Owner”) has engaged \_\_\_\_\_ (“Contractor) to provide job order contracting services for \_\_\_\_\_ (the “Project”) on the following terms.

1. The Work shall be performed under the terms of the job order contract dated \_\_\_\_\_, between the Contractor and the University of Arkansas System (the “Contract”), as supplemented by the plans and specifications for the Project. Capitalized terms in this job order have the meaning ascribed to them in the Contract.
2. The Project shall consist of \_\_\_\_\_
3. The Project shall commence within 10 days of Owner’s Notice to Proceed and shall be completed no later than \_\_\_\_\_ calendar days.
4. Before the Project commences the Contractor shall provide to Owner satisfactory evidence of current insurance coverage for, at a minimum, the types and amounts of coverage described in the Contract and shall provide to Owner satisfactory evidence that Owner has been named as an additional insured for the Project. Additional insurance requirements for this job order are as follows:
  - a. NA
5. Owner has not engaged an architect or engineer to supervise the Work.
6. Liquidated damages for delay, on the terms described in the Contract, may be assessed against the Contractor in the amount of \$ 0 for each calendar day by which completion is delayed beyond the completion date stated in this job order.
7. Before a Project valued at \$50,000 or greater commences the Contractor shall provide a payment and performance bond, in form and with a company satisfactory to Owner, in an amount no less than the Contract Sum, and shall file such bond with the circuit clerk of the county in which the Project is located.

Contractor:

Owner:

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**SECTION 00 2113  
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

**V.22**

**THE MODIFICATIONS (ADDITIONS, DELETIONS AND SUBSTITUTIONS) TO THE AMERICAN INSTITUTE OF ARCHITECTS "INSTRUCTIONS TO BIDDERS" (AIA DOCUMENT A701-97), LISTED BELOW ARE PART OF THE BIDDING DOCUMENTS. WHERE ANY PART OF THIS DOCUMENT IS MODIFIED BY THIS SECTION, THE UNALTERED PROVISIONS SHALL REMAIN IN EFFECT.**

**2.01 ARTICLE 3.3.1:**

- A. After "substitutions", add "and must comply with requirements of Section 01 3000."

**2.02 ARTICLE 4.2.1:**

- A. delete last sentence.

**2.03 ARTICLE 5.3.1:**

- A. In line 3 after "does not exceed" insert "25%".
- B. Delete 2nd sentence in its entirety and insert "The Owner reserves the right to reject any or all bids and to waive all formalities."

**2.04 ARTICLE 5.3.2:**

- A. Delete in its entirety.

**2.05 ARTICLE 7.1.2:**

- A. Delete 2nd sentence.

**2.06 ARTICLE 7.1.3:**

- A. Delete in its entirety.

**2.07 ARTICLE 7.1.4, ADD NEW PARAGRAPH AS FOLLOWS:**

- A. 7.1.4 Arkansas Code Annotated § 22-9-404 requires listed subcontractors (mechanical, plumbing, electrical, and roofing/sheet metal) whose bid to prime contractor exceeds \$50,000 to provide a 100% performance and payment bond to prime contractor IF REQUIRED BY THE PRIME CONTRACTOR".

**2.08 ARTICLE 7.2.1:**

- A. Delete paragraph in its entirety and insert "The bidder shall deliver required bonds to Architect within 10 days of receipt of Intent to Award notice. Failure to furnish required bonds may cause forfeiture of bid guarantee to Owner as liquidated damages".

**2.09 ARTICLE 7.2.2:**

- A. Delete 1st sentence and insert "Bond shall be written on enclosed Arkansas Statutory Performance and Payment Bond Form".

**2.10 ARTICLE 7.2.3:**

- A. In line 1, Delete "or after the" and insert "same date as".

**2.11 BID OPENING:**

- A. The Bid Opening will be conducted at the time and place as stated in the Advertisement for Bids.

**2.12 BONDS:**

- A. Bonds will be required as stated in the Advertisement for Bids.

**2.13 LICENSING REQUIREMENTS:**

- A. Comply with Licensing Requirements as stated in the Advertisement for Bids

**2.14 TIME:**

- A. Time will be of the essence of the Contract; The Contractor must agree to complete the Work within the Time Period as set forth in the Bid Form.

**2.15 LIQUIDATED DAMAGES:**

- A. Liquidated Damages will be required as stated in the Bid Form.

**2.16 RETAINAGE:**

- A. In accordance with Arkansas Code Annotated § 22-9-601, retainage will be withheld from progress payments. Refer to General and Supplementary General Conditions for retainage amounts.

**2.17 NAMING OF SUBCONTRACTORS ON BID FORM: ARKANSAS CODE ANNOTATED § 22-9-204.**

- A. Prime contractors, as a condition to perform work for and in the State of Arkansas shall use no other subcontractors, when the subcontractors portion of the project is \$50,000 or more, except those licensed by the State Contractor's Licensing Board and qualified in: (a) mechanical (indicative of heating, air conditioning and ventilating), (b) plumbing, (c) electrical (indicative of wiring and illuminating fixtures), and (d) roofing and sheet metal work (indicative of roofing application). In the event the prime contractor is qualified and licensed by the "Arkansas State Contractor's Licensing Board, he may use (must name) his own forces to perform those tasks listed herein as subcontractors in one or more of the trades listed. (Emphasis added)
- B. The prime contractor shall make a definite decision regarding the subcontractors he intends to use, and he shall place the names of each subcontractor in a blank space to be provided on the Form of Proposal of his bid. It shall be mandatory that the (a) mechanical, (b) plumbing, (c) electrical, and (d) roofing and sheet metal subcontractors named on the Form of Proposal by the prime contractor awarded a contract under the provisions of this code be given contracts by the prime contractor in keeping with their proposals to perform the items for which they were named. It shall be a violation of this code for any prime contractor to submit a bid listing unlicensed contractors or to use unlicensed contractors on a public works project. Any subcontractor not licensed by the Contractor's Licensing Board shall also be in violation of this section if they perform work on a public works project.

**2.18 CONDENSATION OF CLAUSES:**

- A. The specifications are condensed in the interests of brevity and clarity. Incomplete sentences have been used; words such as "a", "the", "all", and the phrases, "the contractor shall", "shall be", "as indicated on the drawings", have been intentionally omitted. "Provide" means "furnish and install". "Including" means "including, but not limited to". Refer any questions of interpretation to the Architect immediately.

**2.19 END OF DOCUMENT**

**END OF SECTION**

**SECTION 00 3100  
AVAILABLE PROJECT INFORMATION**

**PART 1 GENERAL V.22**

**1.01 EXISTING CONDITIONS**

- A. Certain information relating to existing conditions and structures is available to bidders but will not be part of Contract Documents, as follows:
  - 1. A digital copy of the Original Construction Drawings for the entire Medical Tower are available upon request.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**3.01 OBTAINMENT OF PERMITS**

- A. Contractor to obtain the following required permits, at no cost to Owner:
  - 1. Building Permit for all trades.
- B. Building Permit Procedures: When required to obtain this permit:
  - 1. Complete and file permit application(s) with appropriate agency.
    - a. Submit application within five days of the Notice to Proceed.
  - 2. Pay required fees.
  - 3. Advise Architect if submission of modified documents is necessary to have the authorities having jurisdiction complete the plan review and approval process. Submit modified documents expeditiously.
  - 4. Do not commence execution of any item of work for which a permit has not been obtained.

**END OF SECTION**

**SECTION 00 4000  
PROHIBITION OF EMPLOYMENT OF ILLEGAL IMMIGRANTS**

**PART 1 GENERAL V.22**

**1.01 EMPLOYMENT OF ILLEGAL IMMIGRANTS - CERTIFICATION BY BIDDER**

A. Representations and Certifications:

1. Governmental Certifications: Certification by Bidder. Pursuant to Act 157 of 2007, all bidders must certify prior to award of contract that they do not employ or contract with any illegal immigrant(s) in its contract. Bidders shall certify on line at <https://www.ark.org/dfa/immigrant/index.php/user/login>. The Act is printed in full on the website and contains all information regarding any penalties and the procedures for certification by subcontractors.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 00 5000  
CONTRACTING FORMS AND SUPPLEMENTS**

**1.01 CONTRACTOR IS RESPONSIBLE FOR OBTAINING A VALID LICENSE TO USE ALL COPYRIGHTED DOCUMENTS SPECIFIED BUT NOT INCLUDED IN THE PROJECT MANUAL.**

**1.02 AGREEMENT AND CONDITIONS OF THE CONTRACT**

A. Job Order Agreement in reference to master contract.

**1.03 FORMS**

A Use the following forms for the specified purposes unless otherwise indicated elsewhere in the Contract Documents.

B. Bond Forms:

1. Performance and Payment Bond Form: As provided herein.

C. Post-Award Certificates and Other Forms:

1. Submittal Transmittal Form: AIA G810.

2. Schedule of Values Form: AIA G703.

3. Application for Payment Form: AIA G702 and G703.

D. Clarification and Modification Forms:

1. Request for Interpretation Form: As approved by Architect Engineer.

2. Supplemental Instruction Form: AIA G710.

3. Change Order Form: AIA G701.

E. Closeout Forms:

1. Certificate of Substantial Completion Form: AIA G704.

**1.04 REFERENCE STANDARDS**

A. AIA G701 - Change Order; 2001.

B. AIA G702 - Application and Certificate for Payment; 1992.

C. AIA G703 - Continuation Sheet; 1992.

D. AIA G704 - Certificate of Substantial Completion; 2000.

E. AIA G710 - Architect's Supplemental Instructions; 1992.

F. AIA G810 - Transmittal Letter; 2001.

**END OF DOCUMENT**

**SECTION 00 5200  
AGREEMENT FORM**

**PART 1 GENERAL V.22**

**1.01 FORM OF AGREEMENT**

**1.02 JOB ORDER FORM IN REFERENCE TO THE MASTER AGREEMENT BETWEEN UAMS AND  
GENERAL CONTRACTOR.**

**1.03 RELATED REQUIREMENTS**

- A. Section 00 7200 - General Conditions.
- B. Section 00 7300 - Supplementary General Conditions.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 00 6000  
PERFORMANCE AND PAYMENT BOND**

**V.22**

We \_\_\_\_\_, hereinafter referred to as Principal and \_\_\_\_\_, hereinafter referred to as Surety, are held and firmly bound unto -UAMS, as obligee, hereinafter referred to as Owner, in the amount of \$ \_\_\_\_\_, said amount to be deemed a performance bond payable to Owner under the terms of this Performance and Payment Bond Agreement. The Principal and Surety state that the Surety is a solvent corporate surety company authorized to do business in the State of Arkansas.

**1.01**

- A. Principal has by written agreement dated \_\_\_\_\_ entered into a Contract (the Contract) with the Owner for:
- B. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_. The above referenced Contract is incorporated herein by reference.
- C. Under this Performance and Payment Bond Agreement, the Principal and Surety shall be responsible for the following:
  - a. The principal shall faithfully perform the above reference contract, which is incorporated herein by reference and shall pay all indebtedness for labor and materials furnished or performed under the contract.
  - b. In the event that the principal fails to perform the contract, the principal and the surety, jointly and severally, shall indemnify and save harmless the owner from all cost and damage which the owner may suffer by reason of principal's failure to perform the contract. Said indemnification shall include, but not be limited to, full reimbursement and repayment to the owner for all outlays and expenses which the owner may incur in making good any such default or failure to perform the contract by the principal.
  - c. Principal shall pay all persons all indebtedness for labor or material furnished or performed under the contract and in doing so this obligation shall be null and void. In the event that principal fails to pay for such indebtedness, such persons shall have a direct right of action against the principal and surety, jointly and severally, under this obligation, subject to the owner's priority.
- D. This bond given in accordance with Arkansas laws and regulations (including Ark. Code Ann. §18-44-503, §19-4-1405 and § 22-9-401 et seq.). The Surety guarantees that the Principal shall comply with Ark. Code Ann. § 22-9-308 (d) by payment and full compliance with all prevailing hourly wage contract provisions where the contract amount exceeds the amount provided in Ark. Code Ann. § 22-9-302(1).
- E. Any alteration which may be made in the terms of the Contract, or in the work to be done under it, or the giving by the Owner of any extension of time for the performance of the contract, or any other forbearance on the part of either the Owner or the Principal to the other shall not in any way release the Principal and the Surety or Sureties or either or any of them, their heirs, personal representatives, successors or assigns from their liability hereunder, notice to the Suety or Sureties of any such alteration, extension or forbearance being hereby waived. In no event shall the aggregate liability of the Surety exceed the amount provided in the Contract.
- F. This Performance and Payment Bond Agreement is binding upon the above named parties, and their successors, heirs, assigns and personal representatives.

G. Executed by the parties who individually represent that each has the authority to enter into this agreement.

H. BY: \_\_\_\_\_

I. \_\_\_\_\_

J. CONTRACTOR DATE

K. BY: \_\_\_\_\_

L. \_\_\_\_\_

M. AGENT/ATTORNEY-IN-FACT DATE

N. (IN ACCORDANCE WITH ARK. CODE ANN. §22-9-402(B))

O. \_\_\_\_\_

P. AGENT DATE

Q. \_\_\_\_\_

R. ADDRESS

S. \_\_\_\_\_

T. CITY COUNTY STATE ZIP CODE

U.

V. BUSINESS PHONE: \_\_\_\_\_

W. FAX: \_\_\_\_\_

X. MAIL: \_\_\_\_\_

**1.02**

**1.03 THIS FORM IS THE ONLY PERFORMANCE AND PAYMENT BOND ACCEPTABLE TO THE OWNER**

**1.04 PERFORMANCE AND PAYMENT BOND**

**1.05 AMENDMENT #\_\_\_**

- A. We, \_\_\_\_\_ hereinafter referred to as Principal, and \_\_\_\_\_ hereinafter referred to as Surety, have entered into an agreement entitled "Performance and Payment Bond", with the -UAMS as obligee hereinafter after known as Owner Agency. Futhermore, we agree that said bond agreement, which was filed in the county of \_\_\_\_\_ on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ and this amendment #\_\_\_ is hereby incorporated into said bond agreement and any previous amendments(s) therein. This amendment shall be upon the same terms and conditions as set forth in the Bond Agreement, including any amendments, except the Agreement shall be amended and modified as follows:
- B. 1. The total aggregate amount for the Bond Agreement shall be \$ \_\_\_\_\_ dollars. This amended amount reflects those costs, time for completion and other terms of the Contract associated with said bond agreement and Change Order(s) # \_\_\_\_\_ for the project contract entered into between Principal and Owner Agency.
- C. 2. This Performance and Payment Bond Agreement Amendment is binding upon the above named parties, and their successors, heirs, assigns and personal representatives. The Bond Agreement as hereby extended, amended and modified is hereby ratified and confirmed by the parties who individually represent that each has the authority to enter into this amended agreement.

**1.06**

- A. BY: \_\_\_\_\_
- B. CONTRACTOR DATE
- C. BY: \_\_\_\_\_
- D. ARKANSAS RESIDENT LOCAL AGENT/ATTORNEY-IN-FACT DATE
- E. (in accordance with Arkansas Code Annotated §22-9-402(b)(1)(2))
- F. \_\_\_\_\_
- G. AGENT DATE
- H. ADDRESS BUSINESS PHONE/FAX #
- I. \_\_\_\_\_
- J. CITY COUNTY STATE ZIP CODE

**1.07**

**1.08 ARKANSAS STATUTORY PERFORMANCE AND PAYMENT BOND AMENDMENT IS THE ONLY BOND AMENDMENT FORM THE OWNER WILL ACCEPT.**

A.

**END OF PERFORMANCE AND PAYMENT BOND**

**SECTION 00 6113**

**PERFORMANCE BOND AND PAYMENT BOND**

We \_\_\_\_\_, hereinafter referred to as Principal, and \_\_\_\_\_, hereinafter referred to as Surety, are held and firmly bound unto \_\_\_\_\_, as obligee, hereinafter referred to as Owner, in the amount of \$ \_\_\_\_\_, said amount to be deemed a performance bond payable to Owner under the terms of this Performance and Payment Bond Agreement. The Principal and Surety state that the Surety is a solvent corporate surety company authorized to do business in the State of Arkansas.

Principal has by written agreement dated \_\_\_\_\_ entered into a Contract (the Contract) with the Owner for:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The above referenced Contract is incorporated herein by reference.

Under this Performance and Payment Bond Agreement, the Principal and Surety shall be responsible for the following:

- a. The Principal shall faithfully perform the above reference Contract, which is incorporated herein by reference and shall pay all indebtedness for labor and materials furnished or performed under the Contract.
- b. In the event that the Principal fails to perform the Contract, the Principal and the Surety, jointly and severally, shall indemnify and save harmless the Owner from all cost and damage which the Owner may suffer by reason of Principal's failure to perform the Contract. Said indemnification shall include, but not be limited to, full reimbursement and repayment to the Owner for all outlays and expenses which the Owner may incur in making good any such default or failure to perform the Contract by the Principal.
- c. Principal shall pay all persons all indebtedness for labor or material furnished or performed under the Contract and in doing so this obligation shall be null and void. In the event that Principal fails to pay for such indebtedness, such persons shall have a direct right of action against the Principal and Surety, jointly and severally, under this obligation, subject to the Owner's priority.

- d. Principal shall guarantee the faithful performance of the prevailing hourly wage clause as provided in the Contract.

This bond given in accordance with Arkansas laws and regulations (including Ark. Code Ann. § 18-44-503, § 19-4-1405 and § 22-9-401 et seq.). The Surety guarantees that the Principal shall comply with Ark. Code Ann.

§ 22-9-308 (d) by payment and full compliance with all prevailing hourly wage contract provisions where the contract amount exceeds the amount provided in Ark. Code Ann. § 22-9-302(1).

**Any alteration which may be made** in the terms of the Contract, or in the work to be done under it, or the giving by the Owner of any extension of time for the performance of the contract, or any other forbearance on the part of either the Owner or the Principal to the other shall not in any way release the Principal and the Surety or Sureties or either or any of them, their heirs, personal representatives, successors or assigns from their liability hereunder, notice to the Surety or Sureties of any such alteration, extension or forbearance being hereby waived. In no event shall the aggregate liability of the Surety exceed the amount provided in the Contract.

This Performance and Payment Bond Agreement is binding upon the above-named parties, and their successors, heirs, assigns and personal representatives.

Executed by the parties who individually represent that each has the authority to enter into this agreement.

BY: \_\_\_\_\_  
Contractor Date

BY: \_\_\_\_\_  
Arkansas Resident Local Agent/ Attorney-in-Fact  
(In accordance with Ark. Code Ann. § 22-9-402(b)(1)(2))

\_\_\_\_\_  
Agent Date

\_\_\_\_\_  
Address

\_\_\_\_\_  
City County State  
Zip Code

\_\_\_\_\_  
Business Phone Fax Email

**THIS FORM IS THE ONLY PERFORMANCE AND PAYMENT BOND ACCEPTABLE TO THE OWNER**

**PERFORMANCE AND PAYMENT BOND AMENDMENT # \_\_\_\_\_**

We,

\_\_\_\_\_ herei

nafter referred to as Principal, and \_\_\_\_\_, hereinafter referred to as Surety, have entered into an agreement entitled "Performance and Payment Bond", with \_\_\_\_\_ as obligee hereinafter after known as Owner Agency. Furthermore, we agree that said bond agreement, which was filed in the county of

\_\_\_\_\_ on the \_\_\_\_\_ day of \_\_\_\_\_,

20\_\_\_\_ and this amendment #\_\_\_\_ is hereby incorporated into said bond agreement and any previous amendment(s) therein. This amendment shall be upon the same terms and conditions as set forth in the Bond Agreement, including any amendments, except the Agreement shall be amended and modified as follows:

1. The total aggregate amount for the Bond Agreement shall be \$ \_\_\_\_\_ dollars. This amended amount reflects those costs, time for completion and other terms of the Contract associated with said bond agreement and Change Order(s) # \_\_\_\_\_ for the project contract entered into between Principal and Owner Agency.
2. This Performance and Payment Bond Agreement Amendment is binding upon the above named parties, and their successors, heirs, assigns and personal representatives. The Bond Agreement as hereby extended, amended and modified is hereby ratified and confirmed by the parties who individually represent that each has the authority to enter into this amended agreement.

BY:

\_\_\_\_\_  
Contractor Date

BY:

\_\_\_\_\_  
Arkansas Resident Local Agent/ Attorney-in-Fact Date  
(In accordance with Ark. Code Ann. § 22-9-402(b)(1)(2))

Agent \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

City Code \_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**ARKANSAS STATUTORY PERFORMANCE AND PAYMENT BOND AMENDMENT IS  
THE ONLY BOND AMENDMENT FORM THE OWNER WILL ACCEPT**

**SECTION 00 6325  
SUBSTITUTION REQUEST FORM**

**V.22 SEND TO:**

**WER ARCHITECTS / PLANNERS      ATTN: JAMES SWANN**

**901 W. 3RD STREET**

**LITTLE ROCK, AR 72201**

**PHONE: 501-374-5300      FAX: 501-374-5247**

**SECTION: \_\_\_\_\_ PARAGRAPH: \_\_\_\_\_ SPECIFIED ITEM: \_\_\_\_\_**

**PROPOSED SUBSTITUTE: \_\_\_\_\_**

**ATTACH, COMPLETE DESCRIPTION, DESIGNATION, CATALOG OR MODEL NUMBER, SPEC DATA SHEET, AND OTHER TECHNICAL DATA, INCLUDING LABORATORY TESTS IF APPLICABLE.**

**ANSWER THE FOLLOWING QUESTIONS:**

**WILL SUBSTITUTION AFFECT DIMENSIONS INDICATED ON DRAWINGS? IS THE SIZE DIFFERENT PHYSICAL SIZE?**

\_\_\_\_\_  
**WILL SUBSTITUTION AFFECT WIRING, PIPING, DUCTWORK, ETC. INDICATED ON DRAWINGS? THIS INCLUDES LOWER OR HIGHER ELECTRICAL LOAD AND/OR VOLTAGE; DIFFERENT BTU HEAT LOAD AND/OR OR VENTING; REQUIRED CLEARANCES, ETC.**

\_\_\_\_\_  
**WHAT AFFECT WILL SUBSTITUTION HAVE ON OTHER TRADES?**

\_\_\_\_\_  
**LIST ANY DIFFERENCES BETWEEN PROPOSED SUBSTITUTION AND SPECIFIED ITEM:**

\_\_\_\_\_  
**IF NECESSARY, WILL THE UNDERSIGNED PAY FOR ARCHITECTS/ENGINEER'S COSTS, REQUIRED TO REVISE WORKING DRAWINGS, THAT ARE CAUSED BY SUBSTITUTION?**

\_\_\_\_\_  
**MANUFACTURER'S WARRANTY OF PROPOSED ITEMS ARE  SAME  DIFFERENT**

**PROPOSED COST SAVINGS USING SUBSTITUTION PRODUCT: \_\_\_\_\_**

**REVIEW COMMENTS:**

**APPROVED**

**APPROVED AS NOTED (SEE ATTACHED EXPLANATION)**

**NOT APPROVED / REJECTED**

**REJECTED / RECEIVED TOO LATE / NOT REVIEWED**

**REMARKS: \_\_\_\_\_ REVIEWED BY: \_\_\_\_\_**

**SUBMITTED BY:**

**FIRM: \_\_\_\_\_**

**ADDRESS: \_\_\_\_\_**

**SIGNATURE: \_\_\_\_\_**

**DATE: \_\_\_\_\_**

**PHONE/EMAIL: \_\_\_\_\_**

**END OF SECTION**

**SECTION 00 6519.16  
RELEASE OF CLAIMS**

Comes the undersigned, who does hereby swear and affirm that:

1. My name is \_\_\_\_\_, (printed or typed)  
address is: \_\_\_\_\_  
doing business as \_\_\_\_\_
  
2. Pursuant to Contract Number \_\_\_\_\_, \_\_\_\_\_  
(project description)  
and Contract Date \_\_\_\_\_ excepted as listed below in Paragraph 4, I  
have paid otherwise satisfied all obligations for all materials and equipment furnished, for all  
work, labor, and services performed, and for all known claims against the Contractor arising in  
any manner in connection with the performance of the contract referenced above for which the  
Owner or his property might in any way be held responsible.
  
3. To the best of my knowledge, information and belief, excepted as listed below in Paragraph 4,  
the Releases or Waivers of Claim, attached hereto and incorporated herein, include the  
Contract, all subcontractors, all suppliers of materials and equipment, and all performers of  
work, labor or services who have or may have claims against any property of the Owner  
arising in any manner out of the performance of the Contract referenced above.
  
4. The Exceptions are: (if none, indicate "none." If required by the Owner, the Contractor shall  
furnish bond satisfactory to the Owner for each exception.)

\_\_\_\_\_

AFFIANT

DATE

VERIFICATION

STATE OF ARKANSAS        )  
  )  
COUNTY OF                 )

SUBSCRIBED AND SWORN TO before me this \_\_\_\_\_ of \_\_\_\_\_ 20 \_\_\_\_

NOTARY PUBLIC: \_\_\_\_\_

MY COMMISSION EXPIRES: \_\_\_\_\_



**SECTION 00 6519.19  
CONSENT OF SURETY**

Comes the undersigned, who does hereby swear and affirm that:

1. My name is \_\_\_\_\_ and I am an authorized representative of \_\_\_\_\_ a surety company.
2. With regards to the Project:

Project # \_\_\_\_\_ Contract date \_\_\_\_\_.

Contractor; and \_\_\_\_\_ Owner; I hereby approve the final payment to the contractor. I agree that the final payment to the contractor shall not relieve the Surety Company of any of its obligations as set forth in the contract with the State of Arkansas and this contractor.

\_\_\_\_\_  
AFFIANT

\_\_\_\_\_  
DATE

VERIFICATION

STATE OF ARKANSAS     )  
  )  
COUNTY OF             )

SUBSCRIBED AND SWORN TO before me this \_\_\_\_\_ of \_\_\_\_\_ 20 \_\_\_\_

NOTARY PUBLIC: \_\_\_\_\_

MY COMMISSION EXPIRES: \_\_\_\_\_



**SECTION 00 7200  
GENERAL CONDITIONS**

**V.22 FORM OF GENERAL CONDITIONS**

**1.01 THE AIA A201-2007 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION  
APPLICABLE TO THIS CONTRACT IS ATTACHED FOLLOWING THIS PAGE.**

**RELATED REQUIREMENTS**

**2.01 SECTION 00 7300 - SUPPLEMENTARY GENERAL CONDITIONS.**

**END OF SECTION**

## SECTION 00 7300.10

### OWNER'S SUPPLEMENTAL GENERAL CONDITIONS

#### ARTICLE 1 -- GENERAL PROVISIONS

##### Add Paragraph 1.2.1.2

In the event of conflict among the Contract Documents, interpretations will be based on the following order of precedence, stated highest to lowest:

- a. The Agreement
- b. This Division Zero (0) shall control in the event of conflict between this Division Zero (0) and other Divisions 1 through 16
- c. Addenda to Drawings and Specifications with those of later date having precedence.
- d. Drawings and Specifications

##### Add Paragraph 1.4.1

Whenever in these Contract Documents the word "product" is used, it shall be understood that the materials, systems, and equipment will be included.

##### Add Paragraph 1.4.2

Whenever in these Contract Documents the word "provide" is used, it shall be understood that it means to "furnish and install".

##### Add Paragraph 1.4.3

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

##### Add Paragraph 1.1.9 Commissioning Authority (HFCx)

A consultant retained by the Owner to assist the Owner in developing the Owners Project Requirements (OPR), working with the Design Team to verify the design of systems meets the requirements of the OPR. The HFCx represents the Owner in inspection, verification of system components installation and testing of systems to ensure compliance with the OPR.

#### Article 2 OWNER

Delete article 2.2 in its entirety.

#### ARTICLE 3 -- CONTRACTOR

##### Add Paragraph 3.7.1.1

When new construction under the Contract crosses highways, railroads, streets, or utilities under the jurisdiction of the state, county, city, or other public agency, public utility, or private entity, the Contractor shall secure written permission from the proper authority before executing such new construction. A copy of this written permission shall be filed with the Owner before any work is completed. The Contractor shall furnish a release from the proper authority before final acceptance of the Work. Any bonds required for this Work shall be secured and paid for by the Contractor.

Add Paragraph 3.13.1

Additional land and access thereto not shown on Drawings that may be required for temporary construction facilities or for storage of materials shall be provided by the Contractor at his expense with no liability to the Owner. The Contractor shall confine his equipment and storage of materials and the operation of his workmen to those areas shown on the Drawings and described in the Specifications, and such additional areas which he may provide or secure as approved by the Owner.

Add Paragraph 3.13.2

The Contractor shall not enter upon private property for any purpose without first obtaining permission.

Add Paragraph 3.13.3

The Contractor shall be responsible for the preservation of and prevent damage or injury to all trees, monuments, and other public property along and adjacent to the street and right-of-way. The Contractor shall prevent damage to pipes, conduits, and other underground structures, and shall protect from disturbance or damage all monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove monuments or property marks until directed.

**ARTICLE 7 – CHANGES IN THE WORK**

Add Paragraph 7.2.2

Compute requests for changes be they additions or deductions as follows:

- a. For work performed by the Contract:

Net Cost of Materials		a	
State Sales Tax		b	
Net Placing Cost		c	
W.C. Insurance Premium and FICA Tax		d	_____
	a+b+c+d		
Overhead and Profit, 12%x (a+b+c+d)		e	
Allowable Bond Premium		f	_____
<b>TOTAL COST</b>	<b>a+b+c+d+e+f</b>		

- b. Credit for work deleted shall be computed as outlined in 7.2.2.3 a. through e., except the Contractor’s share of overhead and profit percentage is seven percent.
- c. For added work performed by Subcontractors: Subcontractors shall compute their work as outlined in 7.2.2.3 a. through e. To the cost of that portion of the work (Change) that is performed by the Subcontractor, the Contractor shall add an Overhead and Profit Change of five percent plus the Allowable Bond Premium.
- d. For work deleted by a Subcontractor: Subcontractors shall compute their work as outlined in 7.2.2.3 a through e, except that the overhead and profit shall be seven percent and the Contractor’s overhead and profit shall be five percent.

**ARTICLE 8 – TIME**

Add Paragraph 8.3.1.1 Holidays

No Design Professional clarifications, observations, or State inspections will be provided on legal holidays, Saturdays, and Sundays. Any work planned or performed during holiday hours must be coordinated with the UAMS project manager

Observed UAMS holidays are:

1. New Year's Day
2. Dr. Martin Luther King's Birthday
3. President's Birthday
4. Memorial Day
5. Independence Day
6. Labor Day
7. Veteran's Day
8. Thanksgiving Day
9. Day after Thanksgiving
10. Christmas Eve
11. Christmas Day

No other days will be considered unless declared by the Governor of the State of Arkansas through an Executive Order or Proclamation.

**ARTICLE 9 – PAYMENTS AND COMPLETION**

Add Paragraph 9.3.1.4 Arkansas State Agencies Action on a Request for Payment

The State shall process payments in accordance with Ark. Code Ann. §19-4-1411, or as modified by subsequent law, which establishes the time limits for the Design Professional, the Owner and the Department of Finance and Administration. It also authorizes the Chief Fiscal Officer of the State to investigate any complaints of late payments and assess penalties for late payment. Complaints shall be addresses to "Chief Fiscal Officer of the State: Department of Finance and Administration; 1509 West Seventh Street, Suite 401; Post Office Box 3278; Little Rock, AR 72203-3278.

Add Sentence to 9.10.5

Any claims for interest on delinquent payments shall be made pursuant to Ark. Code Ann.§ 22- 9-205.

Add Paragraph 9.7.1

Any claim by the Contractor to the Owner for interest on a delinquent final payment shall only be made pursuant to Ark. Code Ann. §22-9-205.

**END OF DOCUMENT**



**STANDARD TERMS & CONDITIONS**

**I. GENERAL**

1. **Parties.** As used in these Terms and Conditions, “University” refers to the campus, unit or division of the University of Arkansas System that issues a purchase order (PO) or enters into an agreement incorporating these terms. “Vendor” refers to the party to which a purchase order is issued by the University, or to a party to another form of agreement with the University.
2. **Application.** These Terms and Conditions are incorporated by reference in each PO issued by the University and may be incorporated by reference in a written agreement between the University and a Vendor. Any terms or conditions included in a PO issued by University or in a separate written agreement between University and Vendor take precedence over these Terms and Conditions, unless provided otherwise in such PO or agreement.
3. **Debarment and Suspension.** Vendor shall not be eligible to contract with the University for goods or services covered by the Arkansas Procurement Law if Vendor is presently debarred or suspended pursuant to Ark. Code Ann. § 19-61-702. Vendor shall not be eligible to contract with the University to provide goods or services that are a “covered transaction” within the scope of the Federal Acquisition Regulation or similar Federal law if Vendor is presently disbarred under Federal law. The University may immediately terminate the PO or agreement if the University determines that Vendor has been disbarred or suspended.
4. **No Other Terms Accepted.** No additional terms or conditions shall be effective without the written consent of the University. The University expressly rejects any terms or conditions proposed or published by Vendor. In the event of a conflict between these Terms and Conditions and Vendor’s proposed terms, these Terms and Conditions shall control.

**II. PURCHASING**

1. **Prices.** In case of errors in extension, unit prices shall govern. Prices shall be firm and not subject to adjustment or deviation unless specifically approved in writing by the University prior to delivery.
2. **Discounts.** All cash discounts offered will be taken if earned. For UAMS, please also refer to the UAMS Specific Clauses set out in IX. Miscellaneous, 9.
3. **Taxes.** With the exception of UAMS, the University is not exempt from paying sales or use taxes, except on those items and /or purchase transactions that are specifically exempted by law. When applicable, sales or use tax must be itemized on invoices. For UAMS, please refer to the UAMS Specific Clauses set out in IX. Miscellaneous, 9.
4. **Shipment.** All products to be delivered to the University shall be shipped only FOB Point of Destination or, in the case of international shipments, delivered to the point of destination specified by the University, cleared for import and with all applicable duties and taxes paid. Risk of loss for products shall pass to the University upon delivery of the products to point of destination designated by the University.
5. **Backorders or delay in delivery.** Backorders or failure to deliver within the time required may, at the sole discretion of the University, be deemed an event of default. Vendor must give written notice to the University Procurement Department of the reason for any such delay and the expected delivery date. The University’s Procurement Department may, in its discretion, extend the date of delivery.
6. **Delivery requirements.** No substitutions or cancellations are permitted without approval of the University Procurement Department. With the exception of UAMS, delivery shall be made during University work hours only (generally, 8 a.m. – 4:30 p.m., Central Standard Time, though slightly varies depending on particular campus, and closed Saturday, Sunday and University Holidays), unless prior approval for other delivery has been obtained. Items should be shipped to the “Ship-To” address listed on

the PO or agreement. For UAMS, please also refer to the UAMS Specific Clauses set out in IX. Miscellaneous, 9.

7. **Variation in quantity.** The University assumes no liability for commodities produced, processed, or shipped in excess of the amount specified on the PO.
8. **Duties and customs fees.** All duties and customs fees shall be paid in advance by the Vendor prior to shipping any product for import or export to the University.
9. **Permits and licenses.** Vendor shall, at its own expense, procure and keep in effect all necessary permits, certifications or licenses as required by law or as otherwise required to fulfill the PO or agreement.
10. **Inspection and testing.** All goods and other products furnished will be subject to inspection and acceptance by the University after delivery. Failure to meet the agreed upon product or services specifications entitles the University to cancel the PO or agreement, to reject some or all of the goods or services, to purchase replacement goods or services elsewhere and to charge the full increase, if any, in cost and handling to Vendor, and to obtain from Vendor a refund all monies paid by the University. Payments made by the University to Vendor shall not be deemed a waiver of the University's rights or remedies.
11. **Time of the Essence.** Vendor and University agree that time is of the essence in all respects concerning the PO and the performance of the obligations thereunder.

### III. PAYMENT

1. **Invoicing.** The Vendor will be paid in a timely manner upon submission of a properly itemized invoice, after delivery and acceptance of goods or services by the University. All invoices must be sent to the "Bill To" point listed on the University purchase order, and must also include the following additional information where applicable:

- The complete name and remittance address of the Vendor
- Invoice Date
- Invoice Number
- Purchase Order Number
- Itemized listing of purchases, to include a description of the merchandise and/or services, unit price and extended line total
- Name and location of department for whom the goods or services were provided.
- Discount payment terms
- Itemized taxes.

For UAMS, please also refer to the UAMS Specific Clauses set out in IX. Miscellaneous, 9.

2. **Interest and Late Charges.** Under Ark. Code Ann. §§ 19-4-706 and 19-61-303, the University shall not pay interest or late charges until 60 days after payment is due.

3. **Deposits.** The University may not make payments in advance of receiving goods or services. Title to any amount remitted by the University as a deposit remains with the University pending completion of the transaction and shall be immediately returned by Vendor to the University in the event that: (a) the Vendor does not deliver the agreed upon product, service or performance when and as agreed; (b) the agreement or PO is terminated by the University for cause; or (c) if either party is unable to perform its obligations under the agreement or PO as a result of an Excused Performance Event (as defined in these Terms and Conditions).

4. **Payment Instructions.** Vendor agrees that in the course of making payments the University is entitled to rely on information contained in written or electronic communications that the University reasonably believes have been transmitted or authorized by Vendor. Vendor shall hold the University harmless against any loss or damage related to or arising from University's reliance on such communications.

#### IV. MINIMUM STANDARDS

1. **Service Warranties.** Vendor shall perform all services using personnel of required skill, experience and qualifications and in a professional and workmanlike manner in accordance with generally accepted standards for similar services in Vendor's industry, trade or profession, and shall devote adequate resources to timely meet its obligations under the PO or agreement.
2. **Product Warranties.** Unless otherwise specified in a PO or a separate written agreement, all items shall be newly manufactured, in first class condition, latest model and design and shall include, where applicable, containers suitable for shipment and storage. Vendor guarantees that everything furnished will be free from defects in design, workmanship and material and that items sold by drawing, sample or specification will conform thereto and will serve the function for which furnished under the PO or agreement ("Specifications"). Vendor further guarantees that if the items furnished are to be installed by the Vendor, such items will function properly when installed and any manufacturer warranties will be assigned to the University. Vendor also guarantees that all applicable laws have been complied with relating to construction, packaging, labeling and registration of the items furnished. Vendor's obligations under this paragraph shall survive for a period of one (1) year from date of delivery, unless otherwise specified herein.
3. **Confidentiality of Student Education Records.** To the extent that Vendor has access to, stores or receives student education records, Vendor will abide by the limitations on use and re-disclosure of such records set forth in the Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. § 1232g, and 34 CFR Part 99. Vendor shall hold student record information in strict confidence and shall not use or disclose such information except as authorized in writing by the University or as required by law. Vendor shall not use the information for any purpose other than the purpose for which the disclosure was made. Upon termination or expiration of the PO or agreement Vendor shall return or destroy all student education record information within 30 days.
4. **HIPAA.** To the extent that the PO or agreement involves covered use or receipt of Protected Health Information, as defined under the Health Insurance Portability and Accountability Act (HIPAA), Vendor agrees to fully comply with all applicable requirements of HIPAA and the regulations promulgated pursuant to HIPAA.
5. **Campus Policies.** In the event Vendor provides services or deliver goods to the University campus, Vendor and its permitted subcontractors will fully comply with all applicable University policies and Arkansas and federal law while on campus or on any other University property. This includes, but is not limited to, the following: (a) Vendor shall not permit tobacco, electronic cigarettes, alcohol, or illegal drugs to be used by any of its officers, agents, representatives, employees, subcontractors, licensees, guests or invitees while on the campus of the University; (b) Vendor will not permit any of its officers, directors, agents, employees, contractors, subcontractors, licensees, guests or invitees to bring any explosives, firearms or other weapons onto the campus of the University, except to the extent expressly permitted by University policies or by the Arkansas enhanced concealed carry laws; (c) Vendor will not allow any of its officers, directors, agents, employees, contractors, subcontractors, licensees, guests or invitees that are registered sex offenders or have been convicted of a felony involving force, violence, or possession or use of illegal drugs to enter the campus of the University.
6. **Compliance with NCAA and Athletic Conference Rules and Regulations.** Vendor and its officers, employees, volunteers, subcontractors, agents, representatives, and guests will comply with all applicable National Collegiate Athletic Association ("NCAA") and athletic conference bylaws, rules, and regulations; and the rules of any other conference or association to which the University's athletic teams may belong. Vendor and its officers, employees, volunteers, subcontractors, agents, representatives, and guests will not engage in any of the following activities: (a) wager on any collegiate sporting or athletic event involving the University; (b) exert, attempt to exert, or conspire to exert, authority or influence over any student-athlete or other participant in an attempt to manipulate any outcome of a University sporting or athletic event or the final outcome of any University sporting or athletic event; (b) disseminate, utilize,

or permit others to disseminate or utilize, non-public confidential information regarding a student-athlete or University athletic team for the purposes of gambling; or (c) offer or provide, or become any way involved in offering or providing, a prospective or an enrolled student-athlete an improper inducement or extra benefit or improper financial aid. Vendor and its officers, employees, volunteers, subcontractors, agents, representatives, and guests will: (a) report all perceived or potential violations of NCAA, athletic conference, University, and University Athletic Department rules, policies, and procedures to the appropriate individuals (e.g., the University Athletic Department Compliance Office); (b) attend all compliance rules education meetings requested by University; and (c) cooperate fully in any NCAA infractions process, including the investigation and adjudication of a case by law enforcement, the University, its Office of General Counsel and its athletic governing athletic bodies or conferences. Vendor will hold harmless and indemnify University for any violation of such bylaws, rules or regulations by Vendor, its officials, employees, volunteers, subcontractors, agents, representatives, and guests.

7. **Web Site Accessibility.** Vendor agrees that any web-based services provided by Vendor substantially comply with the accessibility guidelines of Section 508 of the Rehabilitation Act of 1973 and with the current version of the WebContent Accessibility Guidelines (WCAG) and shall promptly respond to and resolve any accessibility complaints received from the University or from web-site users.
8. **Non-Discrimination.** Vendor agrees to comply with all applicable Federal and State laws, including without limitation laws pertaining to non-discrimination. Without limiting the generality of the foregoing, Vendor agrees as follows: (a) Vendor will not discriminate against any qualified employee, applicant for employment, or participant in any program because of age, race, color, national origin, disability, religion, protected veterans status, military service, genetic information, sex, or pregnancy; (b) in all solicitations or advertisements for employees, Vendor will state that all qualified applicants will receive consideration without regard to any of the foregoing categories; (c) Vendor's failure to comply with this non-discrimination clause shall be deemed a breach of any agreement between the parties and such agreement may be canceled, terminated or suspended in whole or in part; and (d) Vendor will include the provisions of items (a) through (c) in every permitted subcontract so that such provisions will be binding upon each subcontractor of Vendor.
9. **Data Security.** The following apply to any agreement, PO or engagement in which Vendor has access to, stores or processes electronic or digital records and information or records of any type owned, created, received, collected or stored by the University or on its behalf ("Data"). Data includes, but is not limited to, personally identifiable information, University, student, faculty and staff Data, metadata, and user content. Vendor shall collect and use Data only for the purpose of performing its obligations under a PO or agreement. Vendor shall not provide or disclose Data to any entity or person not employed by Vendor without prior written consent of the University, except as may be required by law or permitted by the express terms of the PO or agreement. Vendor shall not change the manner in which Data is collected, used, or shared without the prior written consent of the University.

All Data in the possession or control of Vendor or its subcontractors or agents shall be destroyed, or transferred to the University when the Data is no longer needed for performance of the PO or agreement. Vendor, and each subcontractor and agent of Vendor with access to Data, shall maintain appropriate technical and organizational measures for the protection of the security, confidentiality and integrity of Data and to prevent unauthorized access to including without limitation, safeguards that meet the requirements of the Federal Trade Commission Safeguard Rule, set forth at 16 CFR Part 314 and the European Union's General Data Protection Regulations ("GDPR"). Vendor's technical and organizational measure shall conform to the standards set in the current version of the NIST Cybersecurity Framework (or its equivalent). Such measures shall include measures for protection against unauthorized or unlawful access to Data and against accidental or unlawful destruction, loss, alteration, damage, disclosure of, or access, to Data. Vendor shall maintain and operate a formal security program materially in accordance with industry standards that is designed to: (i) ensure the security and integrity of Data, (ii) protect against threats or hazards to the security or integrity of Data, (iii) prevent unauthorized access to Data, and (iv) prevent unauthorized access to the University's information technology infrastructure including, without limitation, data processing devices, data storage devices, servers, networks, information services and computing devices and communication devices ("IT Infrastructure").

If Vendor processes payment card data, Vendor shall also comply with all applicable requirements for validation and compliance with the PCI DSS (Payment Card Industry Data Security Standard), as appropriate for its Service Provider level.

In the event Vendor discovers unauthorized access to IT Infrastructure or unauthorized use or disclosure of Data (a "Security Breach") or reasonably believes that a Security Breach has occurred, Vendor shall promptly (and within any timeframe established by applicable law concerning Vendor's notification requirement) notify the University of such Security Breach, shall provide to the University any information regarding the incident reasonably requested by the University (including a list of the Data and IT Infrastructure affected and all affected individuals and their contact information) and shall promptly take all measures reasonably required to recover Data, to remedy any flaws, defects or vulnerabilities in Vendor's systems, software or personnel related to the Security Breach and, if requested by the University, to assist the University in identifying and remedying any other flaws, defects or vulnerabilities related to the Security Breach.

If Vendor maintains or stores Data, Vendor shall engage, at its cost, an independent accounting firm to produce annual audit reports. The University reserves the right to require that such audits employ the SOC 2 standards of the American Institute of Certified Public Accountants. Vendor will transmit a copy of each audit report to the University immediately following Vendor's receipt of such report.

With respect to any processing of personal data of persons located in the European Union or the European Economic Area, Vendor shall only act on the written instruction of the University and shall assist the University in compliance with GDPR in relation to the security of processing, the notification of personal data breaches, data protection impact assessments, answering data subjects' requests, and allowing data subjects to exercise their rights. Vendor shall ensure that individuals processing the data are subject to a duty of confidentiality and only engage sub-processors with the prior consent of the University and under a written contract.

Vendor shall limit access to Data and IT Infrastructure ("Data Access") to individuals whose duties require Data Access in order for Vendor to perform its contractual obligations. Before permitting Data Access to any individual, Vendor shall obtain, to the extent permitted by law, current criminal and financial background checks for such individual. Vendor shall not permit Data Access by any individual that Vendor reasonably determines may expose the University to a risk of loss or damage, unauthorized use or modification of Data, damage to IT Infrastructure.

Except as may be provided by a separate written agreement, all rights in Data and IT Infrastructure, including all intellectual property rights, shall remain the property of the University, and Vendor has only a limited, nonexclusive license for the sole purpose of performing its obligations as outlined in the PO or agreement. Vendor shall maintain insurance, in the amount of at least \$5,000,000 per occurrence, protecting the University against loss or damages (including costs of litigation) arising from a Security Breach related to or arising from Vendor's acts or omissions.

## V. UNIVERSITY PROPERTY RIGHTS

**1. University Property.** Specifications, drawings, information, dies, cuts, negatives, positives, data or any other commodity or intellectual property furnished to Vendor shall remain property of the University, shall be kept confidential by Vendor unless disclosure is required by law, shall be used only as expressly authorized, and shall be returned to the University at Vendor's expense. Vendor shall, at the request of the University, sign a written assignment of all intellectual property (including, without limitation, rights under copyright, trademark and patent law) developed by or for Vendor expressly for the University in the course of performing Vendor's obligations, and all such intellectual property shall be the property of the University unless provided otherwise in a signed, written agreement.

**2. Marks and Logos.** The University's trade names, nicknames, trade dress, logos, mascots, uniforms, images, facilities, landmarks, symbols, trademarks, and service marks, or other indicia of intellectual property whether presently existing or later established, including without limitation any derivative marks (collectively "Marks") are the exclusive property of the University. Nothing in any agreement or PO transfers, licenses, or allows any use of the University's Marks unless expressly agreed upon in writing by both parties. In the event that an agreement between Vendor and the University grants such authorization, Vendor must immediately discontinue use of the Marks of the University upon the expiration or termination of the agreement. Unauthorized use of the Marks of the University by Vendor or its respective employees, affiliates, or subagents constitutes infringement of the University's rights and a material breach of contract. Under no circumstances may Vendor use the University's Marks in such a manner as to imply or state an endorsement of Vendor or its products by the University.

**3. Use of Logo Products.** Merchandise that carries a University logo or trademark must be purchased from vendors that are licensed by or through the University.

**4. Liens And Security Interests.** Property of the University shall not be subjected to liens or security interests of any nature. Any provision of an agreement, quotation, PO or invoice that purports to impose a lien or security interest is expressly rejected by the University and is of no effect.

## VI. PERFORMANCE AND TERMINATION

**1. Waiver.** No waiver of any term, provision or condition of a PO or agreement, whether by conduct or otherwise, in any one or more instances, shall be deemed or construed to be a further or continuing waiver of any such term, provisions or condition of the contract.

**2. Excused Performance.** In the event that the performance of any terms or provisions of a PO or agreement shall be delayed or prevented because of compliance with any law, decree, or order of any governmental agency or authority, either local, state, or federal, or because of riots, war, acts of terrorism, public disturbances, unavailability of materials meeting the required standards, strikes, lockouts, differences with workmen, fires, floods, Acts of God, epidemic or pandemic or any other reason whatsoever which is not within the control of the party whose performance is interfered with and which, by the exercise of reasonable diligence, such party is unable to prevent (the foregoing collectively referred to as "Excused Performance"), the party so interfered with may at its option suspend, without liability, the performance of its obligations during the period such cause continues, and extend any due date or deadline for performance by the period of such delay, but in no event shall such delay exceed six (6) months unless agreed otherwise by the University.

**3. Disputes.** Vendor and the University agree that they will attempt to resolve any disputes in good faith. Subject to the provisions on sovereign immunity herein, the State of Arkansas shall be the sole and exclusive venue for any litigation or proceeding that may arise out of or in connection with a PO or agreement. The Vendor acknowledges, understands and agrees that any actions for damages against the University may only be initiated and pursued in the Arkansas Claims Commission. Under no circumstances does the University agree to binding arbitration of any disputes or to the payment of attorney fees, court costs or litigation expenses including appeals.

**4. Termination.** The agreement between Vendor and the University or PO issued by the University may be terminated by the University as follows:

For Breach: In the event that the Vendor fails to perform any obligation provided in these terms and conditions, the PO or the agreement, the University may notify the Vendor in writing of such failure and demand that the same be remedied within ten (10) days. Should the Vendor fail to remedy the same within said period, the University shall then have the right to immediately terminate the PO or agreement without penalty or further obligation and exercise any rights and remedies available to it by law or in equity. Additionally, upon Vendor's failure to remedy as provided above, the University may, without prejudice to any other rights or remedies available to the University, terminate the PO or agreement, in whole or in part, and procure the goods and/or services elsewhere and charge to Vendor all costs exceeding the price set forth in the PO or agreement.

For Convenience: The University may terminate the PO or agreement for the convenience of the University upon sixty (60) days advance written notice to Vendor

Non-appropriation: The University may cancel a PO or agreement to the extent the funds are no longer legally available for expenditures under the PO or agreement. Any delivered but unpaid for goods will be returned to the Vendor. If the University is unable to pay for goods that it retains or services provided, the Vendor may file a claim with the Arkansas State Claims Commission.

## VII. CERTIFICATIONS REQUIRED BY LAW

**1. Contract and Grant Disclosure and Certification.** Any contract, or amendment to any contract, executed by the University which exceeds \$25,000.00 shall require Vendor to disclose information consistent with the terms of Arkansas Executive Order 98-04, and any amendments or replacements, and the regulations pursuant thereto. Failure of any individual or entity to disclose, or the violation of any rule,

regulation or policy promulgated by the Department of Finance and Administration pursuant to this Order, shall be considered a material breach of the terms of the contract, lease, purchase agreement, or grant and shall subject the party failing to disclose, or in violation, to all legal remedies available to the University under the provisions of the existing law. The Contract and Grant Disclosure and Certification Forms (F-1 and F-2) can be found on the following website: <https://www.transform.ar.gov/procurement/agencies/forms-and-reporting/>

**2. Illegal Immigrant Certification.** For services contracts and construction contracts with a value of \$25,000 or greater, Vendor must certify that Vendor does not employ illegal immigrants and will not employ illegal immigrants during the term of the agreement between the University and the Vendor.

**3. Prohibition Against Boycotting Israel.** In accordance with Ark. Code Ann. § 25-1-503, if the PO or agreement has a value of \$1,000.00 or more, Vendor certifies to University that Vendor (a) is not currently engaged in a boycott of Israel and (b) agrees for the duration of its agreement with the University not to engage in a boycott of Israel.

**4. Act 611.** In accordance with Ark. Code Ann. § 25-1-1102, Vendor certifies that it is not currently engaged in a boycott of the energy, fossil fuel, firearms and ammunition industries and agrees for the duration of its agreement not to engage in a boycott of the energy, fossil fuel, firearms or ammunition industries. The preceding does not apply to: (i) a financial services provider as defined at Ark. Code Ann. § 25-1-1001(8)(A), (ii) an agreement with a total potential value of less than \$75,000, or (iii) a contract under which the Vendor's price for the goods or services is at least 20% less than the lowest certifying business.

**5. Act 758.** Vendor certifies that the government of the People's Republic of China ("PRC") does not wholly own Vendor or hold a majority interest in Vendor. Vendor further certifies that the PRC does not own or hold a majority interest in a for-profit parent company, subsidiary or affiliate of Vendor or in a subcontractor to be employed by Vendor.

**6. Technology Access.** When procuring a technology product or when soliciting the development of such a product, the State of Arkansas is required to comply with the provisions of Ark. Code Ann. § 25-26-201 et seq., as amended by Act 308 of 2013, which expresses the policy of the State to provide individuals who are blind or visually impaired with access to information technology purchased in whole or in part with state funds. Vendor acknowledges and agrees that state funds may not be expended in connection with the purchase of information technology unless that technology meets the statutory Requirements found in 36 C.F.R. § 1194.21, as it existed on January 1, 2019 (software applications and operating ICSs) and 36 C.F.R. § 1194.22, as it existed on January 1, 2019 (web-based intranet and internet information and applications), in accordance with the State of Arkansas technology policy standards relating to accessibility by persons with visual impairments. Accordingly, Vendor providing a technology product shall expressly represent and warrant to the University through the procurement process by submission of a Voluntary Product Accessibility Template (VPAT) for 36 C.F.R. § 1194.21, as it existed on January 1, 2019 (software applications and operating ICSs) and 36 C.F.R. § 1194.22, that the technology provided to the University for purchase is capable, either by virtue of features included within the technology, or because it is readily adaptable by use with other technology, of:

Providing, to the extent required by Ark. Code Ann. § 25-26-201 et seq., equivalent access for effective use by both visual and non-visual means.

Presenting information, including prompts used for interactive communications, in formats intended for non-visual use.

After being made accessible, integrating into networks for obtaining, retrieving, and disseminating information used by individuals who are not blind or visually impaired.

Providing effective, interactive control and use of the technology, including without limitation the operating system, software applications, and format of the data presented is readily achievable by nonvisual means.

Being compatible with information technology used by other individuals with whom the blind or visually impaired individuals interact.

Integrating into networks used to share communications among employees, program participants, and the public.

Providing the capability of equivalent access by nonvisual means to telecommunications or other interconnected network services used by persons who are not blind or visually impaired.

State agencies cannot claim a product as a whole is not reasonably available because no product in the marketplace meets all the standards. Agencies must evaluate products to determine which product best meets the standards. If an agency purchases a product that does not best meet the standards, the agency must provide written documentation supporting the selection of a different product, including any required reasonable accommodations.

For purposes of this section, the phrase “equivalent access” means a substantially similar ability to communicate with, or make use of, the technology, either directly, by features incorporated within the technology, or by other reasonable means such as assistive devices or services which would constitute reasonable accommodations under the Americans with Disabilities Act or similar state and federal laws. Examples of methods by which equivalent access may be provided include, but are not limited to, keyboard alternatives to mouse commands or other means of navigating graphical displays, and customizable display appearance. As provided in Ark. Code Ann. § 25-26-201 et seq., as amended by Act 308 of 2013, if equivalent access is not reasonably available, then individuals who are blind or visually impaired shall be provided a reasonable accommodation as defined in 42 U.S.C. § 12111(9), as it existed on January 1, 2019. If the information manipulated or presented by the product is inherently visual in nature, so that its meaning cannot be conveyed non-visually, these specifications do not prohibit the purchase or use of an information technology product that does not meet these standards.

**7. Export Controls.** Vendor shall comply with all applicable laws, regulations and restrictions of the United States concerning the export of products, technical data and direct products thereof including, without limitation, all regulations regarding export, asset control and destination control of the Commerce, Treasury, State and Defense Departments of the United States Government, the Export Controls Act of 2018, and the Export Administration Act of 1979, as amended from time to time (each an “Export Control”). Vendor must notify University in advance if Vendor is providing to University any property (whether tangible or intangible), data or services governed by the Department of State, Directorate of Defense Trade Controls, International Traffic in Arms Regulations (ITAR) or controlled by a “600 series” or 9×515 Export Control Classification Number (ECCN).

## VIII. LIABILITY

**1. Liability Limits.** Any language in an agreement, quotation or Vendor’s invoice or standard terms proposing to place a dollar limitation on Vendor’s liability shall not apply to Vendor’s obligation to indemnify the University against third-party claims, a Security Breach or Vendor’s intentional torts, criminal acts, fraudulent conduct or gross negligence.

**2. Insurance.** The University does not maintain general commercial liability or other liability insurance. Any provision of a quotation, purchase order or invoice requiring that the University purchase or maintain liability insurance is rejected.

**3. Sovereign Immunity.** Nothing in any PO or Agreement shall be construed to waive the sovereign immunity of the Board of Trustees of the University of Arkansas, of the University, or of any entity thereof.

**4. Limitation of University’s Liability.** The University specifically rejects any provision of any contract, invoice, standard agreement or standard terms that requires the University to indemnify Vendor.

**5. Indemnification By Vendor.** Vendor shall defend, indemnify, and hold harmless the University, its agents, officers, board members, and employees from and against any and all claims, damages, losses, and expenses, including reasonable attorney’s fees, for any claims arising out of or in any way relating to the performance of Vendor’s obligations under a PO or agreement, including but not limited to any claims pertaining to or arising from Vendor’s infringement of patents, copyrights or other intellectual property rights and Vendor’s negligence, intentional acts or omissions.

## IX. MISCELLANEOUS

**1. Assignments.** No PO or agreement may be assigned, nor may the duties thereunder be assigned, delegated or subcontracted, without the written consent of the University.

**2. No Exclusivity.** This is not an exclusive agreement. The University reserves the right to purchase, use, lease, license or otherwise procure any similar services or products.

**3. Antitrust Assignment.** Vendor assigns, sells and transfers to the University all rights, title and interest in and to all causes of action it may have under the antitrust laws of the United States or the State of Arkansas for price fixing, which causes of action have accrued prior to the date of this assignment and which relate solely to the particular goods or services purchased by or produced for the University pursuant to a PO or contract.

**4. Notification and Communications.** Notices and other communications to the University shall be directed to the address provided in the PO or agreement, and to any e-mail address provided by the University and be effective upon receipt. Vendor agrees that the University is entitled to rely on information contained in written or electronic communications that the University reasonably believes have been transmitted or authorized by Vendor. In addition to any notice provisions specified herein, all notices, requests, and other communications required or permitted to be sent, including any notice of demand, claim, termination, cancellation or breach against the University shall also in writing delivered personally, by overnight courier service or by United States certified mail, postage paid, return receipt requested, to the following: University of Arkansas, Office of General Counsel, [ADDRESS], in order to be effective.

**5. Governing Law.** All agreements and POs, including all amendments thereto, shall be construed and enforced in accordance with the laws of the State of Arkansas, without regard to its choice of law principles.

**6. Prohibition on Certain Telecommunications Equipment and Services:** Vendor represents and warrants that it does not use any “covered telecommunications equipment or services” as a “substantial or essential component of any system,” or as “critical technology” as part of any system, as those terms are defined in Federal Acquisition Regulation clause 52.204-25. In the event Vendor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or Vendor is notified of such by a subcontractor at any tier or by any other source, Vendor shall immediately notify the University and provide the information prescribed in Federal Acquisition Regulation clause 52.204-25(d)(2). Any breach of this paragraph shall give the University the right to immediately terminate this Purchase Order upon written notice to Vendor.

**7. Use of Federal Transit Administration (FTA) Funds.** If Federal Transit Administration (FTA) funds are used in any procurement by the University, certain contract clauses apply based on the nature and dollar value of the procurement. The FTA clauses and applicable types of procurements and thresholds may be found at the following links: [FTA Procurement Resources](#) and [FTA Certifications and Assurances](#) as well as [Federal Required and Other Model Clauses](#) and [Appendix A of the Best Practices and Lessons Learned Manual](#). In addition, for each covered prime contract issued by the University with support from FTA funds, Vendor agrees to the prompt payment and retainage provision at the following link: [Prompt Payment Retainage](#). Additional Resources: [FTA Circular 4220.1F](#) (See Appendix D Provisions, Certifications, Reports, Forms, and other Matrices); [FTA Master Grant Agreements](#).

**8. Ethical Standards.** It shall be a breach of ethical standards for a person to be retained, or to retain a person, to solicit or secure a state contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies maintained by Vendor for the purpose of securing business in general.

**9. UAMS Specific Clauses:** If contracting with the University of Arkansas for Medical Sciences (“UAMS”), the following clauses apply:

a. **INVOICING:** Payment shall be made within thirty (30) days of receipt of invoice upon completion of all of the following: (1) delivery and acceptance of good(s) and/or service(s), (2) submission of correct invoice, and (3) proper legal processing of invoice by UAMS. Vendor shall submit an invoice to the “Invoice To” address on the face of this Purchase Order. All invoices must include the following information where applicable: (a) Vendor legal name and remittance address, invoice date and UAMS Purchase Order Number, (b) an itemized listing of purchases, to include a description of the goods and/or services, unit price and quantity, (c) itemized freight, shipping and handling charges and taxes, and (d) discounts. Invoices containing insufficient information for processing shall be immediately returned to Vendor. Invoices containing line item price deviations from the price stated in this Purchase Order shall be corrected if prior approval is not given pursuant to Section 2 hereof. Vendor must timely submit invoices to UAMS under this Purchase Order, but in any event no later than 180 days after the

date of acceptance. Vendor understands and agrees that UAMS shall not pay and shall not otherwise be responsible for unbilled amounts older than 180 days.

b. **Delivery; Force Majeure.** Shipment and delivery date(s) specified in this Purchase Order are of the essence. However, Vendor shall not be liable for delay in performance to the extent and for such period as such delay is due to reasons outside of Vendor's reasonable control, including fire, floods, strike, riot, labor disputes, war, act of government authority, declaration of a public health emergency, epidemic, pandemic, act of God, breakdown of machinery or equipment, or inability to obtain material, labor, equipment or transportation, and which by the exercise of reasonable diligence could not be avoided (a "Force Majeure Event"), provided Vendor gives in writing prompt (but in any event within five days) notice to the UAMS Supply Chain Procurement Department of such occurrence. UAMS shall not be liable to accept any part of such goods and services that are delayed and may, at its option, cancel this Purchase Order. This Purchase Order may be canceled or delayed by UAMS at any time prior to delivery if the UAMS operations is interrupted by a Force Majeure Event, provided that UAMS gives prompt notice to Vendor of such occurrence.

c. **Publication:** In order to further the mission of UAMS, UAMS shall have the right to publish, present or use for research, educational or any other legal purpose any and all results, including data, developed or provided by Vendor for UAMS under this Purchase Order. UAMS agrees to acknowledge Vendor as the provider thereof in any scientific publication that reports such results.

d. **Patient Care Services:** If Vendor is to provide, directly or indirectly, patient care services under this Purchase Order, Vendor agrees to comply with applicable state, federal and industry regulations and standards in the performance of perform such services, including specifically The Joint Commission and Arkansas Department of Health requirements as outlined in the Guide for Accreditation of Hospitals and Arkansas Department of Health guidelines, to the extent applicable. As contemplated by The Joint Commission Standard LD.04.03.09 and 42 CFR 482.12(e), Vendor agrees to participate in good faith with UAMS's quality monitoring activities related to such services, which may include assisting UAMS in forming reasonable quality metrics and providing UAMS, upon reasonable request, with data, documentation and/or reports relative to Vendor's performance of such services.

e. **HIPAA:** If Protected Health Information (as such term is defined by applicable federal or state law or regulations, including, but not limited to the Health Insurance Portability and Accountability Act of 1994, as amended ("HIPAA") ("PHI")) may be disclosed to or accessible by Vendor in connection with the provision of goods and/or services hereunder, Vendor must complete a Business Associate HIPAA Security Checklist for UAMS IT Security to review and, if applicable, execute the UAMS Business Associate Agreement prior to the issuance of a purchase order.

1. **Access to Records:** If this Purchase Order is for the provision of services with a value of \$10,000 or more over a 12-month period, then until the expiration of four (4) years after rendering of such services, Vendor shall make available to the Secretary of the U.S. Department of Health and Human Services, the U.S. Comptroller General, and their duly authorized representatives, if requested by any of them, this Purchase Order and all books, documents and records necessary to certify the nature and extent of the costs of providing services under this Purchase Order. If Vendor carries out the duties of this Purchase Order through a subcontract worth \$10,000 or more over a 12-month period with a related party, Vendor agrees to include this requirement in any such subcontract. This paragraph shall be of force and effect only to the extent required by 42 U.S.C. § 1395x(v)(1)(I).

g. **Reporting of Discounts:** Vendor agrees to properly report and disclose discounts and fees in this Purchase Order, to the extent required by applicable state and federal law. Vendor agrees to comply with the requirements of 42 U.S.C. §1320a-7b(b)(3)(A) and the safe harbor regulations regarding discounts or other reduction in price. Vendor shall satisfy any and all requirements imposed on sellers by the safe harbor. In accordance with 42 C.F.R. § 1001.952(h), Vendor shall fully and accurately report any discount on invoices, statements, or reports submitted to UAMS.

h. **Delivery Requirements:**

i. Substitutions or cancellations of goods or services are not permitted without prior written approval of the UAMS Supply Chain Procurement Department.

- ii. All articles are to be suitably packed and prepared for shipment and shipped in containers suitable for shipment and storage.
- iii. Delivery shall be made during receiving hours only (7:30 a.m. to 3:00 p.m. CST, M-F excluding state holidays), unless otherwise specified in this Purchase Order or approved by the UAMS Supply Chain Procurement Department.
- iv. **PACKING LIST MUST BE AFFIXED TO THE OUTSIDE OF PACKING CONTAINER(S). IF SHIPMENT IS MADE IN TWO OR MORE CONTAINERS, EACH CONTAINER MUST HAVE A PACKING LIST OF ITS CONTENTS. EACH PACKING LIST MUST CONTAIN THE UAMS PURCHASE ORDER. CONTAINERS NOT CLEARLY IDENTIFIED ARE SUBJECT TO REFUSAL AT THE DELIVERY LOCATION.**
- v. **VENDOR MUST CONTACT THE UAMS DISTRIBUTION CENTER 24 HOURS PRIOR TO DELIVERY TO OBTAIN THE DOCK ASSIGNMENT; CALL THE RECEIVING MANAGER AT 501-686-6543. FAILURE TO DO SO MAY RESULT IN UNLOADING DELAYS, RE-DELIVERY AND OTHER EXPENSES TO VENDOR.**
  - i. **Variation in Quantity:** UAMS shall pay only on the basis of actual quantities of each item of goods and/or services ordered and received pursuant to this Purchase Order.
  - j. **Testing Procedures for Specification Compliance:** Tests may be performed on samples taken from regular shipments. If any samples so tested fail to meet or exceed all conditions and requirements of the Specifications, the cost of the sample used and reasonable cost of the testing shall be borne by Vendor. Any testing activities performed or not performed by UAMS shall not be construed as a waiver any rights of UAMS, or any obligations of Vendor, under this Purchase Order.
  - k. **Authorized Distributor:** Vendor represents, warrants and guarantees that it is an authorized distributor of all equipment and other goods procured by UAMS under this Purchase Order. Prior to the issuance of a purchase order, Vendor may be required to submit a letter from the manufacturer as proof of authorization.
  - l. **Taxes:** UAMS is exempt from paying all state and local sales and use taxes. A copy of UAMS's tax exemption permit 070136-84-001 is available upon request. On items subject to federal excise tax, Vendor must itemize on invoices the amount of tax included in prices quoted. Price charged to UAMS shall not include taxes for which an exemption applies.
  - m. **Conflict or Inconsistency:** In the event of any conflict or inconsistency between any other provisions of these Terms and Conditions and the UAMS Specific Clauses contained herein, the UAMS Specific Clauses shall control.

**END OF DOCUMENT**



**SECTION 00 7300  
SUPPLEMENTARY GENERAL CONDITIONS**

**PART 1 GENERAL V.22**

**1.01 SUMMARY**

- A. The terms used in these Supplementary Conditions that are defined in the General Conditions have the meanings assigned to them in the General Conditions.

**1.02 MODIFICATIONS TO GENERAL CONDITIONS**

SUPPLEMENTARY GENERAL CONDITIONS: THE FOLLOWING SUPPLEMENTS MODIFY THE "GENERAL CONDITION OF THE CONTRACT FOR CONSTRUCTION", AIA DOCUMENT A201-2017. WHERE A PORTION OF THE GENERAL CONDITIONS IS MODIFIED OR DELETED BY THESE SUPPLEMENTARY CONDITIONS, THE UNALTERED PORTIONS OF THE GENERAL CONDITIONS SHALL REMAIN IN EFFECT.

3.8.1 In line 1 after "Documents." add "Refer to Section 01 2100."

3.8.2.2 Add the following to end of clause, "except when installation is specified as part of the allowance. "Refer to Section 01 2100."

3.9.3 Add the following sentence at the end of the paragraph, "In event the approved superintendent must be changed for circumstances beyond the G.C.'s control, or at the direction of the Owner, the replacement superintendent must meet with the Owner's approval.

3.10 Add the following new subparagraph:

"3.10.4 Submit construction schedules in accordance with Section 01 3216."

3.11 At end of paragraph, add "Submit in accordance with Section 01 7000."

3.12.5 At end of subparagraph, add "Submit in accordance with Section 01 3000."

7.3.7 Lines 4 through 5, delete "reasonable...profit." and insert "an allowance for overhead and profit in accordance with the schedule set forth in subparagraph 7.3.11.

7.3 Add new subparagraph as follows:

"7.3.11 In subparagraph 7.3.7, the allowance for overhead and profit included in the total cost to the Owner shall be based on the following schedule:

1. For the contractor, for work performed by the Contractor's own forces, 12 percent of the cost.
2. For the contractor, for work performed by his subcontractor, 5 percent of the amount due the subcontractor.
3. For each subcontractor or sub-subcontractor involved, for work performed by that subcontractor's or sub-subcontractor's own forces, 12 percent of the cost.
4. For each subcontractor, for work performed by the subcontractor's sub-subcontractors, 5% of the amount due the sub-subcontractor.
5. Cost to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 7.3.7.
6. In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major costs items are subcontracts, they shall be itemized also."

8.3 Add the following subparagraphs:

"8.3.4 The construction completion dates agreed on include an allowance for calendar days per month which may not be available for construction out-of-doors (normal inclement weather).

8.3.4.1 Contract time will not be extended due to normal inclement weather unless the Contractor can substantiate, to satisfaction of Architect, that greater-than-normal inclement weather occurred, considering the full term of contract time, using averaged accumulated record

mean values from climatological data compiled by National Weather Service for the project locale, and that alleged greater-than-normal inclement weather actually delayed Work or portions of Work.

8.3.4.1.1 The measure of extreme weather shall be the number of days in excess of those stated for each month, in which precipitation exceeded 0.10 inch, from area weather station for same period of time, which is same source of data used to determine normal weather losses.

8.3.4.1.2 If total accumulated number of calendar days lost to weather exceeds total accumulated number expected for same period from inclement weather table, time for completion will be extended by number of calendar days needed to include excess number of calendar days lost.

8.3.4.2 Contract time will not be extended due to weather occurring after building is enclosed. "Enclosed" is defined to mean when building is sufficiently sealed, either temporarily or permanently, to permit structure to be heated and roof completed in order to permit drywall trades to work. The Architect shall determine when structure is "enclosed", and shall issue a letter to Owner, with a copy to Contractor, stating date building became "enclosed".

8.3.4.3 No change in contract sum will be authorized because of contract time due to weather."

9.2 At end of paragraph, add "Submit in accordance with Section 01 3000."

9.3.1:

1. At end of subparagraph, add "Submit in accordance with Section 01 3000."

2. Add new clause as follows:

"9.3.1.3 Until Substantial Completion of the Work, 5% of each progress payment will be retained. Refer to Article 9.8.3 for adjustment in retainage upon Substantial Completion of Work.

9.10.2 At end of subparagraph, add "Submit affidavit of payment of debts and claims and affidavit of release of liens on AIA Forms G706 and G706A, respectively."

11.1.1 Add the following new clauses:

"11.1.1.9 Liability Insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises Operations (including X, C and U coverages as applicable).
2. Independent Contractor's Protective.
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual, including specified provision for Contractor's obligation under Paragraph 3.18.
6. Owner, non-owned and hired motor vehicles.
7. Broad Form Property Damage including Completed Operations."

11.1.2 Add new clause as follows:

"11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than the following limits, or greater if required by law:

1. Worker's Compensation Statutory  
Employer's Liability \$100,000 per accident,  
-\$500,000 Disease Policy Limit  
-\$100,000 Disease, Each Employee
2. Commercial General Liability  
(including Premises-Operations,  
Independent Contractors'  
Protective, Products and Completed  
Operations, Broad Form Property Damage)
  - a. Bodily Injury & \$1,000,000 each occurrence  
Property Damage Combined \$2,000,000 aggregate

- b. Products and Completed Operations to be maintained for 2 year after final Payment. \$2,000,000 aggregate
- c. Property Damage Liability Insurance will provide X, C, or U Coverage.
- d. Broad Form Property Damage Coverage shall include Completed Operations.
- 3. Contractual Liability
  - a. Bodily Injury & Property Damage Combined \$1,000,000 each occurrence \$2,000,000 aggregate
- 4. Personal Injury, with Employment Exclusion deleted \$2,000,000 aggregate
- 5. Business Auto Liability (including owned, non-owned and hired vehicles)
  - a. Bodily Injury & Property Damage Combined \$1,000,000 each occurrence \$2,000,000 aggregate
- 6. If the General Liability coverages are provided by a Commercial Liability policy, the:
  - a. General Aggregate shall be not less than \$2,000,000 and it shall apply, in total, to this Project only.
  - b. Fire Damage Limit shall be not less than \$50,000 on any one Fire.
  - c. Medical Expense Limit shall be not less than \$2,500 on any one person.
- 7. Umbrella Excess Liability \$1,000,000 over primary insurance
  - 
  - \$10,000 retention for self-insured -hazards, each occurrence

11.1.3 Add the following new clause as follows:

"11.1.3.1 The Contractor shall furnish 3 copies of each Certificate of Insurance herein required which shall specifically set forth evidence of all coverage required. Use ACORD certificate, 25-S, completed and supplemented in accordance with AIA Document A715."

11.2.1 In line 1 change "Owner" to "Contractor" and insert the following:

"The Contractor shall purchase and maintain insurance, in same amounts as specified in 11.1.2.1 above, covering the Owner's contingent liability for claims which may arise from operations under the Contract. The term "Owner", shall be deemed to include the Owner's employees, the Architect, and the Architect's employees and consultants."

11.3.1 ADD the following sentences:

"The form of policy for this coverage shall be Completed Value. If the Owner is damaged by the failure of the Contractor to maintain such insurance, then the Contractor shall bear all reasonable costs properly attributable thereto."

11.3.1.3 Delete in its entirety.

11.3.4 Delete in its entirety.

11.4.1 Delete in its entirety and substitute the following:

"11.4.1 Contractor shall bond covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds must be issued by a Surety licensed to do work in Arkansas. Cost shall be included in the Contract Sum. The amount of bond shall be equal to 100 percent of the Contract Sum.

11.4.1.1 The Contractor shall deliver the required bonds to the Owner not less than three days following the date the Agreement is entered into, or if the work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished."

11.4.1.2 The Contractor shall require the attorney-in-fact who executes the required bond on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

11.4.1.3 File a copy of the bond with Circuit Clerk in the county in which project is located.

12.2.2 Add the following to the subparagraph:

"12.2.2.1 Provide for and arrange a one year inspection of facilities before warranties expire, by Contractor, Architect/Engineer, and Owner. Inspection to occur before the end of the eleventh month from the date of substantial completion"

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**01 0000**

**OWNER'S GENERAL REQUIREMENTS**

**DIVISION 01 – OWNER'S GENERAL REQUIREMENTS**

**Review UAMS Technical Design & Construction Standards Document for more information.**

- 01 11 00 Summary of Work
- 01 14 00 Work Restrictions
  - 01 14 13 Access to Site
  - 01 14 19 Use of Site
- 01 18 00 Project Utility Sources
- 01 23 00 Alternates
- 01 25 13 Product Substitution Procedures
- 01 31 00 Project Management and Coordination
  - 01 31 19 Construction Progress Meetings
- 01 33 00 Submittal Procedures
- 01 35 00 Special Procedures
  - 01 35 13 Special Project Procedures for Healthcare Facilities
  - 01 35 29 Health, Safety and Emergency Response Procedures
  - 01 35 46 Indoor Air Quality Procedures
  - 01 35 53 Security Procedures
- 01 41 00 Regulatory Requirements
- 01 43 00 Quality Assurance (Commissioning)
- 01 45 00 Quality Control
- 01 50 00 Temporary Facilities and Controls
  - 01 52 13 Field Offices and Sheds
  - 01 52 19 Sanitary Facilities
- 01 55 00 Vehicular Access and Parking
  - 01 56 13 Air Barriers
  - 01 56 16 Temporary Dust Barriers
  - 01 56 23 Temporary Barricades
- 01 60 00 Product Requirements
  - 01 74 16 Site Maintenance
  - 01 74 19 Construction Waste Management and Disposal
- 01 76 00 Protecting Installed Construction
- 01 78 00 Closeout Requirements
  - 01 78 39 Project Record Documents
  - 01 78 46 Extra Stock Materials
- 01 81 19 Indoor Air Quality Requirements

**01 0000**

**OWNER'S GENERAL REQUIREMENTS**

**01 11 00 Summary of Work**

- A. **UAMS 24-052:** Gastroenterology Outpatient Endoscopy Suite at Freeway Medical Tower.

**01 14 00 Work Restrictions**

- A. No work shall be done in an area without written prior approval of UAMS. All work shall minimize interruptions to facilities operations.
- B. No discharge of vapor, gases, aerosols, fumes, or materials causing gases shall be done within 25 feet of a fresh air intake. Coordinate shutting down the fresh air intake while work is being done within 25 feet.
- C. A hot work permit shall be obtained from UAMS' Construction Project Manager prior to performing any work with an open flame.
- D. All work shall be performed on de-energized equipment. A request for de-energizing of equipment shall be made minimum 15 days in advance. De-energizing of equipment shall be performed by and coordinated with UAMS.
- E. UAMS reserves the right to stop work at any time.

**01 14 13 Access to Site**

- A. Parking and Staging Area Access:
  - 1. Prior to execution of the Contract for Construction, Contractor shall coordinate with Owner's Representative for parking and site access requirements.
  - 2. Confine construction personnel, equipment, and materials to staging and construction areas as coordinated with the Owner's Representative.
- B. Building Access:
  - 1. Prior to Notice to Proceed, UAMS will define use of corridors and entrances.
  - 2. Use of toilets adjacent to or within construction area for access to Work may be allowed.
  - 3. Limit working hours and building access for subcontractors; coordinate with UAMS.

**01 14 19 Use of Site**

- A. Provide access to and from site as required by law and by UAMS.
  - 1. Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
  - 2. Roadways, sidewalks, or other public ways shall not be obstructed without permit; Coordinate with authority Having Jurisdiction.
  - 3. Do not store construction materials or waste in mechanical or electrical rooms.

## **01 18 00 Project Utility Sources**

- A. Contractor shall:
  - 1. Be allowed to connect to existing utilities where adequate capacity exists when approved by UAMS
  - 2. If not allowed, assign meters to Owner upon Substantial Completion

## **01 23 00 Alternates**

### **1.01 DESCRIPTION OF REQUIREMENTS**

- A. Type of Alternates: The alternates for this project are deductive type. The work described under the alternates shall be included in the Contractor's base bid and indicated as set forth on the Bid Form.
- B. Definition: An alternate is an amount proposed by the Contractor and stated in the proposal to the Owner that will be deducted from the base bid amount if the Owner decides to accept the corresponding change in either scope of work or in products, materials, equipment, systems, or installation methods described in Contract Documents.
- C. Coordination: Coordinate related work and modify or adjust adjacent work as required to ensure that work affected by each alternate is complete and fully integrated into the project.
- D. Include as part of each alternate, miscellaneous devices, appurtenances, and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

### **1.02 DESCRIPTION OF DEDUCTIVE ALTERNATES**

- A. See Section 01 2300 "Alternates" for description.

## **01 25 13 Product Substitution Procedures**

- A. All substitutions shall be submitted on A/E Substitution Request Form no later than 30 days of Notice to Proceed
- B. Approval of substitutions shall be at the discretion of UAMS.
- C. A request for substitution constitutes a representation that the submitter:
  - 1. Investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Shall provide the same warranty for the substitution as for the specified product.
  - 3. Shall coordinate installation and make changes to other work which may be required for the substituted products.
  - 4. Waives claims for additional costs or time extension.
  - 5. Shall reimburse Owner for review or redesign services that increases cost of the work.

**01 31 00 Project Management and Coordination**

- A. During construction, coordinate use of site and facilities through the Owner's Representative.
- B. Maintain on site in field office the full record of Contract Documents, submittals, and project record documents including "as built" records.

**01 31 19 Construction Progress Meetings**

- A. Owners' Construction Project Manager shall coordinate with UAMS personnel for meetings.
- B. Contractor shall provide UAMS project manager with agenda topics 48 hours prior to the scheduled meeting time.
- C. Attendance Required:
  - 1. Contractor
  - 2. Owner
  - 3. Architect
  - 4. Contractor's Superintendent
  - 5. Major Subcontractors
- D. Standing Agenda Items:
  - 1. Review minutes of previous meetings.
  - 2. Review of Work progress.
  - 3. Field observations, problems, and decisions.
  - 4. Identification of problems that impede, or will impede, planned progress.
  - 5. Review of submittals schedule and status of submittals.
  - 6. Maintenance of progress schedule.
  - 7. Corrective measures to regain projected schedules.
  - 8. Planned progress during succeeding work period.
  - 9. Maintenance of quality and work standards
  - 10. Effect of proposed changes on progress schedule and coordination
  - 11. Other business relating to Work.
- E. UAMS Project Manager will take minutes and send to participants.

**01 33 00 Submittal Procedures**

- A. Within 10 days after date of Notice to Proceed, Contractor shall submit schedule of submittals to Architect/Engineer, Owner, and when applicable CxA for review. Schedule of submittals shall be reviewed and those required to review and approve will be identified. UAMS Construction Project Manager will receive all submittals and coordinate for Owners' approval(s).

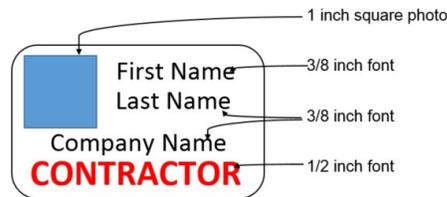
**01 35 00 Special Procedures**

- A. All contractors and A/E consultants working on UAMS properties shall attend a yearly UAMS *Health and Safety Training* Class held most Wednesdays at 7:30am in Education II Room G141 to:

1. Understand required protections of UAMS patients, visitors, and staff.
2. Understand their role in emergency response situation.

B. Personal Identification

1. All workers shall wear conspicuously on their person a UAMS issued identification badge issued after attending UAMS Health and Safety Training Class
2. In off campus business occupancies, a contractor provided badge may be used, but must contain the following:



Contractor Provided Badge  
(Approx. 2 1/8 inch by 3 1/2 inch)

C. On Site Conduct

1. Monitor the work environment to assure the workers **do not**:
  - a. Use profanity.
  - b. Harass the students, faculty members, employees, visitors, and/or patients.
  - c. Smoking or use of tobacco products of any kind on campus.
  - d. Drink or possess alcoholic beverages on campus.
  - e. Bring firearms or other weapons to campus.
2. Contractor shall remove violators from UAMS grounds immediately. Violator(s) will be banned from UAMS projects.

**01 35 13 Special Project Procedures for Healthcare Facilities**

- A. Permitting. Contractor and subcontractors shall follow all UAMS permitting requirements (using ATG online system) necessary. These include the followings:
  1. Hot Works
  2. ICRA/ILSM
    - a. All projects must have an ILSM.
    - b. Contractor shall be responsible to document compliance. The Owner's Representative shall confirm compliance and daily review and sign-off sheet.
    - c. Contractor and A/E shall be responsible to know the type and class of the ICRA (Infection Control Risk Assessment) and ILSM (Interim Life Safety Measures) for the project and make the necessary revisions to the project as required by the committee. The UAMS Project Planner is responsible for coordinating and conducting this meeting.
    - d. Aspergillus has been detected in dust that is generated during renovation or construction projects in hospitals. Exposure to this dust can cause severe illness in major surgery patients and other immune-compromised patients.

3. Lockout/Tagout
  4. Above Ceiling Permit
  5. Utilities Shutdown. **Contractors need to notify the assigned UAMS project manager well in advance of any potential shutdown for campus coordination and announcements**. Utility shutdowns can have major impacts for patient care so these must be carried out to minimize any potential issues. An approved UAMS Method of Procedures (MOP) must be provided to the Project manager 3 Weeks in advance for review and to Campus Alert to be sent out prior to the proposed Utility Shutdown.
    - a. Contractor shall be responsible for daily inspections and signoffs of mitigation techniques for compliance with all Infection Control Risk Assessment (ICRA) and Interim Life Safety Measure (ILSM) efforts. Inspections will be conducted through the ATG online permitting process and/or by paper sign-off as dictated by the project manager.
- D. When the building's fire alarm, fire detection or fire suppression systems are impaired:
1. Notify the Owner's Representative when the building's fire alarm or detection systems will be changed.
  2. When the fire suppression system will be disabled for more than 4 total hours in a 24 hour period, additional time for notifications and additional Interim Life-Safety Measures will be required.
- E. Combustible scrap material shall be removed from job site daily or stored in fire safe cabinets or appropriately rated areas.
- F. When existing exit patterns are changed, coordinate required Fire Life Safety training with UAMS
- G. Infrastructure Systems:
1. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.
  2. Provide unimpeded access for emergency vehicles.
  3. Maintain 20-foot width driveways with turning space between and around combustible materials.
  4. Maintain access to fire hydrants, Fire Department Connections always.
- A. Noise, Vibration, Dust, Fume and Vapor Control:
1. Notify UAMS Project Manager of work that could expose patients, UAMS or visitors to dust, vapors, fumes, and/or noise not defined in the ICRA.
  2. Implement control methods when dust, fumes and/or vapor producing products are used and/or activities that will likely produce noise, dust, fumes, and/or vapors occur in or around a building occupied by UAMS employees, patients, or visitors. The control methods include, but are not limited to:
    - a. Work practices (Example: Roll on paints rather than spray it on)
    - b. Engineering controls (Example: Negative pressure containment with air exhausted to outside).
    - c. Product substitution (Example: Use an adhesive with a lower vapor pressure)
    - d. Administrative controls (Example: Perform work when area is not occupied)

3. Guidelines for UAMS employee and visitor exposure can be found in the following:
  - a. Agency/Organization: Name of Occupational Exposure Limit
  - b. Occupational Safety and Health Administration (OSHA): Permissible exposure limits (PEL)
  - c. National Institute for Occupational Safety and Health (NIOSH): Recommended exposure limits (REL)
  - d. American Conference of Governmental Industrial Hygienists (ACGIH): Threshold limit values (TLV).
  - e. In patient care areas and/or areas adjacent to patient care areas the chemical exposure levels shall not exceed one tenth (1/10) of the ACGIH TLV in effect when the bid is awarded. Where no TLV has been established, the chemical exposure levels shall not exceed one tenth (1/10) of the NIOSH REL in effect when the bid is awarded. Where neither of the above limits has been established, the UAMS Occupational Health & Safety Department will determine threshold level(s).
4. Notify the Owner's Representative when noise above ambient sound levels or vibration will occur.
5. Noise or vibration from construction activities shall not:
  - a. Cause patient discomfort
  - b. Interfere with the ability of UAMS employees to perform their duties and/or hear fire alarms
  - c. Disrupt other activities.

#### **01 35 29 Health, Safety, and Emergency Response Procedures**

- A. Accidents and emergencies:
  1. The Contractor shall immediately notify the Owner's Representative; if the Owner's Representative cannot be reached notify UAMS Call Center at 501-526-0000
    - a. Describe the event.
    - b. Identify individuals involved.
    - c. Identify the location of the event. Building, Floor, and Room.
- B. Contact UAMS Construction Project manager and copy to Occupational Health and Safety.
- C. Accidental Interruption of Services: The Contractor shall immediately notify Owner's Representative and the appropriate utility company if the Owner's Representative cannot be reached notify UAMS Call Center 501-526-0000.
  1. Describe the utility system.
  2. Identify the location of the event.
  3. Identify facilities or areas impacted.
  4. Detail remediation plan if known.
- D. Scheduled Temporary Shut Off of Hospital Utility and Life Safety Systems:
  1. Coordinate shut-off to medical gas and utility supply lines with Owner's Construction Project Manager.
  2. Provide 15-day notice prior to shut-off to medical gas lines, vacuum lines, water

- supply lines, water waste lines, and HVAC systems.
3. Obtain Owner's approval prior to shut-off to life safety systems including fire protection, fire and smoke detectors, and enunciation systems for short periods of time when work may cause false alarms.
  4. Reactivate and confirm life safety systems operational at end of work which may cause false alarms or at end of each workday, whichever comes first.

#### **01 35 46 Indoor Air Quality Requirement and Procedures**

- A. Dust and Airborne Particulates: Prevent deposition of dust and other particulates in HVAC ducts and equipment. Establish condition of existing ducts and equipment prior to start of alterations.
- B. Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.
  1. Fabricate, transport, and install HVAC ducts and equipment to prevent deposition of dust and other particulates.
  2. Establish condition of existing ducts and equipment prior to start of alterations.
  3. Contractor shall submit an indoor Air Quality Management Plan
- C. Construction Procedures
  1. Prevent the absorption of moisture and humidity by adsorptive materials by:
    - a. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
    - b. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
    - c. Provide sufficient ventilation for drying within reasonable time frame.
  2. Begin construction ventilation when building is substantially enclosed.
  3. Prior to use of return air ductwork without intake filters clean up and remove dust and debris generated by construction activities.
    - a. Inspect duct intakes, return air grilles, and terminal units for dust.
    - b. Clean return plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes and conduit.
    - c. Clean tops of doors and frames.
    - d. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
    - e. Remove intake filters last, after cleaning is complete.
  4. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.
- D. Building Flush-Out
  1. Perform building flush-out before occupancy. Do not start flush-out until:
    - a. All construction is complete.
    - b. HVAC systems have been tested, adjusted, and balanced for proper operation.
    - c. Inspection of inside of return air ducts and terminal units confirms that cleaning is not

necessary.  
d. New HVAC filtration media have been installed.

2. Operate all ventilation systems at normal flow rates with 100 percent outside air.
  - a. Obtain Owner's concurrence that construction is complete enough before beginning flush-out.
  - b. Maintain interior temperature of at least 60 degrees F and interior relative humidity no higher than 60 percent.
  - c. If additional construction involving materials that produce particulates or any of the specified contaminants is conducted during flush-out, start flush-out over.
3. Install new HVAC filtration media after completion of flush-out and before occupancy or further testing.

#### D. Air Contaminant Testing

1. Perform air contaminant testing before starting construction, as base line for evaluation of post- construction testing.
2. Perform air contaminant testing before occupancy.
3. Do not start air contaminant testing until:
  - a. All construction is complete, including interior finishes.
  - b. HVAC systems have been tested, adjusted, and balanced for proper operation.
  - c. New HVAC filtration media have been installed.

### **01 35 53 Security Procedures**

#### A. Protection of the Work:

1. Protect project site, existing premises and Owner's operations from theft, vandalism, and unauthorized entry; Coordinate activities with UAMS Police Department
2. Owner is not responsible for theft from jobsite.

#### B. Entry Control

1. Restrict entrance of persons and vehicles into Project site
2. Allow entrance only to authorized persons with proper identification.
3. Maintain log of workers and visitors, make available to Owner upon request

### **01 41 00 Regulatory Requirements**

- A. Contractor and associated sub-contractors shall strictly adhere to all applicable regulatory agencies.
- B. UAMS as a part of the University of Arkansas System. UAMS is not subject to local or county Authorities Having Jurisdiction (AHJ) and ordinances. However, it is the Owner's policy to

cooperate with local and county AHJs to the extent the Owner deems appropriate.

C. UAMS shall follow:

1. Arkansas State Fire Marshal
2. Arkansas Department of Health
3. Centers for Medicaid and Medicare Services (CMS)
4. The Joint Commission (TJC)

D. For all Projects the current applicable state codes in Arkansas of the following:

1. Arkansas Fire Prevention Code, Volume 2 Building
2. Arkansas State Plumbing Code
3. Arkansas State Mechanical Code
4. Arkansas State Gas Code
5. Arkansas State Energy Code
6. Arkansas State (National) Electrical Code

E. For Healthcare, Ambulatory and Clinical projects:

1. Arkansas Department of Health – Rules and Regulations for Hospitals and Related Institutions in Arkansas
2. NFPA 101 Life Safety Code
3. NFPA 99 Standard for Healthcare Facilities
4. FGI Guidelines for Design and Construction of Healthcare Facilities

F. At completion all project, one submittal must be a set of drawings that meet the Owner's insurance company standards. Contractors and Consultants must obtain those requirements prior to submission of final construction documents.

G. All projects shall be evaluated for required compliance with [Act 674 Energy Conservation in Public Buildings](#) Architect shall be responsible for documentation.

H. All equipment shall comply with Regulation No. 18 of the Arkansas Department of Environmental Quality, a permit is required prior to construction of any combustion equipment or chemical emissions (i.e. boilers, generators, cooling towers, ETO sterilizers, etc.) that may add to pollutants. UAMS will initiate the permit process; Consultant shall provide UAMS with all equipment specifics prior to start of permit process.

I. All projects shall follow [University of Arkansas System Capital Construction Policies and Procedures](#)

**01 43 00 Quality Assurance (Commissioning)**

A. UAMS requires use of *ASHE Health Facility Commissioning Guidelines*

B. Quality assurance shall be led by Owner's Commissioning Agent who shall create a Commissioning Plan which may include document review, observations, inspections, testing, verification, monitoring, and any other procedures deemed necessary by the Owner to verify compliance with the Contract Documents

C. The Contractor shall cooperate with the Commissioning Agent and aid with quality assurance activities. Contractor shall provide ladders, lifts, scaffolds, lighting, protection, safety

equipment and any other devices and/or equipment (including operators if required) necessary to access the Work for observation.

#### **01 45 23 Testing and Inspecting Services**

- A. Contractor shall employ and pay for services of an independent testing agency to perform specified testing and inspection.
- B. Employment of agency does not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
  - 1. Testing agency: Comply with requirements of appropriate standards as specified in the product sections.
  - 2. Inspection agency: Comply with requirements appropriate standards as specified in the product sections. Laboratory: Authorized to operate in Arkansas.
  - 3. Laboratory Staff: Maintain a full-time registered Engineer on staff to review services.
  - 4. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.
- D. The Arkansas Fire Prevention Code may require the use of an Inspector-of-Record for the structural portions of the work.
  - 1. The Inspector-of-Record shall be approved by and report to the Architect/Engineer-of-Record.
  - 2. Contractor shall employ and pay for services of the Inspector-of-Record.
- E. Contractor shall be responsible for arranging the inspection by the UAMS Project Manager, Commissioning Authority and Architect/Engineer of materials, equipment, and work prior to assembly or enclosure that would make the materials, equipment, or work inaccessible for inspection.
- F. Contractor shall coordinate the Work and schedule all inspections in advance so as not to delay the Work. All major inspections shall be indicated on the Work Progress Schedule for advance planning. Contractor shall allow a minimum of ten (10) calendar days to confirm schedule of requested inspections with Owner's representatives.
- G. The following are typical project inspections:
  - 1. No finish ceiling material shall be installed until:
    - a. All overhead punch list items have been resolved to the satisfaction of the Owner.
    - b. Owner approval of all required tests for above ceiling Work.
  - 2. *Concealed Space Inspections*

- a. For areas that include partitions, structural walls, chases, crawl spaces, ceiling spaces, or any other work that will be difficult or impossible to examine once concealed in the final construction. Contractor shall not enclose these areas until Contractor has received written approval from UAMS Project Manager
- b. Progress Inspections for piping, ductwork, and other systems shall be scheduled by the Contractor through UAMS Project Manager as appropriate portions/sections of the Work are completed.
- c. Progress inspections are in addition to "system-wide" performance verification and tests conducted by UAMS's Commissioning Authority.
- d. Contractor shall schedule and document the tests.
- e. Contractor shall conduct tests and the UAMS's Commissioning Authority shall witness and approve the results.

3. *Overhead and Above Ceiling Inspections*

- a. Are similar in nature and requirements to the Concealed Space Inspections
- b. Ceilings that are fixed in place, such as gypsum board or plaster, constitute a Concealed Space inspection.
- c. Ceilings that are of "lay-in" type or where no finish ceiling is scheduled are considered an "overhead" inspection.
- d. Completed Work in place necessary for an Overhead Inspection shall include all required infrastructure and appurtenances, inclusive of, but not limited to installation of the following:
  - 1) Ceiling grid or framework
  - 2) All above ceiling electrical Work and its operations, including light fixtures.
  - 3) HVAC and plumbing, including connection of terminal units and air devices.
  - 4) Fire sprinkler heads.

H. Inspections of Building Systems and Equipment shall conform to the Commissioning Plan

I. The Contractor shall perform a checkout of operations with the manufacturer's representatives; Contractor shall coordinate with UAMS Project Manager and Commissioning Agent

**01 45 00 Quality Control**

- A. Quality Control shall be the sole responsibility of the Contractor. The Contractor shall be responsible for all testing, coordination, start-up, and operational checkout of all items of Work included in the Project. All costs for these services shall be included in the Contractor's cost of work.
- B. Specified tests, inspections, and related actions do not limit Contractor's compliance with quality-control procedures.
- C. Commissioning Agent shall witness any tests and inspections.

**01 50 00 Temporary Facilities and Controls**

- A. Contractor shall provide all necessary telephone, internet, and other communication utilities for the work of the Contractor.
- B. New or Additions to Facilities

1. Contractor shall install and pay for all temporary utilities required for the work until final Inspection.
- C. Interior renovation
1. UAMS will provide all temporary utilities, there may be restrictions to access for sanitary facilities.
  2. Contractor shall provide necessary connections to existing utilities.
- D. Fire Life Safety (FLS) Systems: Ensure that the fire alarm, detection, and suppression systems are not impaired.
1. If necessary to disable all or part of a FLS system, an Interim Life Safety Measure (ILSM) must be approved five days prior to the required shutdown.
  2. A temporary, but equivalent system, must be available when any fire system is taken out of service or is inoperable.
  3. Inspect and test temporary systems in accordance with a schedule established by UAMS. Document inspections and testing and keep ready in a binder marked with UAMS project number and UAMS project name.

**01 52 13 Field Offices and Sheds**

- A. Contractor shall provide and maintain temporary offices to accommodate the work.
1. Locate offices in areas approved by UAMS.
  2. Ensure layout and storage shall not interfere with owner's operations.
- B. Provide six adjustable band protective helmets for visitors.
- C. Maintain a minimum one set of the following record documents:
1. Drawings
  2. Specifications
  3. Addenda
  4. Change Orders and other modifications to the Contract.
  5. Reviewed shop drawings, product data, and samples
  6. Manufacturer's instruction for assembly, installation and adjusting.

**01 52 19 Sanitary Facilities**

- A. Contractor shall provide sanitary facilities for projects.

**01 55 00 Vehicular Access and Parking**

- A. Parking:
1. Use of existing parking facilities by construction personnel is not permitted.
  2. Arrange for temporary parking areas to accommodate use of construction personnel.
  3. When site space is not adequate, provide additional off-site parking.

4. On Site locations shall be approved by UAMS.
- B. Provide post/wall mounted traffic control and informational signs, traffic cones, drums, flares, lights, or flag service as required and approved by local jurisdictions.

#### **01 56 13 Air Barriers**

- A. Contractor shall provide temporary insulated weather tight closure of exterior openings to accommodate acceptable conditions for patients and staff, construction working conditions and protection for Products.

#### **01 56 16 Temporary Dust Barriers**

- A. Contractor shall supply required equipment, materials, barriers and implement air pressure control procedures to comply with the ICRA and control dust/dust-borne pathogens generated by project work.
- B. Barriers:
  1. Provide complete air barriers and vapor retarders between finished areas and areas of construction activity which will modify the air quality and moisture content.
  2. Vapor barrier materials, including polyethylene plastic sheeting, shall be flame retardant rated with a maximum flame spread rating of 25.
  3. Extend barrier from floor to ceiling or structure as required for performance of the work.
  4. Seal all penetrations through the enclosure for a positive seal.

#### **01 56 23 Temporary Barricades**

- A. Temporary construction partitions shall be smoke-tight and constructed with noncombustible materials with appropriate fire rating.
  1. Maximum flame spread rating of 25.
- B. Framing and gypsum board sheet materials with closed joints and sealed edges at intersections with existing surfaces:
  1. Provide level 3 gypsum finish.
  2. Provide resilient base - Color to match adjoining base.
  3. Paint surfaces exposed to view from Owner-occupied areas - Color to match adjacent paint.
- C. Contractor shall insure free and unobstructed access to and from existing occupancies or services especially for emergency personnel.

#### **01 60 00 Product Requirement**

- A. Reuse of Existing Material and Equipment:
  1. Except where specifically indicated or specified, do not use material and equipment removed from existing structure in completed Work.

2. If material or equipment is to be reused, protect from damage.

#### **01 74 16 Site Maintenance**

- A. Provide means of removing dirt and mud from vehicle wheels before entering parking lots, streets, or other public access routes
- B. Tracked vehicles are not allowed on paved areas.
- C. Comply with Arkansas Department of Environmental Quality requirements for storm water runoff.

#### **01 74 19 Construction Waste Management and Disposal**

- A. Contractor shall be responsible for all waste generated by the work including vendor supplied equipment and owner supplied equipment packaging.
- B. Contractor shall be responsible to comply with regulatory requirements, including but not limited to, Federal, State and local.
- C. Methods of trash/waste disposal not acceptable include the following:
  1. Burning on the project site
  2. Burial on the project site or other property, public or private
  3. Other illegal dumping
- D. Contract shall submit to A/E a Waste Management Plan indicating:
  1. Waste removal facilities
  2. Waste removal schedule
  3. Waste container types
  4. Hazardous materials handling
  5. Recycling plan for repurposing or reuse of construction waste
  6. Provide on-site instruction of appropriate separation
- E. Waste materials movement
  1. Open free-fall chutes are not permitted
  2. Terminate closed chutes into appropriate containers
- F. Construction materials or waste shall not be stored in mechanical or electrical rooms
- G. "Broom clean" the area of work prior to substantial completion

#### **01 76 00 Protecting Installed Construction**

- A. Provide adequate protection of existing items to remain, including exposure to weather; Repair any damage caused by Contractor.

#### **01 78 00 Closeout Submittals**

- A. Contractor shall submit closeout submittal prior to Substantial Completion
- B. Upload into UAMS project management system, organized in accordance with file folder structures the following:
  - 1. Certificate of Substantial Completion Fully Executed.
  - 2. Contractors, sub-contractors, and Suppliers
    - a. List company names, addresses, contact person (email and phone), and type of work performed.
  - 3. Equipment Import File
  - 4. Warranties and Guarantees
    - a. Provide index listing division, subcontractor/supplier, item, and warranty term.
    - b. Obtain warranties executed in duplicate by responsible Subcontractors, suppliers, and manufacturers.
    - c. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
    - d. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.
    - e. Verify that documents are in proper form, contain full information, and are notarized.
  - 5. Project manual (bookmarked in PDF format by specification section)
  - 6. "As-built" drawings
  - 7. Reviewed shop drawing submittals with Architect/Engineer comments (organized by specification section)
  - 8. Testing, Certification and Start-Up
    - a. Provide index listing division, subcontractor/supplier, and Report name.
  - 9. Extra Materials
  - 10. Operation and Maintenance Manual
    - a. Provide index listing division, subcontractor/supplier, and manual item.
    - b. Materials and Finishes: For each product, applied material and finish provide:
      - 1) Product data with catalog number, size, composition, color, and texture designations
      - 2) Information for re-ordering custom manufactured products
      - 3) Details of installation
      - 4) Recommendations for inspections
      - 5) Instructions for care, maintenance, and repair:
      - 6) Manufacturer's recommendations for cleaning agents and methods
      - 7) Precautions against detrimental cleaning agents and methods
      - 8) Recommended schedule for cleaning and maintenance.
      - 9) Applicable reference standards
      - 10) Chemical composition
    - c. Equipment and System:
      - 1) Description of unit or system, and component parts

- 2) Significant design criteria
- 3) Identify function, normal operating characteristics, and limiting conditions.
- 4) Include performance curves, with engineering data and tests.
- 5) Complete nomenclature and model number of replaceable parts
- 6) Include start-up, break-in, and routine normal operating instructions and sequences.
- 7) Regulation, control, stopping, shutdown, and emergency instructions
- 8) Summer, winter, and any special operating instructions
- 9) Routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- 10) Provide servicing and lubrication schedule, and list of lubricants required.
- 11) Include manufacturer's printed operation and maintenance instructions.
- 12) Recommended cleaning methods and materials, and special precautions identifying detrimental agents.
- 13) Sequence of operation by controls manufacturer
- 14) Control diagrams by controls manufacturer as installed.
- 15) Contractor's coordination drawings, with color coded piping diagrams as installed.
- 16) Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- 17) Original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- 18) Original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- 19) Supply any special tools required to service or maintain the equipment.
- 20) Safety Precautions: This subsection shall comprise a listing of safety precautions and instructions to be followed before, during and after making repairs, adjustments, or routine maintenance.
- 21) Any service contracts issued.
- 22) Supplemental Data. Prepare written text and/or special drawings to provide necessary information, where manufacturer's standard printed data is not available and information is necessary for a proper understanding and operation and maintenance of equipment or systems, or where it is necessary to provide additional information to supplement data included in the manual or project documents.
  - a) Panelboard Circuit Directories:
    - i. Provide electrical service characteristics, controls, and communications.
    - ii. Include color coded wiring diagrams as installed.

### **01 78 39 Project Record Documents**

- A. General Contractor shall provide redline as-built drawing to the Architect for final record drawing creation and submission to the owner prior to final payment application.
- B. Project manuals shall be delivered to the Owner to its project management system at conclusion of the project.
- C. During construction, project record documents shall be maintained on the work site.

- D. Ensure “red lined” record documents are maintained concurrent with construction progress.
  - 1. Site drawing “redline” shall:
    - a. Measure depths of foundations in relation to finish first floor datum.
    - b. Measure horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
    - c. Measure locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

## **02 9100 Commissioning Agent and the General Contractor (GC) Coordination**

### Construction and Acceptance Phase

- A. Facilitate the coordination of the commissioning work by the CxA.
- B. Integrate all commissioning activities into the master construction schedule. The schedule will include the following information for each piece of equipment: Factory acceptance tests, pre- functional testing, equipment functional testing, system performance testing and site integration testing.
- C. A representative shall attend a commissioning kick-off meeting and other necessary meetings scheduled by the CxA to facilitate the commissioning process.
- D. Attend Commissioning and Coordination Meetings during the construction, acceptance and warranty phases as designated by the CxA.
- E. Furnish a copy of all construction documents, addenda, change orders and approved submittals and shop drawings related to commissioned equipment and systems to the CxA.
- F. In each purchase order or subcontract written, include requirements for submittal data, CFR data, O&M data, commissioning tasks and training.
- G. Ensure that all subcontractors execute their commissioning responsibilities according to this specification and the commissioning plan.
- H. Ensure that equipment vendors (or their local representative) that are required to perform on-site start-up will attend functional testing. GC is to include this clause in specified vendor's RFP.
- I. Coordinate and ensure that the sub-contractors and equipment vendors complete, and document required Pre-Functional and Functional Performance testing including testing that requires multi-discipline and multi-trade activities. Fill out the GC portion, collect and collate the pre-functional equipment checklists and documents required by these checklists for all equipment and system to be commissioned. The GC is ensure the pre-functional checklists are completed by all required disciplines to the CxA, along with supporting documentation for all commissioned equipment and systems one (2) week prior to Functional Performance Testing. All completed pre-functional checklists must be approved by the CxA before functional performance testing is started. If the GC indicates inaccurate completion of these checklists, and it results in the CxA unable to perform the Functional Performance Tests, the GC will be back charged for the CxA's time and expense at the current year's labor rate for the CxA.

J. Ensure that Subcontractors correct deficiencies and make necessary adjustments to the CFR, O&M

manuals and as-built drawings per the issues identified by the CxA.

- K. Coordinate the training of owner personnel. Ensure the sub-contractors supply the CxA with a training outline for each piece of commissioned equipment or system 3 weeks prior to training. The training outline is to include a list of those who should receive operational training, by position or name. The GC is responsible for providing CxA with a sign-in sheet verifying training has taken place with the owner.
- L. Prepare CFR manuals, O&M manuals, as-builts (including clarifying and updating the original sequences of operation to as-built conditions), warranties, spare parts, submittals and submittal logs, RFI's and RFI logs, etc according to the format developed by the CxA, in coordination with the Engineer, and reviewed and approved by the Owner. The documents shall be submitted by the Contractor to the Commissioning Authority both electronically and in hard copy. All electronic PDF documents shall be searchable with bookmarks mimicking the tabs in the binder.
- M. Provide the CxA and owner with ongoing operation instructions for all energy- and water-saving features and strategies, operating instructions for integrated building systems, recommendations for recalibration frequency of sensors and actuators by type and use, and single line diagrams of each commissioned system.
- N. Warranty Period
  - 1. Ensure that subcontractors execute required seasonal or deferred functional performance testing.
  - 2. Ensure that subcontractors correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for issues identified in seasonal testing.

#### **INSTALLING CONTRACTORS' RESPONSIBILITIES:**

- A. These contractors are not limited to the following: Mechanical Contractor (MC), Plumbing Contractor (PC), Electrical Contractor (EC), Controls Contractor (CC), Fire Protection Contractor (FPC), Fire Alarm Contractor (FAC), Safety and Security Contractor (SSC).
- B. The responsibilities of contractors in the commissioning process are provided in this section to clarify the commissioning process.
- C. Contractors shall assign representatives with expertise and authority to act on its behalf and shall schedule them to participate in and perform commissioning process activities including, but not limited to, the following:
  - 1. The CxA will work with the PM/CM to schedule commissioning activities. The PM/CM shall integrate all commissioning activities into the master construction schedule. All parties will address scheduling issues in a timely manner to expedite the commissioning process.
  - 2. Equipment submittals are to be submitted by the contractor to the CxA and concurrently to the Engineer of Record (EOR) for review and comment on all equipment and systems to be commissioned.
  - 3. Attend commissioning and coordination meetings during the construction, acceptance and warranty phases as directed by the CxA.
  - 4. Attend control sequence review and system integration meetings.
  - 5. Integrate and coordinate commissioning process activities into the construction schedule, including but not limited to the following:

- a. Checklists
  - b. Preliminary Test procedures
  - c. Functional Performance Testing (FPT)
6. Document equipment installation, testing, and startup activities as defined by the manufacturer and provide to the CxA as supporting documents attached to the checklists.
  7. Questions regarding in-field changes must be documented with an RFI and sent to the PM/CM requesting clarification of modification to design or equipment. PM/CM will review and forward to the EOR, who will subsequently issue a formal RFI response.
  8. Labor, instrumentation, tools, and test equipment costs for technicians for the performance of contractor directed commissioning, equipment checklists and pre- verification functional testing are to be provided by the contractor responsible for the installation of the equipment or system to be commissioned. Tools and test equipment are to be calibrated and in good working order. Testing equipment calibration certifications must be current in accordance with all requirements of the project manual.
  9. Provide measuring instruments and logging devices to record test data and provide data acquisition equipment to record data for the complete range of testing for the required test period as designated by the CxA.
  10. All contractors involved with specific equipment, components, assemblies, and interfaces shall have a qualified technician on site to demonstrate correct operations during witness testing.
  11. If the installing contractor requires the vendor to perform start-up, then the factory start-up technician or qualified local representative will be required to attend functional testing. Any factory representative(s) present will provide an approved startup report to the CxA for review.
  12. Review the commissioning plan provided by the Commissioning Authority. Testing will include all operation and alarm modes. Any Contractor comments shall be submitted to CxA a minimum of **two weeks** prior to the start of any testing or during the "DRAFT CxA" process.
  13. Contractor **MUST** have suitable personal on-site for the startup of any piece of equipment that has the potential to disrupt Customer operations. This would include but not be limited to Mechanical, Controls, or Electrical personnel.
  14. Contractor is required to submit completed Pre-verification Test forms to CxA for review two weeks prior to Functional Performance Testing. Contractors are responsible for completion and coordination of their work with all trades prior to testing, preplanning testing procedures, performing preliminary functional performance testing using test forms provided by the CxA, ensuring necessary staff and resources are on hand and expediting testing. This includes completion of testing and balancing by the HVAC contractor required for successful functional performance testing. Failure to complete or coordinate work, preplan or have staff and resources available to carry out testing will result in retesting.
  15. Address current A/E punch list items before performing Functional Testing.
  16. The Mechanical Contractor will provide a preliminary TAB report to the CxA **one (1) week** prior to functional testing.
  17. The controls contractor(s) will perform commissioning functional performance tests under the direction of the CxA and with the CxA acting as a witness to the tests. As deficiencies are observed, they will be documented and distributed by the CxA to all parties involved. The CxA will assist in the resolution of the issues and track the status of the issues on the issues list. This is the first round of testing. When the deficiencies are rectified, the contractor will notify the CxA for a final re-test of the issues and a second round of testing will be scheduled. The CxA has a predetermined budget for re-testing identified deficiencies. Testing that exceeds this budget will be considered additional services and will be covered in a separate contract with the general contractor.
  18. Cooperate with the CxA for resolution of issues recorded in the issues list, construction

observation and test reports through the warranty period. In collaboration with the entity responsible for system and equipment installation, perform corrective action until the issues are resolved to the satisfaction of the owner or the CxA. Contractor shall be prepared for timely response and resolution to all "end-of-project" issues. Responses should be offered within **one (1) day**, and any non-emergency issues should be addressed on-site within **one (1) week**. Emergency issues will be identified as such and Contractor shall provide same-day response. The issues log shall be immediately addressed every week by the contractor. If an issue lags beyond **four (4) weeks** the CxA shall request from the Owner and reduction in payment for services by the contractor.

19. Off-Season Testing: The CxA will apply all due diligence to complete all necessary testing procedures in an "off-season" testing situation, e.g. commissioning a chiller in the winter. However, if it becomes necessary to re-test in the on-season, Contractor shall support the on-season re-test at no additional cost.
20. Participate in systems, assemblies, equipment, and component maintenance orientation and inspection as called out in the installation specifications.
21. Provide the CxA with training curricula for review for all commissioned equipment and systems a minimum of four weeks prior to the scheduled training. Provide a record of attendance for owner's operation and maintenance training on required commissioned systems.
22. Provide PM/CM and CxA with site specific copies of operation and maintenance manuals detailing all manufacturer's recommended maintenance procedures and spare parts lists for review and approval for all commissioned equipment and systems a minimum of four weeks prior to submission for substantial completion.
23. Provide "As Built" drawings for all commissioned equipment and systems (as applicable) to the PM/CM and the CxA for approval and review respectively.

#### **ADDITIONAL RESPONSIBILITIES FOR MECHANICAL / PLUMBING CONTRACTOR (MC)**

- A. The Contractor(s) will demonstrate and perform hydrostatic test and flush requirements including HVAC piping pressure testing with the CxA acting as a witness to the tests sufficient to demonstrate the procedures. If the tests result in deficiencies, the contractor will be given an Issues Log listing the deficiencies discovered during testing. When the deficiencies are rectified, the contractor will notify the CxA for final re-testing. Any subsequent re-testing due to un-resolved deficiencies will be back charged to the contractor for the CxA's time and expense at the current year's labor rate for the CxA.

#### **ADDITIONAL RESPONSIBILITIES FOR ELECTRICAL CONTRACTOR (EC)**

- A. The Contractor(s) will demonstrate and perform all required construction related electrical testing with the CxA acting as a witness to the tests sufficient to demonstrate the procedures. If the tests result in deficiencies, the contractor will be given an Issues Log listing the deficiencies discovered during testing. When the deficiencies are rectified, the contractor will notify the CxA for final re-testing. Any subsequent re-testing due to un-resolved deficiencies will be back charged to the contractor for the CxA's time and expense at the current year's labor rate for the CxA.

#### **TESTING, ADJUSTING, AND BALANCING (TAB) CONTRACTOR RESPONSIBILITIES**

- A. Construction and Acceptance Phases
  1. Attend a commissioning kick-off meeting and other necessary meetings scheduled by the CxA to facilitate the commissioning process.
  2. Contractors shall coordinate equipment names with CxA commissioned equipment and systems when unique names of the equipment have not been assigned by the EOR.

3. Provide the CxA with a list of deficiencies discovered during the TAB process before functional performance testing.
4. Provide the CxA with a Final TAB report at least 2 week prior to functional performance testing for review and approval.
5. After the TAB process is performed and the balance report is submitted, the CxA shall perform a verification test. The extent of verification shall be of the discretion of the commissioning agent; however, a minimum of 20% of all readings shall be verified. If readings deviate more than + or - 10% from the report the TAB contractor shall be directed to re-balance the system and submit new reports.
6. Correct deficiencies (differences between specified and observed performance) as interpreted by the CxA, PM and A/E and retest the equipment. Make necessary adjustments to the TAB report and provide the CxA with a final copy of the TAB report.

## **EQUIPMENT SUPPLIERS**

- A. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the owner to keep warranties in force.
- B. If the installing subcontractor requires the vendor to perform start-up, then the factory start-up technician or qualified local representative will be required to attend equipment start-up. A factory approval of any startup process attended shall be submitted.
- C. If the installing subcontractor requires the vendor to be present for functional testing with the commissioning authority, then a factory start-up technician or qualified local representative will be required to attend functional testing and assist to validate internal alarms, safeties and programming.
- D. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.

## **CxA' S RESPONSIBILITIES**

- A. Inform the owner, architect and general contractor on the integration and performance of systems within the project scope of work.
- B. Create the Commissioning specifications for which the Cx process is to follow.
- C. Create and maintain the commissioning plan which includes but is not limited to checklists, pre-verification test and functional performance testing requirements.
- D. Coordinate and schedule commissioning activities with the PM/CM.
- E. Coordinate, schedule and facilitate commissioning team and coordination meetings.
- F. Review and comment on submittals for all equipment and systems to be commissioned.
- G. Coordinate, schedule and facilitate a control sequence review meeting to occur after the control submittal has been received from the Contractor.
- H. Perform random follow ups to ensure that the checklist and pre-verification tests are being completed as noted in this document and per the commissioning plan.

- I. Perform periodic on-site inspections to witness construction progress of the building for the purpose of visually inspecting mechanical equipment installation, report on construction status and identify any potential issues and observe conditions that may impact building Commissioning.
- J. Perform onsite inspections to witness start-up of major pieces of equipment with factory trained personnel (as applicable)
- K. CxA shall establish a sampling protocol and at the time of testing select a sample of equipment locations for identical pieces.
- L. Coordinate and direct functional performance testing of all systems, assemblies, equipment to be commissioned in accordance with the functional performance tests outlined in the commissioning plan. The CxA will provide witness testing only after receiving completed PVT reports. If equipment proves to not be ready for testing, and CxA shows up on site for functional performance testing, this will be considered a "First Round" of testing. Any additional testing after this "first round" will be considered a separate service offering, and subject to additional costs.
  - 1. Start-up and functional performance testing of mechanical systems needs to include awareness of the facility's peak demand times and the various heavy load times of the various pumping systems that will be commissioned.
- M. CxA will provide a minimum of two CxA personnel when testing mechanical systems where the test requires verification of front-end responses to field device changes and vice versa.
- N. Prepare and maintain the issues log.
- O. Document the commissioning process in a systems manual and commissioning report.
- P. Review the operation and performance of the building during the warranty period and document any construction, operational, or performance issues in the issues list. These reviews will be performed in phases for up to one year after each phase is turned over to the owner.

## **SUBMITTALS**

- A. The CxA will require submittals for all commissioned equipment to formulate the pre-functional tests and functional tests. Additionally, the CxA reviews submittals related to the commissioned equipment and their controls for conformance to the OPR, BOD and Construction Documents. Equipment submittals are to be submitted by the contractor to the CxA and concurrently to the EOR for review and approval for all equipment and systems to be commissioned (refer to section 1.2.A).
- B. The CxA may submit written requests for additional information from contractors to facilitate the commissioning process.
- C. The CxA may request additional design and operations narrative from the design team and Controls Contractor.

## **REPORTING**

- A. The CxA will provide regular reports to the Owner and the GC with increasing frequency as construction and the process of commissioning progresses.

- B. The CxA will regularly communicate with all members of the commissioning team, apprising them of commissioning progress and scheduling changes through memos, progress reports, etc.
- C. The CxA is using a web-based commissioning software to manage the commissioning process. This software will allow Cx Team members to use a laptop, iPad or android tablet to fill out pre- functional checklists and manage issues assigned to them. Each Cx Team member will receive an invite to CxAlloy around the time of the Cx Kickoff Meeting. During the meeting, the team members will receive training and information about how to navigate this software. The software provides a method to effectively and efficiently communicate commissioning tasks, issues, reports and status with each team member and the CxA. All issues are to be managed on CxAlloy by the GC and subcontractors in accordance with the guidelines found in the "Cx Issues and Resolution Record" section of the Cx Plan.
- D. The CxA compiles a final Commissioning Report which summarizes all of the tasks, findings, and documentation of the commissioning process. The report addresses the actual performance of the building systems in reference to the design intent and contract documents. The report includes completed pre-functional inspection checklists, functional performance testing records, diagnostic monitoring results, identified deficiencies, recommendations, and a summary of commissioning activities.

## MEETINGS

- A. Sequence of Operation Meeting: The CxA will schedule, plan, and conduct a commissioning Sequence of Operation meeting with the design team, Owner representatives and contractors. During this meeting, the sequences will be reviewed for control strategies as they are related to the OPR, owner operational performance practices.
- B. System Integration Meeting: The CxA will schedule, plan, and conduct a commissioning System Integration meeting with the design team, Owner representatives and contractors. During this meeting, the overall design intent and coordination as they relate to the control and monitoring strategies within the design to identify and scope overlaps or gaps and that all parties agree to the implementation and execution.
- C. Commissioning Kick-Off Meeting: At least 60 days prior to initiation of checklist completion and startup of systems, equipment, and components, the CxA will schedule, plan, and conduct a commissioning kick-off meeting with the entire commissioning team in attendance, including mechanical, electrical, test adjusting and balancing, and other appropriate subcontractors and in attendance. At least one (1) week prior to this meeting the CxA will distribute an approved overall commissioning plan and schedule to all members for their review. The overall commissioning plan, process, and general responsibilities of each team member, reporting and communication protocols, deliverables, schedule, and milestones. The CxA will distribute meeting minutes to all parties.
- D. Commissioning Meetings: Once commissioning begins, periodic job site commissioning meetings shall be planned and conducted by the CxA and attended by the Commissioning Team. These meeting may become part of the weekly construction meetings. These meetings shall cover progress, coordination, and issue resolution. The CxA shall distribute meeting minutes to all parties.
- E. Functional and Performance Test Plan Finalization Meeting: 10 business days after delivery of draft Functional Performance Test package from the CxA, the CxA shall convene a meeting of all Cx team members to conduct a detailed page-turning exercise to finalize all elements of the proposed procedures.

## INITIAL CHECKOUT AND CONSTRUCTION CHECKLISTS

### A. Construction Checklists:

1. Each piece of equipment or assembly being commissioned shall receive full construction checkout by the Contractor following the approved plan and forms.
2. The checklist used to confirm that the equipment is installed and running as intended per contract documents and manufacturer's recommendations, and that it will pass functional testing is completed. The checklists will help identify problems prior to functional testing so that the CxA is not performing the duties of a quality control contractor or serving in the role of 'punch list coordinator'.
3. Start-Up/Pre-Functional Checklists. The CxA works with the contractors to develop start-up plans and start-up schedule. Pre-functional checklists verify readiness for commissioning. Pre-functional checklists will be provided to the contractors by the commissioning agent to be completed during the startup process. Pre-functional checklists may be provided by the contractor, as a substitute to the pre-functional checklists provided by the CxA, with prior review and approval by the CxA. Completion of the pre-functional checklists indicate readiness for functional testing. If the CxA is notified by the installing contractor that the systems are ready for testing, and the CxA is unable to test because of the state of system readiness, the installing subcontractor will be back charged for the CxA's time and expense at the current year's labor rate for the CxA.
4. Contractor is required to complete Pre-functional Checklists, correct all areas that are deficient or incomplete prior to initiating testing and submit to the CxA prior to pre-testing or functional performance testing (FPT). Checklists will include but are not limited to:
  - a. Verification that all mechanical, electrical and control connections are complete.
  - b. Dust making activities have ceased.
  - c. All control point to point verification is completed.
  - d. All commissioned systems and equipment start-ups are completed,
  - e. All equipment to be commissioned is in operation.
  - f. The building automation system's graphics and trending are complete.
  - g. TAB is completed.
  - h. Lighting and fire protection controls and sensors are completed.
  - i. O&M manuals are available.
5. The CxA will determine which trade is responsible for executing and documenting each of the line item tasks in the construction checklists and note required trade on the checklist form.
6. Calibrations: The Contractor shall calibrate all field-installed analog sensors and gauges, and all actuators (dampers and valves) on all equipment. One-point calibrations are sufficient within the normal expected range of operation of the sensor using a calibrated test instrument, unless explicitly listed otherwise in the specifications. Sensors installed in the unit at the factory with calibration certification provided need not be field calibrated. All calibrations will be documented as being fully compliant with specified procedures and tolerances.
7. Point-to-Point Checkout: The Contractor shall conduct point-to-point checkout of each control or monitoring point tied to a central control or monitoring system. Each point shall be verified to be commanding, reporting, and controlling according to its intended purpose. Points within and controlled by packaged equipment controllers do not require a point-to-point checkout except for actuator positions or other points listed in the specifications or manufacturer's startup and checkout procedures. The point-to-point process will be fully documented to confirm accurate control and reporting from the field device to the dynamic graphic display point.

### B. Start-up Requirements:

1. The Contractor shall notify the CxA at least five (5) business days in advance of any equipment startup.
2. The CxA shall observe Contractor installation checkout and startup of selected systems and assemblies.
3. The Contractor and the manufacturer's representatives shall execute startup and shall maintain a signed and dated copy of the completed construction checklists and installation and startup documentation. The Contractor shall clearly note any items that have not been completed and the plan for their completion.

## FUNCTIONAL TESTING

- A. Testing Requirements: The specific functional testing requirements for all systems are found in the division commissioning sections, technical equipment sections, Preliminary Verification Tests (PVT's) and Functional Performance Test procedures (FPT's).
- B. Objectives and Scope:
  1. The objective of functional performance testing is to verify each component, assembly, equipment item, subsystem, and system is complete and ready for use and performing in accordance with the design intent and the contract documents, prior to initiating functional testing.
  2. For dynamic systems, functional performance testing shall facilitate bringing the systems from a state of initial startup to full dynamic operation. For static elements, functional performance testing shall verify the performance of the assembly in its installed state under conditions specified in the testing requirements. During the testing process, areas of deficient performance shall be identified and corrected.
  3. The objective of functional and performance testing is to verify systems, equipment, and components function and perform interactively in accordance with the design intent and the written sequences and modes specified in the contract documents, prior to initiating operation and maintenance training and final acceptance testing.
  4. In general, functional testing shall include testing each sequence of operations specified in the contract documents and final control document submittals. They can include other significant modes, sequences, and control strategies not mentioned in the written sequences, including, but not limited to startup, shutdown, unoccupied and manual modes, modulation up and down the unit's range of capacity, power failure, alarms, component staging and backup upon failure, interlocks with other equipment, and sensor and actuator calibrations. All interlocks and interactions between systems and equipment shall be tested. All larger equipment shall be individually tested. Like units or assemblies that are numerous (many smaller rooftop packaged units, air terminal units, exhaust fans, etc.) may have an appropriate sampling strategy applied.
- C. Operation and Functional Performance Test Methods:
  1. Operation and functional testing and verification for most dynamic systems, equipment, components, hardware, and software shall be achieved by an appropriate combination of manual testing (persons manipulate the equipment and observe its function visually or via test instrument readings) or by monitoring the performance and analyzing the results using the control system's trend log capabilities or by stand-alone data loggers.
  2. Simulated Conditions: Simulating conditions by overwriting a value shall be allowed; though timing the testing so equipment experiences actual conditions is encouraged wherever practical.
  3. Simulated Signals: Using a signal generator which creates a simulated signal to test and calibrate transducers and DDC constants is generally recommended than overusing the sensor

- to act as the signal generator via simulated conditions or overwritten values.
4. **Altering Setpoints:** Rather than overwriting sensor values, and when simulating conditions is difficult, altering setpoints to test a sequence is acceptable.
  5. **Indirect Indicators:** Relying on indirect indicators (building control system readouts or trends) for responses or performance shall be allowed only after visually and directly verifying and documenting, over the range of the tested parameters, that the indirect readings represent actual conditions and responses.
  6. **Setup:** Each function and test shall be performed under conditions that simulate actual conditions as close as practical. The Contractor shall provide all necessary materials, system modifications, etc., to produce the necessary flows, pressures, temperatures, etc., necessary to execute the test according to the specified conditions. At completion of the test, the Contractor shall return all building equipment and systems affected by these temporary modifications to their pre-test condition.
  7. **Sampling:** Multiple identical pieces of non-life-safety or otherwise non-critical equipment may be functionally tested using a sampling strategy proposed by the CxA. Significant differences in application and sequence of operation in otherwise identical equipment invalidates their common identity. A small size or capacity difference, alone, does not constitute a difference. No sampling by the Contractor is allowed in construction checklist execution.
  8. **Testing Order:** In general, functional testing shall be conducted only after construction check-listing, startup, and pre-verification testing have been satisfactorily completed. The control system shall be sufficiently tested and confirmed to be operating as intended before it is used for testing, adjusting, and balancing or to verify performance of other components or systems. Air balancing and water balancing shall be completed before functional testing of air-related or water-related equipment or systems. Testing generally shall proceed from components to subsystems to systems. When the proper performance of all interacting, individual systems has been achieved, the interface or coordinated responses between systems shall be verified.
  9. **Trend Logs and Monitoring:** Data loggers and trend logs required to support commissioning shall be set up and executed by the Contractor in conjunction with the Fault Detection Diagnostics (FDD) Implementation Plan.
  10. **Testing and Project Schedule:** Every effort shall be made to expedite the testing process and minimize unnecessary delays, without compromising the integrity of the procedures.

## **DEFICIENCY AND RESOLUTION**

- A. **Deficiencies and Resolution.** The CxA documents items of non-compliance in materials, installation, or operation. In collaboration with the entity responsible for system and equipment installation, perform corrective action until the issues are resolved to the satisfaction of the owner or the CxA. All issues are to be managed on CxAlloy by the GC and subcontractors in accordance with the guidelines found in the "Cx Issues and Resolution Record" section of the Cx Plan. When the deficiencies are rectified, the contractor will notify the CxA for final re-testing. Any subsequent re-testing due to un-resolved deficiencies will be back charged to the contractor for the CxA's time and expense at the current year's labor rate for the CxA.

## **DEFERRED TESTING:**

- A. **Unforeseen Deferred Tests:** If any check or test cannot be completed due to the building structure, required occupancy condition, or other deficiency, execution of checklists and functional testing may be delayed upon approval of the Owner.
- B. **Seasonal Testing:** Within one year of substantial completion, seasonal testing (tests delayed until

weather conditions are closer to the system's design) specified in the testing requirements shall be completed as part of this contract. The Contractor, with the guidance of the CxA shall coordinate this activity. Tests will be executed, documented, and deficiencies corrected by the Contractor. The Contractor shall make needed final adjustments to the operation and maintenance manuals, systems manual, and as-constructed drawings due to the testing results. These test reports shall be forwarded to the CxA for review.

- C. Testing Systems in Transitory Areas: Systems located in or serving areas that are later significantly remodeled prior to their final state and final turnover to the Owner shall be fully tested, including documentation, prior to initial occupancy. Such systems may require retesting.
  - 1. Life-safety systems shall undergo complete retesting to ensure all systems are fully functional at final turnover to the Owner.
  - 2. Non-altered portions of non-life-safety systems shall not require complete retesting, except at the discretion of the Owner. Portions of the systems that have been altered or interfaced within the alterations shall be fully tested and documented.
  - 3. The Owner will determine what is "significantly remodeled" and give final direction of what systems require retesting after review of the Contractor's phasing and test plans.
  
- D. Testing Incomplete Systems: Systems or equipment that are partially complete or partially set up and put into operation to serve an occupancy and then later altered or completed prior to final turnover.
  - 1. Life-safety systems, even if only partially set up, shall undergo complete testing and documentation prior to initial occupancy. All altered portions of the system and portions of the original system that may have been adjusted shall be tested prior to final turnover. At the client's discretion, the Contractor shall test and document performance of the entire system prior to final turnover.
  - 2. The Contractor may use either of the following two methods for testing non-life-safety systems and equipment:
    - a. Systems and equipment shall be sufficiently tested by the Contractor to ensure delivery of the required service. Detailed documentation will not be required of this initial testing. During the period the system is partially complete; the Contractor shall be responsible for troubleshooting the system operation. Upon final completion of the system, the entire system shall be fully tested and documented, prior to turnover.
    - b. Incomplete systems and equipment shall be fully tested and documented to be functioning properly prior to occupancy. During the period the system is partially complete, the Owner will be responsible for troubleshooting until a construction deficiency is identified. Upon final completion of the system, the portions of the system that were not initially tested and any areas of interface with those portions shall be fully tested and documented by the Contractor.

## **REPEATED WORK, TESTING, AND REVIEWS**

- A. Contractor shall, at no additional cost to the Owner, repeat the complete verification test procedure for each test for which acceptable results are not achieved. Tests shall be repeated until acceptable results are achieved.
  
- B. Contractor shall compensate the Owner for costs incurred as the result of tests review or inspection repeated. This includes the costs for the commissioning authority, design architect, design engineers, and Owner's personnel for billed costs (including travel expenses) for the extraordinary participation of the Owner's representative, architect, commissioning authority or owner's staff.

- C. All retesting, inspections or review of equipment or re-reviewing of startup sheets, test and balance, controls and submittals shall be billed at a rate of the CxA hourly rate with a minimum of 4 hours billed per session.

## **OPERATION AND MAINTENANCE DOCUMENTATION**

- A. The CxA documents items of non-compliance in materials, installation or operation. In collaboration with the entity responsible for system and equipment installation, perform corrective action until the issues are resolved to the satisfaction of the owner or the CxA. All issues are to be managed on CxAlloy by the GC and subcontractors in accordance with the guidelines found in the "Cx Issues and Resolution Record" section of the Cx Plan. When the deficiencies are rectified, the contractor will notify the CxA for final re-testing. Any subsequent re-testing due to un-resolved deficiencies will be back charged to the contractor for the CxA's time and expense at the current year's labor rate for the CxA.

## **TRAINING AND DEMONSTRATION**

- A. The CxA reviews the training provided by the contractors and verifies that it is completed.
- B. Provide the CxA with a training outline for review and approval for all commissioned equipment and systems 3 weeks prior to training. The training outline is to include a list of those who should receive operational training, by position or name. After the training, provide a record of attendance (sign in sheet) for Owner's Operation and Maintenance Training on required commissioned systems shall be delivered to the GC following training. At a minimum, the training shall cover all operating scenarios to help the building engineering team, tenant facilities staff, and occupants understand the most effective and efficient way to operate the space. In addition, all training will address the following:
  - 1. Emergency instructions and procedures
  - 2. Operation instructions and procedures
  - 3. Troubleshooting procedures
  - 4. Maintenance and inspection procedures
  - 5. Repair procedures
  - 6. Upkeep of the systems manual and associated maintenance documentation logs

## **SYSTEMS MANUAL / CURRENT FACILITY REQUIREMENTS**

- A. The contractors and sub-contractors shall prepare a and provide documents to the CxA that contains the following pieces of information:
  - 1. System narrative describing the mechanical, electrical and plumbing systems and equipment.
  - 2. Construction record documents and specifications
  - 3. Approved submittals
  - 4. As-built drawings
  - 5. As-built sequence of operation
  - 6. Original setpoints for all systems commissioned.
  - 7. Recommended schedule for sensor recalibration
  - 8. Equipment operations and maintenance manuals
  - 9. Equipment preventive maintenance plans and schedules
  - 10. Lighting control sequences and lighting levels
  - 11. Confirmation of completed training for the owner and occupants.

## **ACCESS TO BMS**

- A. The BMS or ATC contractor shall give the CxA their own password and username for their system.
- B. The contractor shall also give Admin Access to the CxA to change settings, review programming, and review graphics.

## **EXCLUSIONS**

- A. The Commissioning Authority shall not be responsible for construction means, methods, job safety, or any management function related to commissioning on the job site.
- B. The Contractor shall provide all technician services requiring tools or the use of tools to test, adjust, or otherwise bring equipment into a full operational state.
- C. The Commissioning Authority (CxA) shall not be responsible for any Civil or Structural testing required.
- D. The Commissioning Authority shall not be responsible for Division 25 Control Systems contractor or Division 23 05 93 Test and Balance agency tasks; nor Division 26 99 00 Independent Electrical Acceptance Testing agency tasks.

**END OF SECTION**

**SECTION 01 1000  
SUMMARY**

**PART 1 GENERAL V.22**

**1.01 PROJECT**

- A. Project Name: UAMS Gastro at Freeway Medical.
- B. Owner's Name: UAMS.
- C. The Project consists of the remodel of part of the 6th floor of Freeway Medical Tower to incorporate a 10 exam room Gastroenterology Clinic to support the 7th floor procedure space..
- D. Related Sections:
  - 1. Section 01 0000 - Owner's General Requirements: For related requirements.

**1.02 CONTRACT DESCRIPTION**

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5200 - Agreement Form.

**1.03 WORK BY OWNER**

- A. The Owner, without sacrificing their right to do so, does not plan to undertake significant work with their own forces within the construction site prior to Substantial Completion. Refer to the responsibility matrix following this section for components being performed by Owner.
- B. Items noted NIC (Not in Contract) will be supplied and installed by Owner before Substantial Completion.
- C. Owner will supply and install the following: See Responsibility Matrix after this section.
- D. Owner will supply the following for installation by Contractor: See Responsibility Matrix after this section.
- E. Items and equipment noted to be Contractor Furnished and Contractor Installed is to be purchased new by the Contractor and all cost associated with the handling, installation and connection should be included turn-key in the project. All items and equipment noted to be Contractor Installed shall be coordinated with provider and the Contractor shall include all costs for handling, installation and connection in the project.
- F. Cooperate fully with the Owner's own forces or separate contractors, if any, so work on those contracts may be carried out smoothly, without interfering with or delaying work under this contract.

**1.04 OWNER OCCUPANCY**

- A. Owner intends to occupy the Project upon Substantial Completion.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

**1.05 CONTRACTOR USE OF SITE AND PREMISES**

- A. Construction Operations: Limited to areas noted on Drawings.
  - 1. Locate and conduct construction activities in ways that will limit disturbance to site.
- B. Arrange use of site and premises to allow:
  - 1. Owner occupancy.
  - 2. Work by Others.
  - 3. Work by Owner.
- C. Do not unreasonably encumber site with materials or equipment. Confine stockpiling of materials to areas authorized by Owner.
- D. Provide access to and from site as required by law and by Owner:

1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
  2. Do not obstruct roadways, sidewalks, or other public ways without permit.
- E. Workers on the jobsite are to be reminded that adjunct areas are occupied and in use on the campus. **Workers will maintain a respectful attitude toward all people for the duration of the construction project. Abusive language or gestures will result in immediate dismissal from the project.**
- F. Existing building spaces may not be used for storage.
- G. Time Restrictions:
1. Limit conduct of especially noisy exterior work to the hours of 5:00 pm through 4:00 am.
- H. Utility Outages and Shutdown:
1. Limit disruption of utility services to hours the building is unoccupied.
  2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
  3. Prevent accidental disruption of utility services to other facilities.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

UAMS Gastro Clinic at Freeway (6th Floor)					CD 02.12.2026
RESPONSIBILITY MATRIX					
		OWNER FURNISHED OWNER INSTALLED	OWNER FURNISHED CONTRACTOR INSTALLED	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	
ITEM		OFOI	OFCI	CFI	COMMENTS
<b>AV SYSTEM</b>					
	Conduits, raceways, & backboxes			X	
	In wall blocking			X	
	System Cabling & Device Termination	X			
	TV's	X			
	TV Mounts	X			
<b>Nurse Call</b>					
	Nurse Call System-Westcom	X			JOC Vendor- Triple S
	Conduits, raceways, & backboxes			X	
	System Cabling	X			
	Device Termination	X			
<b>Telemetry</b>					
	Phillps Monitoing System Equipment	X			
	In wall blocking			X	
	Conduits, raceways, & backboxes			X	
	System Cabling	X			
	Device Termination	X			
<b>Tele/Data</b>					
	Conduits, raceways, & backboxes			X	
	System cabling & Device Termination	X			
	Racks, Patch Panels	X			
	UPS & Switches	X			
	Wireless Access Devices	X			
	IT Room Shielding (Grounding & Bonding)			X	
	Telephone System (IP) Mitel	X			
	Speakers (Valcom)	X			
<b>CCTV Security</b>					
	Conduits, raceways, & backboxes			X	
	System cabling	X			
	Device Termination			X	
	Cameras			X	
	Head-end equipment			X	
<b>Intrusion Detection</b>					
	Conduits, raceways, & backboxes			X	
	System cabling			X	to Access Control Head End
	Device Termination			X	
	Window Breaks, Door Alarms, etc....			X	
	Head-end equipment			X	The Access Control Head End is used for Intrusion
<b>Access Control</b>					
	Conduits, raceways, & backboxes			X	
	System cabling			X	
	Device Termination			X	
	Card Swipe, push buttons, etc..			X	
	Electric Strikes/Panic			X	
<b>AIPHONE</b>					
	Conduits, raceways, & backboxes			X	IX-Series UAMS to verify locations
	System, Cabling	X			
	Device Termination			X	
	Door and master stations			X	
	Head-end equipment			X	

UAMS Gastro Clinic at Freeway (6th Floor)						CD 02.12.2026
RESPONSIBILITY MATRIX		OWNER FURNISHED OWNER INSTALLED	OWNER FURNISHED CONTRACTOR INSTALLED	CONTRACTOR FURNISHED CONTRACTOR INSTALLED		
ITEM		OFOI	OFCI	CFCI	COMMENTS	
<b>Digital Signage - (Interior &amp; Exterior)</b>						
	Conduits, raceways, & backboxes			X		
	Digital Signage Displays	X				
	Digital Signage Video Connection	X				
	Digital Signage Data port	X				
	Flat screen TVs	X				
	TV Mounts	X				
	In wall blocking			X		
<b>Janitorial</b>						
	Paper Towel Dispensers		X			
	Soap Dispensers		X			
	Toilet Paper Holders		X			
	Sanitary Napkin Disposal			X		
	Trash cans	X				
	Hand sanitizer dispensers		X			
	Associated In wall blocking			X		
<b>Furniture, Fixtures and Equipment</b>						
	Loose Furnishings	X				
	Lab Equipment	X				
	Existing Equipment to be relocated	X				
	Cubicle curtain track			X		
	Cubicle curtains			X		
	Lockers	X				
	Miscellaneous Medical equipment	X				
	Large Medical Equipment (Booms/etc.)	X				
<b>Base Building Signage</b>						
	Room Signage			X		
	Wayfinding			X		See Allowances
	Additional Signage		X			Contractor to provide blocking and electrical where needed.
<b>Toilet Accessories</b>						
	Grab Bars			X		
	Diaper Changing Stations			X		
	Speciman Pass Thru Cabinet			X		
	Frammed Mirror			X		
	Shower Curtain			X		
	Shower Curtain Rod			X		
	Robe Hook			X		
	Mop and Broom Holder			X		Typical at Janitor Closet
<b>Misc</b>						
	Generator			X		Existing - Contractor to coordinate connections
	Appliances (Ref., Freezer, Dish washer, etc.)	X				
	HVAC Equipment (Chiller, Boilers, AHU, Pumps, etc.)			X		
	Domestic Water Plate & Frame Heat Exchanger			X		

**SECTION 01 2000  
PRICE AND PAYMENT PROCEDURES**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Change procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

**1.02 SCHEDULE OF VALUES**

- A. Use Schedule of Values Form: AIA G-702 Application and Certificate for Payment.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification section. Identify site mobilization.
- F. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- G. Revise schedule to list approved Change Orders, with each Application For Payment.

**1.03 APPLICATIONS FOR PROGRESS PAYMENTS**

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Use Form AIA G702 and Form AIA G703, edition stipulated in the Agreement.
- C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- D. Forms filled out by hand will not be accepted.
- E. For each item, provide a column for listing each of the following:
  - 1. Item Number.
  - 2. Description of work.
  - 3. Scheduled Values.
  - 4. Previous Applications.
  - 5. Work in Place and Stored Materials under this Application.
  - 6. Authorized Change Orders.
  - 7. Total Completed and Stored to Date of Application.
  - 8. Percentage of Completion.
  - 9. Balance to Finish.
  - 10. Retainage.
- F. Execute certification by signature of authorized officer.
- G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
- H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
- I. Submit one electronic and three hard-copies of each Application for Payment.

#### **1.04 MODIFICATION PROCEDURES**

- A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.
- B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
  - 1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
  - 2. Promptly execute the change.
- C. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 15 days.
- D. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
  - 1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
- E. Substantiation of Costs: Provide full information required for evaluation.
  - 1. Provide the following data:
    - a. Quantities of products, labor, and equipment.
    - b. Taxes, insurance, and bonds.
    - c. Overhead and profit.
    - d. Justification for any change in Contract Time.
    - e. Credit for deletions from Contract, similarly documented.
- F. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- G. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.
- H. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- I. Promptly enter changes in Project Record Documents.

#### **1.05 APPLICATION FOR FINAL PAYMENT**

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
  - 1. All closeout procedures specified in Section 01 7000.

#### **PART 2 PRODUCTS - NOT USED**

#### **PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 2300  
ALTERNATES**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Description of Alternates.
- B. Procedures for pricing Alternates.
- C. Documentation of changes to Contract Price and Contract Time.

**1.02 RELATED REQUIREMENTS**

- A. Document 00 2100 - Instructions to Bidders: Instructions for preparation of pricing for Alternates.
- B. Section 01 0000 - Owner's General Requirements: For related requirements.

**1.03 ACCEPTANCE OF ALTERNATES**

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

**1.04 SCHEDULE OF ALTERNATES**

- A. [Additive Alternate] No. [1] - At exterior window walls, remove laminate sill and replace with solid surface sill.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 2500  
SUBSTITUTION PROCEDURES**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Procedural requirements for proposed substitutions.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 0000 - Owner's General Requirements: For related requirements.
- B. Section 00 6325 - Substitution Request Form: Required form for substitution requests made after award of contract (During construction).
- C. Section 01 6000 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

**1.03 DEFINITIONS**

- A. General Clarification: Where a definite material is specified it is not the intent to discriminate against any equal product from another manufacturer. It is the intent to set a definite standard. Open competition is expected, but in all cases, complete data must be submitted for comparison and test when requested by Architect. No substitution shall be made unless authorized in writing by the Architect. If the Contractor proposes to substitute an equal product, he shall make this fact known, in writing, to the Architect as soon as possible after the award of the contract.
- B. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
  - 1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
    - a. Unavailability.
    - b. Regulatory changes.
  - 2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
    - a. Substitution requests offering advantages solely to the Contractor will not be considered.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 GENERAL REQUIREMENTS**

- A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system including aesthetics of physical properties such as available colors, patterns and textures.
  - 2. Agrees to provide the same warranty for the substitution as for the specified product.
  - 3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
  - 4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
  - 5. Waives claims for additional costs or time extension that may subsequently become apparent.
  - 6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.
- B. A Substitution Request for specified installer constitutes a representation that the submitter:
  - 1. Has acted in good faith to obtain services of specified installer, but was unable to come to commercial, or other terms.

- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
  - 1. Note explicitly any non-compliant characteristics.
- D. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
  - 1. Forms included in the Project Manual are adequate for this purpose, and must be used.
- E. Limit each request to a single proposed substitution item.
  - 1. Submit an electronic document, combining the request form with supporting data into single document.

### **3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT**

- A. Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period, and the documents required.
- B. Submittal Form (before award of contract):
  - 1. Submit substitution requests by completing the form in Section 006325; see this section for additional information and instructions. Use only this form; other forms of submission are unacceptable.
  - 2. Lighting Fixture Substitution- Lighting Fixtures not specifically listed in the Lighting Fixture Schedule by manufacturer indicated as approved to bid must be submitted 7 days prior to bid. Provide cut sheets labeled with the mark shown in the Lighting Fixture Schedule on E0.02. Provide lighting level calculations for review. Typical lighting levels for classrooms are acceptable. Architect will review for conformance with the Design Intent. Engineer will review for conformance with technical requirements.
  - 3. Plumbing Fixture Substitution- Plumbing Fixtures not specifically listed in the Plumbing Fixture Schedule by manufacturers indicated as approved to bid must be submitted 7 days prior to bid. Provide cut sheets labeled with the mark shown in the Plumbing Fixture Schedule.
  - 4. Mechanical Equipment Substitution- Mechanical Equipment not specifically listed in the Mechanical Equipment Schedules and specifically noted in the drawings by manufacturers indicated as approved to bid must be submitted 7 days prior to bid. Provide cut sheets labeled with the mark shown in the Mechanical Equipment Schedules. Architect will review for conformance with the Design Intent. Engineer will review for conformance with technical requirements.

### **3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION**

- A. Submittal Form (after award of contract):
  - 1. Submit substitution requests by completing the form in Section 00 6325; see this section for additional information and instructions. Use only this form; other forms of submission are unacceptable.
- B. Architect will consider requests for substitutions only within 30 days after date of Agreement.
- C. Substitutions will not be considered under one or more of the following circumstances:
  - 1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
  - 2. Without a separate written request.
  - 3. When acceptance will require revisions to Contract Documents.

### **3.04 RESOLUTION**

- A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.
- B. Architect will notify Contractor in writing of decision to accept or reject request.
  - 1. Architect's decision following review of proposed substitution will be noted on the submitted form.

### **3.05 ACCEPTANCE**

- A. Accepted substitutions change the work of the Project. They will be recorded into submittal and any required changes to the Construction Documents will be incorporated into the work by issuance of Change Order, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

**3.06 CLOSEOUT ACTIVITIES**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for closeout submittals.
- B. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

**END OF SECTION**

**SECTION 01 3000  
ADMINISTRATIVE REQUIREMENTS**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Electronic document submittals.
- B. Preconstruction meeting.
- C. Site mobilization meeting.
- D. Progress meetings.
- E. Construction progress schedule.
- F. Change Order requirements.
- G. Contractor Liability requirements.
- H. Coordination drawings.
- I. Submittals for review, information, and project closeout.
- J. Number of copies of submittals.
- K. Submittal procedures.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 0000 - Owner's General Requirements: For related requirements.
- B. Section 01 3216 - Construction Progress Schedule: Form, content, and administration of schedules.

**1.03 PROJECT COORDINATION**

- A. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for construction & delivery access, traffic, and parking facilities.
- B. During construction, coordinate use of site and facilities through the Project Coordinator.
- C. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- D. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
- E. Coordinate field engineering and layout work under instructions of the Project Coordinator.
- F. Make the following types of submittals to Architect:
  - 1. Requests for interpretation.
  - 2. Requests for substitution.
  - 3. Shop drawings, product data, and samples.
  - 4. Test and inspection reports.
  - 5. Manufacturer's instructions and field reports.
  - 6. Applications for payment and change order requests.
  - 7. Progress schedules.
  - 8. Coordination drawings.
  - 9. Closeout submittals.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 ELECTRONIC DOCUMENT SUBMITTALS**

- A. Any documents transmitted for purposes of administration of the contract will be in electronic (PDF) format and transmitted via an Internet-based e-mail service.

1. In addition to submittals for review, information, and closeout, this procedure will apply to requests for information (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, proposal requests, change orders), applications for payment, field reports and meeting minutes, and any other document the Contractor or Architect wish to make part of the project electronic record.
  2. Contractor and Architect will use conventional e-mail for this service, subject to the limitations of the service provider (file size).
  3. It is the Contractor's responsibility to submit documents in PDF format via file attachment to e-mail directed to WER Architects. Addressee will be determined at the pre-construction conference. Documents shall be reviewed and stamped by the contractor prior to submission. PDF documents without contractor's stamp, signature and/or initials, & date will not be reviewed. Each scan or PDF copy, especially large format documents or drawings, shall be individually stamped, if transmitted as individual files. Assembled documents in a single file need only be stamped once.
  4. Subcontractors, suppliers, and Architect's consultants are required to use the e-mail transmission of review documents, and provide copies directed to the Architect and Contractor.
  5. Users of the electronic document submission process shall provide an email address and Internet access. PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, [www.adobe.com](http://www.adobe.com), or Bluebeam PDF Revu, [www.bluebeam.com](http://www.bluebeam.com)), is encouraged, unless scan to PDF file capability is provided by the document generator / provider.
  6. Paper documents & transmittals of electronic submissions will not be reviewed; emailed PDF documents without transmittal letters / forms from the contractor will not be reviewed.
  7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to physical samples or color selection charts.
- B. Cost: The cost of the electronic document submittal(s) is to be paid by Contractor; include the cost of the submittals in the contract sum.
- C. Project Closeout: Architect will determine which project electronic document files shall be archived for the Owner. The contractor shall provide these documents electronically and physical components as part of the close out document submission.

### **3.02 PRECONSTRUCTION MEETING**

- A. Architect will schedule a meeting after Notice of Award.
- B. Attendance Required:
1. Owner.
  2. Architect.
  3. Contractor.
- C. Agenda:
1. Distribution of Contract Documents.
  2. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
  3. Designation of personnel representing the parties to Contract, the Owner and Architect.
  4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  5. Scheduling.
- D. Record minutes and distribute copies within two days after meeting to participants, with electronic copies to Architect, Owner, participants, and those affected by decisions made.

### **3.03 SITE MOBILIZATION MEETING**

- A. Architect will schedule a meeting at the Project site prior to Contractor occupancy.
- B. Attendance Required:

1. Contractor.
  2. Owner.
  3. Architect.
  4. Contractor's Superintendent.
  5. Major Subcontractors.
- C. Agenda:
1. Use of premises by Owner and Contractor.
  2. Owner's requirements .
  3. Construction facilities and controls provided by Owner.
  4. Temporary utilities provided by Owner.
  5. Security and housekeeping procedures.
  6. Schedules.
  7. Application for payment procedures.
  8. Procedures for testing.
  9. Procedures for maintaining record documents.
  10. Requirements for start-up of equipment.
  11. Inspection and acceptance of equipment put into service during construction period.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

### **3.04 PROGRESS MEETINGS**

- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.
- D. Agenda:
1. Review minutes of previous meetings.
  2. Review of Work progress.
  3. Field observations, problems, and decisions.
  4. Identification of problems that impede, or will impede, planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Maintenance of progress schedule.
  7. Corrective measures to regain projected schedules.
  8. Planned progress during succeeding work period.
  9. Maintenance of quality and work standards.
  10. Effect of proposed changes on progress schedule and coordination.
  11. Other business relating to Work.
- E. Record minutes and distribute copies within two days after meeting to participants, with electronic copies to Architect, Owner, participants, and those affected by decisions made.

### **3.05 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 3216**

- A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.

- E. Submit updated schedule with each Application for Payment.

### **3.06 COORDINATION DRAWINGS**

- A. Provide information required by Project Coordinator for preparation of coordination drawings.
- B. Review drawings prior to submission to Architect.

### **3.07 DIGITAL DOCUMENT FILES AND RELEASES**

- A. BIM Models: Projects are created by Architect and Engineers using Building Information Modelling software and not all projects will have these files available for Contractor's use. The final model is a composite of multiple models that will require separate models from consultants. Contact Architect and Engineers for specific availability and cost.
- B. AutoCAD files: Do not exist for architectural plans. Architect has capability to generate AutoCAD files that resemble the sheets as seen in the Construction Documents as well as generate entire floor plans of the building. This service can be provided at a cost to the Contractor per sheet/floor plan desired. See end of section for Digital Release form.
- C. Portable Digital Format (PDF): PDF of issued drawings can be provided to Contractor at no cost. Contact Architect for availability.
- D. Other documents: Contractor will have to directly contact consultants for trade specific files, such as AutoCAD files for topographical layout, etc.

### **3.08 REQUESTS FOR CHANGE ORDERS**

- A. In order to facilitate checking of quotations for extras or credits, all proposals, except for those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and subcontracts. Labor and materials shall be itemized in manner prescribed above. Where major cost items are subcontracts, they shall be itemized also.

### **3.09 CONTRACTOR LIABILITY REQUIREMENTS**

- A. The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect Engineer and the Architect Engineer's consultants as additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations. The Architect / Engineer, Engineer, and their respective Consultants are responsible for their own Professional Liability coverage.

### **3.10 SUBMITTALS FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product data.
  - 2. Shop drawings.
  - 3. Samples for selection.
  - 4. Samples for verification.
  - 5. Delegated Design Deferred submittals.
- B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - CLOSEOUT SUBMITTALS.

### **3.11 SUBMITTALS FOR INFORMATION**

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.

3. Test reports.
  4. Inspection reports.
  5. Manufacturer's instructions.
  6. Manufacturer's field reports.
  7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

### **3.12 SUBMITTALS FOR PROJECT CLOSEOUT**

- A. When the following are specified in individual sections, submit them at project closeout:
1. Project record documents.
  2. Operation and maintenance data.
  3. Warranties.
  4. Bonds.
  5. Other types as indicated.
- B. Submit for Owner's benefit during and after project completion.

### **3.13 NUMBER OF COPIES OF SUBMITTALS**

- A. Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Documents for Information: Submit one electronic copy.
- C. Documents for Project Closeout: Make electronic reproductions of submittal files originally reviewed. Include electronic files of any submittals for information. All hard copies of Operational Manuals included with products and equipment should be collected and retained for close out documentation.
- D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
1. After review, produce duplicates required for jobsite use & verification.
  2. Retained samples will not be returned to Contractor unless specifically so stated. Digital documentation of approved samples will be provided.

### **3.14 SUBMITTAL PROCEDURES**

- A. Transmit each submittal with approved form and Contractors transmittal form. Transmittal shall be numbered sequentially and revised submittals should include original number and a sequential alphabetic suffix. Transmittal shall include list of each specification section or sections that are included in the submittal contents. Send transmitted submittal as one complete PDF; multiple files will not be reviewed and will need to be reassembled by Contractor.
- B. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number.
- C. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- D. Deliver physical submittals to Architect at business address. In some instances, larger physical samples can be coordinated to be delivered to the construction site, typically for use in a mock-up.
- E. Schedule submittals to expedite the Project, and coordinate submission of related items. Transmit higher priority submittals first and provide date for anticipated return of submittal.
- F. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor. When large quantities of submittals are transmitted in a short time frame, review time may take longer. Mark high priority submittals on transmittal to notify / assist in an expedited review.

- G. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work. Any proposed change or deviation from Contract Document plans or specifications must be clearly noted and easily identifiable on the submittal. Any change must be identified and specifically requesting approval of proposed deviation by Architect or Engineer of Record. Failure to follow this requirement results in submitted deviation bearing the complete responsibility of the contractor.
- H. Comments made in submittals by Architect or Engineer that change contract costs need to be submitted to Architect as a Potential Change Order for Claims for review and approval by Owner prior to the change to project scope. Failure to follow this requirement, whether a cost savings or cost increase, results in the submitted cost change bearing the complete responsibility of the providing contractor.
- I. Provide space for Contractor and Architect review stamps. Submittals must be reviewed and stamped by Contractor, unstamped submittals will not be reviewed and will be returned.
- J. Submittals to be as complete, comprehensive and accurate as possible. Include all components requested to be reviewed in Submittal section 1.03 of the specifications. Do not split up a single specification section into multiple submittals (ie product data, samples, shop drawings, etc.). Avoid grouping unrelated specifications sections together in a submittal.
- K. Each submittal will only be reviewed two times; once for original review and then a second time for a potential revised submittal. Any further additional reviews must include General Contractor's explanation for their inability to conform with requirements. Additional reviews beyond aforementioned may have costs associated to complete additional reviews.
- L. When revised for resubmission, identify all changes made since previous submission. Cloud all changes and revised details / notes. Address all comments and/or questions posed in previous submission; lack of addressing all previous review comments are grounds for rejections of submittal. Only submit new or revised items. For revised items, clearly cloud or identify changed components.
- M. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- N. Submittals not requested will not be recognized or processed.

**3.15 AUTOCAD RELEASE FORM**

- A. At your request, Witsell Evans Rasco, P.A. (WER) will provide electronic files for your convenience and use in the preparation of a bid or shop drawings related to Project: \_\_\_\_\_ subject to the following terms and conditions.
- B. WER’s electronic files are compatible with AutoCad as a dwg. file. WER makes no representation as to the compatibility of these files with your hardware or your software beyond the specified release of the referenced specifications.
- C. Data contained on these electronic files is part of WER’s instruments of service and shall not be used by you or anyone else receiving this data through or from you for any purpose other than as a convenience in the preparation of bids or shop drawings for the referenced project. Any other use or reuse by you or by others, will be at your sole risk and without liability or legal exposure to WER. You agree to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action of any nature against WER, its officers, directors, employees, agents or sub-consultants which may arise out of or in connection with your use of the electronic files.
- D. Furthermore, you shall, to the fullest extent permitted by law, indemnify and hold harmless WER from all claims, damages, losses and expenses, including attorney’s fees arising out of or resulting from your use of these electronic files.
- E. **These electronic files are not contract documents.** Differences may exist between these electronic files and corresponding hard copy contract documents due to addenda, change orders or other revisions. WER makes no presentation regarding the accuracy or completeness of the electronic files you receive. In the event that a conflict arises between the signed contract documents prepared by WER and electronic files, the signed contract documents shall govern. You are responsible for determining if any conflict exists. By your use of these electronic files, you are not relieved of your duty to fully comply with the contract documents, including and without limitations, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate your work with that of other contractors for the project.
- F. Because of the potential that the information presented on the electronic files can be modified, unintentionally or otherwise, WER reserves the right to remove all indications of its ownership and/or involvement from each electronic display.
- G. WER will furnish you electronic files at a cost of **\$150.00** per building floor or sheet, for the following:
  - 1. \_\_\_\_\_
  - 2. \_\_\_\_\_
  - 3. \_\_\_\_\_

The service fee shall be remitted to WER prior to delivery of the electronic files.
- H. Under no circumstances shall delivery of the electronic files for use by you be deemed a sale by WER and WER makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall WER be liable for any loss of profit or any consequential damages.

**SIGNED:**

\_\_\_\_\_   
**WITSELL EVANS, RASCO PA CONTRACTOR NAME / TITLE**

DATE: \_\_\_\_\_

\_\_\_\_\_   
\_\_\_\_\_   
**ADDRESS / PHONE NUMBER**

**END OF SECTION**

**SECTION 01 3216  
CONSTRUCTION PROGRESS SCHEDULE**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Preliminary schedule.
- B. Construction progress schedule, bar chart type.

**1.02 SUBMITTALS**

- A. Within 10 days after date of Agreement, submit preliminary schedule.
- B. Within 10 days after joint review, submit complete schedule.

**1.03 QUALITY ASSURANCE**

- A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with one years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

**1.04 SCHEDULE FORMAT**

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- B. Diagram Sheet Size: Maximum 22 x 17 inches. Provide electronic file(s) in PDF format.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PRELIMINARY SCHEDULE**

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

**3.02 CONTENT**

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Provide sub-schedules to define critical portions of the entire schedule.
- D. Include conferences and meetings in schedule.
- E. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- F. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, products identified under Allowances, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.
- G. Indicate delivery dates for owner-furnished products.
- H. Provide legend for symbols and abbreviations used.

**3.03 BAR CHARTS**

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

**3.04 REVIEW AND EVALUATION OF SCHEDULE**

- A. Participate in joint review and evaluation of schedule with Architect at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

**3.05 UPDATING SCHEDULE**

- A. Maintain schedules to record actual start and finish dates of completed activities. Revised schedules should show original baseline start and finish dates for activities in comparison with actual work started and completed.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Annotate diagrams to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit reports required to support recommended changes.
- G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect.

### **3.06 DISTRIBUTION OF SCHEDULE**

- A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

**END OF SECTION**

**SECTION 01 4000  
QUALITY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Submittals.
- B. References and standards.
- C. Testing and inspection agencies and services.
- D. Control of installation.
- E. Mock-ups.

**1.02 RELATED REQUIREMENTS**

- A. Tolerances.
- B. Section 01 0000 - Owner's General Requirements: For related requirements.
- C. Section 01 2100 - Allowances: Allowance for payment of testing services.
- D. Defect Assessment.
- E. Section 01 3000 - Administrative Requirements: Submittal procedures.
- F. Section 01 6000 - Product Requirements: Requirements for material and product quality.

**1.03 REFERENCE STANDARDS**

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2014).
- B. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2014.
- C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2013.
- D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2012a.
- E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing; 2014a.
- F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2013.

**1.04 SUBMITTALS**

- A. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Owner's information.
- B. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- C. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
  - 1. Include:
    - a. Date issued.
    - b. Project title and number.
    - c. Name of inspector.
    - d. Date and time of sampling or inspection.
    - e. Identification of product and specifications section.
    - f. Location in the Project.
    - g. Type of test/inspection.
    - h. Date of test/inspection.
    - i. Results of test/inspection.

- j. Compliance with Contract Documents.
- k. When requested by Architect, provide interpretation of results.
- 2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Owner's information.
- D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
  - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
  - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
- E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
  - 1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.
- G. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.
  - 1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.
  - 2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

#### **1.05 REFERENCES AND STANDARDS**

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

#### **1.06 TESTING AND INSPECTION AGENCIES AND SERVICES**

- A. Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
  - 1. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.
  - 2. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
  - 3. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

### **PART 2 PRODUCTS - NOT USED**

### **PART 3 EXECUTION**

#### **3.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.

- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

### **3.02 MOCK-UPS**

- A. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be a comparison standard for the remaining Work.
- D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

### **3.03 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

### **3.04 TESTING AND INSPECTION**

- A. See individual specification sections for testing required.
- B. Testing Agency Duties:
- C. Limits on Testing/Inspection Agency Authority:
- D. Contractor Responsibilities:
  1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
  2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
  3. Provide incidental labor and facilities:
    - a. To provide access to Work to be tested/inspected.
    - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    - c. To facilitate tests/inspections.
    - d. To provide storage and curing of test samples.
  4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
  5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
  6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- E. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

- F. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

**3.05 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Architect, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or adjust payment.

**END OF SECTION**

**SECTION 01 5000  
TEMPORARY FACILITIES AND CONTROLS**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers, enclosures, and fencing.
- E. Security requirements.
- F. Vehicular access and parking.
- G. Waste removal facilities and services.
- H. Project identification sign.
- I. Field offices.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 0000 - Owner's General Requirements: For related requirements.

**1.03 TEMPORARY UTILITIES**

- A. Owner will provide the following:
  - 1. Electrical power , consisting of connection to existing facilities.
  - 2. Water supply, consisting of connection to existing facilities.
- B. Provide and pay for all lighting, heating and cooling, and ventilation required for construction purposes.
- C. Existing facilities may not be used.
- D. Use trigger-operated nozzles for water hoses, to avoid waste of water.

**1.04 TELECOMMUNICATIONS SERVICES**

- A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.
- B. Provide telephone, cellular phone, and high-speed internet connection to jobsite.
- C. Provide on jobsite capacity of viewing and printing out physical copies of electronic versions of construction documents, submittals, RFIs, ASI, etc.

**1.05 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.

**1.06 BARRIERS**

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

**1.07 FENCING**

- A. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

- B. Used material may be used for construction fence. Provide duplicate keys of any gate lock to Owner. Contractor to be responsible for maintenance of fence for duration of project.

#### **1.08 SECURITY**

- A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

#### **1.09 VEHICULAR ACCESS AND PARKING**

- A. Coordinate access and haul routes with governing authorities and Owner.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

#### **1.10 WASTE REMOVAL**

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

#### **1.11 PROJECT IDENTIFICATION**

- A. Provide project identification sign of design and construction as detailed by Architect.
- B. Erect on site at location established by Architect.
- C. Project Identification Signs:
  - 1. One painted sign, 64 square feet area, bottom 3 feet above ground.
  - 2. Content:
    - a. Project title, logo and name of Owner as indicated on Contract Documents.
    - b. Names and titles of authorities.
    - c. Names and titles of Architect/Engineer.
    - d. Name of Prime Contractor.
  - 3. Graphic Design, Colors, Style of Lettering: Designated by Architect/Engineer.
- D. Sign Materials:
  - 1. Structure and Framing: New wood, structurally adequate.
  - 2. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4-inch thick, standard large sizes to minimize joints.
  - 3. Paint and Primers: Exterior quality, two coats; sign background of color as selected.
  - 4. Lettering: Exterior quality paint, contrasting colors as selected.
- E. Installation:
  - 1. Install project identification signs within 15 days after date fixed by Notice to Proceed.
  - 2. Erect at location directed by the Architect.
  - 3. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.
  - 4. Install signs surface plumb and level, with butt joints. Anchor securely.
  - 5. Paint exposed surfaces of signs, supports, and framing.
- F. Maintenance: Maintain signs and supports clean, repair deterioration and damage.
- G. Removal: Remove signs, framing, supports, and foundations at completion of Project and restore the area.

H. No other signs are allowed without Owner permission except those required by law.

**1.12 FIELD OFFICES**

- A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack, and drawing display table.
- B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.
- C. Locate offices a minimum distance of 30 feet from existing and new structures.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 6000  
PRODUCT REQUIREMENTS**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. General product requirements.
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations.
- F. Procedures for Owner-supplied products.
- G. Maintenance materials, including extra materials, spare parts, tools, and software.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 0000 - Owner's General Requirements: For related requirements.
- B. Section 01 2500 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

**1.03 REFERENCE STANDARDS**

- A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

**1.04 SUBMITTALS**

- A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
  - 1. Submit within 15 days after date of Agreement.
  - 2. For products specified only by reference standards, list applicable reference standards.
- B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, manufacturer warranties and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

**PART 2 PRODUCTS**

**2.01 EXISTING PRODUCTS**

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.
- B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.
- C. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

**2.02 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by Contract Documents.
- B. Use of products having any of the following characteristics is not permitted:

1. Made of wood from newly cut old growth timber.
- C. Where other criteria are met, Contractor shall give preference to products that:
1. If used on interior, have lower emissions.
  2. If wet-applied, have lower VOC content.
  3. Are extracted, harvested, and/or manufactured closer to the location of the project.
  4. Have longer documented life span under normal use.
  5. Result in less construction waste.
  6. Are made of recycled materials.
  7. Are Cradle-to-Cradle Certified.
  8. Have a published GreenScreen Chemical Hazard Analysis.
- D. Provide interchangeable components of the same manufacture for components being replaced.

### **2.03 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

### **2.04 MAINTENANCE MATERIALS**

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

### **2.05 WARRANTY**

- A. For all products, where no specific extended warranty period has been identified, provide no less than manufacturer's standard warranty for product line for quality grade specified.

## **PART 3 EXECUTION**

### **3.01 SUBSTITUTION LIMITATIONS**

- A. See Section 01 2500 - Substitution Procedures.

### **3.02 OWNER-SUPPLIED PRODUCTS**

- A. Owner's Responsibilities:
1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
  2. Arrange and pay for product delivery to site.
  3. On delivery, inspect products jointly with Contractor.
  4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
  5. Arrange for manufacturers' warranties, inspections, and service.
- B. Contractor's Responsibilities:
1. Review Owner reviewed shop drawings, product data, and samples. Notify Owner and Architect immediately if supplied product affects installed final work.
  2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
  3. Handle, store, install and finish products.
  4. Repair or replace items damaged after receipt.

### **3.03 TRANSPORTATION AND HANDLING**

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

#### **3.04 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 7419.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Provide off-site storage and protection when site does not permit on-site storage or protection.
- G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- H. Comply with manufacturer's warranty conditions, if any.
- I. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- J. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- K. Prevent contact with material that may cause corrosion, discoloration, or staining.
- L. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- M. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

**SECTION 01 7000  
EXECUTION AND CLOSEOUT REQUIREMENTS**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, and selective demolition.
- C. Pre-installation meetings.
- D. Cutting and patching.
- E. Surveying for laying out the work.
- F. Cleaning and protection.
- G. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
- H. General requirements for maintenance service.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 0000 - Owner's General Requirements: For related requirements.
- B. Section 01 3000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.
- D. Section 01 7800 - CLOSEOUT SUBMITTALS: Project record documents, operation and maintenance data, warranties, and bonds.

**1.03 REFERENCE STANDARDS**

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
  - 1. On request, submit documentation verifying accuracy of survey work.
  - 2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
  - 3. Submit surveys and survey logs for the project record.
- C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of Owner or separate Contractor.

**1.05 QUALIFICATIONS**

- A. For surveying work, employ a land surveyor registered in the State of Arkansas and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities.

**1.06 PROJECT CONDITIONS**

- A. Use of explosives is not permitted.

- B. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

### **1.07 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

## **PART 2 PRODUCTS**

### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.

- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 PREINSTALLATION MEETINGS**

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
  - 1. Review conditions of examination, preparation and installation procedures.
  - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

### **3.04 LAYING OUT THE WORK**

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect of any discrepancies discovered.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
- F. Utilize recognized engineering survey practices.
- G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, and ground floor elevations.
- H. Periodically verify layouts by same means.
- I. Maintain a complete and accurate log of control and survey work as it progresses.

### **3.05 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.06 ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  - 1. Verify that construction and utility arrangements are as indicated.
  - 2. Report discrepancies to Architect before disturbing existing installation.
  - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Remove existing work as indicated and as required to accomplish new work.
  - 1. Remove items indicated on drawings.

2. Relocate items indicated on drawings.
  3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
  4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
  2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
  3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
    - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
    - b. Provide temporary connections as required to maintain existing systems in service.
  4. Verify that abandoned services serve only abandoned facilities.
  5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- D. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
  2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  3. Repair adjacent construction and finishes damaged during removal work.
- E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
- F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- G. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
  2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
- H. Clean existing systems and equipment.
- I. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- J. Do not begin new construction in alterations areas before demolition is complete.
- K. Comply with all other applicable requirements of this section.

### **3.07 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
  1. Complete the work.

2. Fit products together to integrate with other work.
  3. Provide openings for penetration of mechanical, electrical, and other services.
  4. Match work that has been cut to adjacent work.
  5. Repair areas adjacent to cuts to required condition.
  6. Repair new work damaged by subsequent work.
  7. Remove samples of installed work for testing when requested.
  8. Remove and replace defective and non-complying work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.
- J. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  2. Match color, texture, and appearance.
  3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.08 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.09 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

### **3.10 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

### **3.11 FINAL CLEANING**

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.
- F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.
- G. Clean site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.12 CLOSEOUT PROCEDURES**

- A. Make submittals that are required by governing or other authorities.
- B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
- H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion. When each item is completed, have each item initialled by Project Superintendent and dated when completed. Include in project closeout documentation.

### **3.13 MAINTENANCE**

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

**END OF SECTION**

**SECTION 01 7310  
CUTTING AND PATCHING**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. This section includes procedural requirements for cutting and patching.
- B. Definition:
  - 1. Cutting and patching includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and repair required to restore surfaces to their original condition.
  - 2. Section includes incidental cutting, fitting, and patching within new construction required to complete work or to make its several parts fit together.
- C. Refer to other sections for other requirements and limitations applicable to cutting and patching individual parts of the Work.
- D. Coordinate cutting and patching with demolition requirements specified in other Sections.

**1.02 SUBMITTALS**

- A. Cutting and Patching Plan: Submit a proposal to the Owner, describing procedures at least 7 calendar days in advance of the time cutting and patching will initially be performed.
  - 1. Include the following information, as applicable:
    - a. Description of the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.
    - b. Description of the anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in appearance and other significant visual elements.
    - c. List of products to be used and entities that will perform work.
    - d. Dates and hours of operation when cutting and patching will be performed.
    - e. Compatibility and cohesion characteristics of patching compounds with adjacent materials.
    - f. Details and engineering calculations showing integration of reinforcement with the original structure, where cutting and patching involves adding reinforcement to structural elements.
  - 2. Approval by the Owner to proceed with cutting and patching does not waive the right to later require complete removal and replacement of unsatisfactory work.
- B. Samples: Provide cutting and patching samples within 7 calendar days after notice to proceed in order that special reviews and coordination can be arranged with approval authorities.

**1.03 PRICE AND PAYMENT PROCEDURES**

- A. Allowances: See Section 01 2100 - Allowances, for cash allowances affecting this section.
- B. Unit Prices: See Section 01 2200 - Unit Prices, for additional unit price requirements.

**1.04 QUALITY ASSURANCE**

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
  - 1. The cutting and patching plan shall include but not be necessarily limited to work required at the following structural elements:
    - a. Foundation construction.
    - b. Bearing and retaining walls.
    - c. Structural concrete.
    - d. Structural steel.
    - e. Lintels.
    - f. Miscellaneous structural metals.
    - g. Exterior-wall construction.

- h. Equipment supports.
  - i. Piping, ductwork, vessels, and equipment.
  - j. Structural systems of other construction.
- B. Operational Limitations: Do not cut and patch operating elements, safety related systems, or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements, safety related systems or related components in a manner that would result in increased maintenance or decreased operational life or safety.
1. The cutting and patching plan shall include but not be necessarily limited to work required at the following operating elements or safety related systems:
    - a. Primary operational systems and equipment.
    - b. Air and smoke barriers.
    - c. Water, moisture, or vapor barriers.
    - d. Membranes and flashings.
    - e. Fire protection systems.
    - f. Noise and vibration control elements and systems.
    - g. Control systems.
    - h. Communication systems.
    - i. Conveying systems.
    - j. Electrical wiring systems.
    - k. Operating systems of other construction.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction that is cut and patched in a visually unsatisfactory manner.
1. Retain the original installer or fabricator to cut and patch exposed work if the original installer or fabricator is identified in the Contract Documents or is known to the Contractor and is available for the work.
  2. If it is not possible to engage the original installer or fabricator, engage a Specialist who is specifically experienced in the work.
  3. The cutting and patching plan shall include but not be necessarily limited to work required at the following visual elements:
    - a. Processed concrete finishes.
    - b. Stonework and stone masonry.
    - c. Ornamental metal.
    - d. Matched-veneer woodwork.
    - e. Preformed metal panels.
    - f. Firestopping.
    - g. Window wall system.
    - h. Acoustical ceilings.
    - i. Terrazzo.
    - j. Finished wood flooring.
    - k. Fluid-applied flooring.
    - l. Carpeting.
    - m. Aggregate wall coating.
    - n. Wall covering.
    - o. Mechanical system enclosures, cabinets, or covers.

### **1.05 EXISTING WARRANTIES**

- A. Replace, patch and repair material and surfaces cut or damaged by methods and with materials in such a manner as to avoid any cancellation of existing warranties.

### **PART 2 PRODUCTS**

UAMSOE24.09

UAMS Gastro Clinic at Freeway

01 7310 - 2

CUTTING AND PATCHING

02/12/2026

## **2.01 MATERIALS**

- A. Use materials identical to existing materials to the maximum extent available.
- B. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- C. Use materials whose installed performance will equal or surpass that of existing materials.

## **PART 3 EXECUTION**

### **3.01 INSPECTION**

- A. Before cutting, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
- B. Before proceeding with cutting and patching involving two or more trades, meet at the Project site with the entities providing or affected by the cutting and patching. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

### **3.02 PREPARATION**

- A. Provide temporary support of work to be cut.
- B. Protect existing conditions during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Bypass in-service existing pipe, conduit, or ductwork scheduled to be removed or relocated before cutting.

### **3.03 PERFORMANCE**

- A. Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
- B. Cutting: Cut existing construction using methods least likely to damage elements retained and adjoining construction. Where possible, review proposed procedures with the original installer and comply with the original installer's recommendations.
  - 1. In general, use hand or small power tools designed for sawing or grinding, not for hammering and chopping.
  - 2. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 3. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
  - 4. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
  - 5. After utility services are bypassed, cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances. Unless noted otherwise, perform patch so repair is not perceivable from a distance of three feet.
  - 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  - 2. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction in a manner that will eliminate evidence of patching and refinishing.
  - 3. Where removed walls or partitions extend one finished area into another finished area, patch and repair floor and wall surfaces to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

4. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface that contains the patch after the area has received primer and other undercoats.
  5. Patch, repair or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- D. Prior to core drilling concrete locate all rebar in existing floor slab and coordinate locations of cores to avoid disturbing rebar.

#### **3.04 CLEANING**

- A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items.
- B. Thoroughly clean piping, conduit, and similar features before applying paint, restored pipe coverings, or other finishing materials.

**END OF SECTION**

**SECTION 01 7419  
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

**PART 1 GENERAL**

**1.01 WASTE MANAGEMENT REQUIREMENTS**

- A. Owner requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Methods of trash/waste disposal that are not acceptable are:
  - 1. Burning on the project site.
  - 2. Burying on the project site.
  - 3. Dumping or burying on other property, public or private.
  - 4. Other illegal dumping or burying.
- E. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 3000 - Administrative Requirements: Additional requirements for project meetings, reports, submittal procedures, and project documentation.
- B. Section 01 5000 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.
- C. Section 01 6000 - Product Requirements: Waste prevention requirements related to delivery, storage, and handling.
- D. Section 01 7000 - Execution and Closeout Requirements: Trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

**1.03 DEFINITIONS**

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.

- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

#### **1.04 SUBMITTALS**

### **PART 3 EXECUTION**

#### **2.01 WASTE MANAGEMENT PROCEDURES**

- A. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
- B. See Section 01 5000 for additional requirements related to trash/waste collection and removal facilities and services.
- C. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.
- D. See Section 01 7000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

#### **2.02 WASTE MANAGEMENT PLAN IMPLEMENTATION**

- A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.
- B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.
- C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.
- D. Meetings: Discuss trash/waste management goals and issues at project meetings.
  - 1. Prebid meeting.
  - 2. Preconstruction meeting.
  - 3. Regular job-site meetings.
- E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
  - 1. Provide containers as required.
  - 2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
  - 3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.
- F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.
- G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.
- H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

- I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

**END OF SECTION**

**SECTION 01 7800  
CLOSEOUT SUBMITTALS**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Project Completion Documents.
- B. Project Record Documents.
- C. Operation and Maintenance Manuals.
- D. Warranties and bonds.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 0000 - Owner's General Requirements: For related requirements.

**1.03 SUBMITTALS**

- A. Close Out Document Manuals: All information to be scanned to digital format and submitted to Architect. Retain all hard copies for one complete set for the Owner. Submit complete sets of the following:
  - 1. Project Completion Documents:
  - 2. Project Record Documents:
  - 3. Operation and Maintenance Manuals:
- B. Final Application for Payment: Submit fully executed

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PROJECT COMPLETION DOCUMENTS**

- A. Project Directory: Include list of all Contractors, Owner, Architects, Engineers, Subcontractor and prime material suppliers. List to include trade involved, primary contact name, phone number, mailing address and email address.
- B. Waiver of Liens: Provide for all trades and prime material suppliers.
- C. Warranties: Submit for contractors installation warranty, manufacturer's warranties and warranties for equipment or component parts of equipment. Warranty begins on the date of acceptance
  - 1. Submit for contractors installation warranty, manufacturer's warranties and warranties for equipment or component parts of equipment.
  - 2. Warranties begin on the Date of Substantial Completion, unless delayed or specifically excluded.
  - 3. For items of Work for which acceptance is delayed beyond the Date of Substantial Completion, the listing date of acceptance is the beginning of the warranty period.
  - 4. Verify that documents are in proper form, contain full information, and are notarized.
  - 5. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.
- D. Certificate of Substantial Completion: Provide fully executed form with punch list attached.
- E. Contractor's Punch List: Provide completed list of items requiring completion or correction. Include any attachments for revisions provided by Architect and/or Engineer. Punch list should be noted that all items were corrected and completed with trade responsible identified.
- F. Certificate of Occupancy: Provide form as issued for authority having jurisdiction.
- G. Consent of Surety: Provide fully executed surety letter when project has associated bonds provided by contractor.

**3.02 PROJECT RECORD DOCUMENTS**

- A. Record Drawings : Legibly mark construction drawings with each item to record actual construction including the following:
  - 1. Measured depths of foundations in relation to finish first floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 4. Field changes of dimension and detail.
  - 5. Details not on original Contract drawings.
  - 6. Changes made by Addenda and Change Orders.
  - 7. Record information concurrent with construction progress.
- B. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda, Change Orders and other modifications.
- C. Addenda: Insure all addenda items have been includes and posted to record documents.
- D. Change Orders: Include all executed Change Orders, Allowance purchases and other modifications to the contract.
- E. Submittals, Shop Drawings, Product Data and Samples:
  - 1. Shop Drawings: Include records of manufacturer's instruction for assembly, installation and adjusting.
  - 2. Product Data: Include list of all products and model number provided.
  - 3. Samples: Include material samples of all selected interior finishes. Samples to include label indicating manufacturer, product model number, color, finish and other identifying elements. Full color photographs are acceptable for larger samples.
- F. Test Reports and Special Inspections:
- G. Maintain on site a complete set of record documents; record actual revisions to the Work:
- H. Ensure entries are complete and accurate, enabling future reference by Owner.
- I. Store record documents separate from documents used for construction.
- J. Record information concurrent with construction progress.

### **3.03 OPERATION AND MAINTENANCE MANUAL GENERAL**

- A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

### **3.04 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES**

- A. For Each Product, Applied Material, and Finish:
  - 1. Product data, with catalog number, size, composition, and color and texture designations.
  - 2. Information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

- C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

### **3.05 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS**

- A. Provide schedule of all equipment that require instruction on operation and/or continual maintenance. Coordinate instruction for all equipment with Owner and/or Owner's Representative and record name and contact information of all in attendance. Video recording of instructions provided is recommended.
- B. For Each Item of Equipment and Each System:
  - 1. Description of unit or system, and component parts.
  - 2. Identify function, normal operating characteristics, and limiting conditions.
  - 3. Include performance curves, with engineering data and tests.
  - 4. Complete nomenclature and model number of replaceable parts.
- C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- D. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- E. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- F. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- G. Provide servicing and lubrication schedule, and list of lubricants required.
- H. Include manufacturer's printed operation and maintenance instructions.
- I. Include sequence of operation by controls manufacturer.
- J. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- K. Additional Requirements: As specified in individual product specification sections.

### **3.06 CLOSE OUT DOCUMENT MANUALS**

- A. Provide all Close Out information in digital format, saved in PDF files, and neatly organized for ease of navigation. Arrange by Specification Sections as Table of Contents. Architect can provide file format for use as needed.
- B. Where paper documents are provided by manufacturers, scan into records and combine and include into Hard Copy Close Out Documents.
- C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.
- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

- H. Arrange content by systems under specification section numbers and sequence of Table of Contents of this Project Manual.
- I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
  - 1. Operating instructions.
  - 2. Maintenance instructions for equipment and systems.
  - 3. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
  - 4. Air and water balance reports.
  - 5. Certificates.
  - 6. Photocopies of warranties and bonds.
- J. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.
- K. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect , Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- L. Arrange digital PDF copies of documents in similar fashion using file folders. Name file type with simple explanation of contents using shortest file names type possible. Provide digital files on flash USB drives.
- M. Provide owner training videos saved electronically and transmitted in USB drives. Provide sign-in sheets for all attendees for Owner Training sessions and include in closeouts.

**END OF SECTION**

**SECTION 02 4100  
DEMOLITION**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Selective demolition of building elements for alteration purposes.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 01 1000 - Summary: Description of items to be salvaged or removed for re-use by Contractor.
- C. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- D. Section 01 6000 - Product Requirements: Handling and storage of items removed for salvage and relocation.
- E. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- F. Section 31 2323 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

**1.03 REFERENCE STANDARDS**

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Site Plan: Showing:
  - 1. Areas for temporary construction and field offices.
- C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. N/A

**PART 3 EXECUTION**

**3.01 SCOPE**

- A. Remove other items indicated, for salvage, relocation, and recycling.
- B. Remove items noted for demolition.

**3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS**

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
  - 1. Obtain required permits.
  - 2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
  - 3. Provide, erect, and maintain temporary barriers and security devices.
  - 4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.

5. Do not close or obstruct roadways or sidewalks without permit.
  6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
  7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
  - C. Protect existing structures and other elements that are not to be removed.
    1. Provide bracing and shoring.
    2. Prevent movement or settlement of adjacent structures.
    3. Stop work immediately if adjacent structures appear to be in danger.

### **3.03 EXISTING UTILITIES**

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

### **3.04 SELECTIVE DEMOLITION FOR ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  1. Verify that construction and utility arrangements are as indicated.
  2. Report discrepancies to Architect before disturbing existing installation.
  3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Remove existing work as indicated and as required to accomplish new work.
  1. Remove items indicated on drawings.
- C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
  1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
  2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
  3. Verify that abandoned services serve only abandoned facilities before removal.
  4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- D. Protect existing work to remain.
  1. Prevent movement of structure; provide shoring and bracing if necessary.
  2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  3. Repair adjacent construction and finishes damaged during removal work.

4. Patch as specified for patching new work.

**3.05 DEBRIS AND WASTE REMOVAL**

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**

**SECTION 02 7320  
SELECTIVE DEMOLITION**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

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

**1.02 SUMMARY**

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure.
- B. Related Sections include the following:
  - 1. Division 1 Section "Summary" for use of premises and Owner-occupancy requirements.
  - 2. Division 1 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
  - 3. Division 1 Section "Cutting and Patching" for cutting and patching procedures.

**1.03 DEFINITIONS**

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

**1.04 SUBMITTALS**

- A. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
  - 5. Means of protection for items to remain and items in path of waste removal from building.
- B. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- C. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

**1.05 QUALITY ASSURANCE**

- 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 A10.6 and NFPA 241.
- C. Predemolition Conference: Conduct conference at Project site to comply with requirements. Review methods and procedures related to selective demolition including, but not limited to, the following:
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.

3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

#### **1.06 PROJECT 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.
  1. Comply with requirements specified in Division 1 Section "Summary."
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify the Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: None Known.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. 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.

#### **1.07 WARRANTY**

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

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

#### **3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS**

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
  1. Comply with requirements for existing services/systems interruptions specified in Division 1 Section "Summary."
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Building manager will arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
4. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

### **3.03 PREPARATION**

- A. 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.
  1. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  3. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 1 Section "Temporary Facilities and Controls."

### **3.04 SELECTIVE DEMOLITION, GENERAL**

- 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. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  2. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  3. Dispose of demolished items and materials promptly.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the 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.

### **3.05 DISPOSAL OF DEMOLISHED MATERIALS**

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
  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. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### **3.06 CLEANING**

- A. 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**

**SECTION 04 0511  
MASONRY MORTARING AND GROUTING**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Mortar for masonry.
- B. Grout for masonry.

**1.02 REFERENCE STANDARDS**

- A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2022, with Errata (2024).
- B. ASTM C5 - Standard Specification for Quicklime for Structural Purposes; 2010.
- C. ASTM C91/C91M - Standard Specification for Masonry Cement; 2012.
- D. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.
- E. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2011.
- F. ASTM C150/C150M - Standard Specification for Portland Cement; 2015.
- G. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).
- H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.
- I. ASTM C387/C387M - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar; 2011b.
- J. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.
- K. ASTM C476 - Standard Specification for Grout for Masonry; 2010.
- L. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2012.
- M. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2010.
- N. ASTM C1019 - Standard Test Method for Sampling and Testing Grout; 2013.
- O. ASTM C1072 - Standard Test Method for Measurement of Masonry Flexural Bond Strength; 2013.
- P. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2008).
- Q. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2014.
- R. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry; 2014.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C270 is to be used. Also include required environmental conditions and admixture limitations.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer's Installation Instructions: Submit packaged dry mortar manufacturer's installation instructions.

**1.04 PRECONSTRUCTION TESTING**

- A. Testing will be conducted by an independent test agency, in accordance with provisions of Section 01 4000 - Quality Requirements.

- B. Mortar Mixes: Test mortars prebatched by weight in accordance with ASTM C780 recommendations for preconstruction testing.
- C. Grout Mixes: Test grout batches in accordance with ASTM C1019 procedures.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

#### **1.06 FIELD CONDITIONS**

- A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

### **PART 2 PRODUCTS**

#### **2.01 MORTAR AND GROUT APPLICATIONS**

- A. At Contractor's option, mortar and grout may be field-mixed from packaged dry materials, made from factory premixed dry materials with addition of water only, or ready-mixed.

#### **2.02 MATERIALS**

- A. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C387/C387M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
  - 1. Type: Types as scheduled in this section.
  - 2. Color: Mineral pigments added as required to produce approved color sample.
  - 3. Manufacturers:
    - a. Substitutions: See Section 01 6000 - Product Requirements.
- B. Packaged Dry Material for Grout for Masonry: Premixed cementitious materials and dried aggregates; capable of producing grout of the specified strength in accordance with ASTM C476 with the addition of water only.
- C. Portland Cement: ASTM C150/C150M.
  - 1. Type: Type I - Normal; ASTM C150/C150M.
  - 2. Color: Standard gray.
- D. Masonry Cement: ASTM C91/C91M.
  - 1. Type: Type N; ASTM C91/C91M.
- E. Blended Masonry and Portland Cement Grout: ASTM C476.
- F. Packaged Dry Mortar: ASTM C387/C387M, Type N or S, using gray or white color cement as required to achieve desired mortar color.
- G. Hydrated Lime: ASTM C207, Type S.
- H. Quicklime: ASTM C5, non-hydraulic type.
- I. Mortar Aggregate: ASTM C144.
- J. Grout Aggregate: ASTM C404.
- K. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
  - 1. Color(s): To match Architect's sample(s) when incorporated into specified mix design(s).
  - 2. Manufacturers:
    - a. Davis Colors: [www.daviscolors.com/#sle](http://www.daviscolors.com/#sle).
    - b. Lambert Corporation: [www.lambertusa.com/#sle](http://www.lambertusa.com/#sle).
    - c. Solomon Colors: [www.solomoncolors.com](http://www.solomoncolors.com).
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- L. Water: Clean and potable.
- M. Bonding Agent: Latex type.

- N. Integral Water Repellent Admixture: Polymeric liquid admixture added to mortar at the time of manufacture.
1. Performance of Mortar with Integral Water Repellent:
    - a. Water Permeance: When tested per ASTM E514/E514M and for a minimum of 72 hours:
      - 1) No water visible on back of wall above flashing at the end of 24 hours.
      - 2) No flow of water from flashing equal to or greater than 0.032 gallons per hour at the end of 24 hours.
      - 3) No more than 25 percent of wall area above flashing visibly damp at end of test.
    - b. Flexural Bond Strength: ASTM C1072; minimum 10 percent increase.
    - c. Compressive Strength: ASTM C1314; maximum 5 percent decrease.
    - d. Drying Shrinkage: ASTM C1148; maximum 5 percent increase in shrinkage.
  2. Use only in combination with masonry units produced with integral water repellent admixture.

### **2.03 MORTAR MIXES**

- A. Ready Mixed Mortar: ASTM C1142, Type RN.
- B. Mortar for Unit Masonry: ASTM C270, Property Specification.

### **2.04 MORTAR MIXING**

- A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C270 and in quantities needed for immediate use.
- B. Maintain sand uniformly damp immediately before the mixing process.
- C. Do not use anti-freeze compounds to lower the freezing point of mortar.
- D. If water is lost by evaporation, re-temper only within two hours of mixing.

### **2.05 GROUT MIXES**

- A. Bond Beams, Lintels, and Reinforced Cells: 3,000 psi strength at 28 days; 8-10 inches slump; provide premixed type in accordance with ASTM C 94/C 94M.
  1. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.

### **2.06 GROUT MIXING**

- A. Mix grout in accordance with ASTM C94/C94M.
- B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.
- C. Add admixtures in accordance with manufacturer's instructions; mix uniformly.
- D. Do not use anti-freeze compounds to lower the freezing point of grout.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Apply bonding agent to existing concrete surfaces.
- B. Plug clean-out holes for grouted masonry with brick masonry units. Brace masonry to resist wet grout pressure.
- C. Perform practices for cold or hot weather requirements.

### **3.02 INSTALLATION**

- A. Install mortar and grout to requirements of section(s) in which masonry is specified.
- B. Work grout into masonry cores and cavities to eliminate voids.
- C. Do not install grout in lifts greater than 16 inches without consolidating grout by rodding.
- D. Do not displace reinforcement while placing grout.
- E. Remove excess mortar from grout spaces.

### **3.03 GROUTING**

- A. Perform all grouting by means of low-lift technique. Do not employ high-lift grouting.
- B. Low-Lift Grouting:
  - 1. Limit height of pours to 60 inches maximum for fine and course grout with 2 inches maintained clearances around reinforcing. Refer to structural drawings for additional restrictions.
  - 2. Limit height of masonry to 16 inches above each pour.
  - 3. Pour grout only after vertical reinforcing is in place; place horizontal reinforcing as grout is poured. Prevent displacement of bars as grout is poured.
  - 4. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.

### **3.04 FINAL TOUCH UP**

- A. CLEANING: Clean mortar from masonry or masonry veneer to observe mortar color tone / consistency.
- B. Stain surface of exposed mortar as required where discoloration of mortar appears from field tone/color. Repeat as necessary to obtain consistent color tone. Coordinate locations requiring staining with architect.

**END OF SECTION**

**SECTION 06 1000  
ROUGH CARPENTRY**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Roof-mounted curbs.
- B. Roofing nailers.
- C. Preservative treated wood materials.
- D. Fire retardant treated wood materials.
- E. Communications and electrical room mounting boards.
- F. Concealed wood blocking, nailers, and supports.
- G. Wall sheathing with factory applied water-resistive and air barrier sheet.

**1.02 REFERENCE STANDARDS**

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- B. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies; 2011.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- D. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.
- E. PS 1 - Structural Plywood; 2009.
- F. PS 20 - American Softwood Lumber Standard; 2010.
- G. SPIB (GR) - Grading Rules; 2014.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide technical data on structural lumber, sheathing, fire treated and wood preservative materials and application instructions.
- C. Installation fastener requirements and spacing.
- D. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
  - 1. Species: Southern Pine, unless otherwise indicated.
  - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
  - 3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee ([www.alsc.org](http://www.alsc.org)) and who provides grading service

for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

## 2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Stud Framing (2 by 2 through 2 by 6 ):
  - 1. Species: Douglas Fir-Larch.
  - 2. Grade: No. 2.
- E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16 ):
  - 1. Grade: [CHOICE TEXT].
- F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
  - 1. Lumber: S4S, No. 2 or Standard Grade.
  - 2. Boards: Standard or No. 3.

## 2.03 CONSTRUCTION PANELS

- A. Wall Sheathing at backside of parapets : Glass mat faced gypsum, ASTM C1177/C1177M, 5/8 inch Type X fire resistant.
  - 1. To be used ast backside of parapets at locations where single-ply roofing membranes are installed. Coordinate with roofing manufacturer requirements.
  - 2. Manufacturers:
    - a. Georgia-Pacific Gypsum; DensDeck Prime: [www.gpgypsum.com/#sle](http://www.gpgypsum.com/#sle).
- B. Wall Sheathing (with factory applied Weather Barrier) : Glass mat faced gypsum with integral water-resistive and air barrier, ASTM C1177/C1177M, 5/8 inch thick.
  - 1. Edges: Square.
  - 2. Water Vapor Permeance: 1 perm, minimum, when tested in accordance with ASTM E96/E96M.
  - 3. Air Permeance, Assembly: 0.04 cfm per square foot, maximum, when tested in accordance with ASTM E2357.
  - 4. Fluid-Applied Flashing: Approved by sheathing manufacturer.
  - 5. Warranty:
    - a. Exposure: Manufacturer's standard; 12 months, against exposure damage, and dated from installation of product.
    - b. Defect: Manufacturer's standard; 5 years, against manufacturing defects, and dated from purchase of product.
  - 6. Manufacturers:
    - a. Georgia-Pacific LLC; DensElement Barrier System: [www.DensElement.com/#sle](http://www.DensElement.com/#sle).
    - b. Tremco Commercial Sealants & Waterproofing; Securock ExoAir 430 Panel: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- C. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.
- D. Other Applications:
  - 1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
  - 2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
  - 3. Other Locations: PS 1, C-D Plugged or better.

## 2.04 ACCESSORIES

- A. Fasteners and Anchors: Use fasteners suitable for proper attachment to substrates and contain weatherized coating approved for use where exposed. Fasteners in treated lumber are required to have high corrosion resistance, compatible with chemical treatment and be approved for use by wood manufacturer.
  - 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
  - 2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
- B. Sill Flashing: As specified in Section 07 6200.
- C. Water-Resistive Barrier: For other locations, as specified in Section 07 2500.
- D. Fluid Applied Weather Barrier Joint Treatment: Dens Defy Liquid Flashing.
- E. Joint Transition Membrane: Dens Defy Transition Membrane.

## **2.05 FACTORY WOOD TREATMENT**

- A. Treated Lumber and Plywood: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
  - 1. Fire-Retardant Treated Wood (FRTW) : Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
  - 2. Preservative-Treated Wood (PTW): Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWA standards.
- B. Fire Retardant Treatment:
  - 1. Interior Type A: AWWA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
    - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
    - b. Treat rough carpentry items as indicated .
    - c. Do not use fire treated wood in applications exposed to weather or where the wood may become wet.
- C. Preservative Treatment:
  - 1. Preservative Pressure Treatment of Lumber Above Grade: AWWA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
    - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
    - b. Treat lumber in contact with roofing, flashing, or waterproofing.
    - c. Treat lumber in contact with masonry or concrete.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Coordinate installation of rough carpentry members specified in other sections.

### **3.02 INSTALLATION - GENERAL**

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

### **3.03 BLOCKING, NAILERS, AND SUPPORTS**

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. At building construction types I & type II, refer to code review statements on drawings, use fire-retardant treated wood FRTW where drawings indicate the use of wood for blocking, nailers or furring at the following locations:
  - 1. Exterior walls that are classified with fire resistance rating.
  - 2. Interior fire resistance rated partitions.
- C. At exterior walls, use pressure treated wood PTW for blocking.
- D. At interior locations, blocking shall be standard wood unless noted otherwise.
- E. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- F. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- G. Provide the following specific non-structural framing and blocking:
  - 1. Cabinets and shelf supports.
  - 2. Wall brackets.
  - 3. Handrails.
  - 4. Grab bars.
  - 5. Towel and bath accessories.
  - 6. Wall-mounted door stops.
  - 7. Chalkboards and marker boards.
  - 8. Wall paneling and trim.
  - 9. Joints of rigid wall coverings that occur between studs.
  - 10. Locations of termination bars for elements such as masonry flashing or roofing, etc..  
Continuous plywood strips are permitted at exterior walls, in same thickness of wall sheathing, provided the exterior surface is field treated with fluid weather barrier product.

### **3.04 ROOF-RELATED CARPENTRY**

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

### **3.05 INSTALLATION OF CONSTRUCTION PANELS**

- A. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.
  - 1. Use fastener type and spacing as recommended by manufacturer to accommodate no less than structural design wind speed per structural plans.
- B. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
  - 1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
  - 2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
- C. Wall Sheathing and Roof Sheathing with Laminated Water-Resistive Barrier and Air Barrier: Secure to studs as recommended by manufacturer.
  - 1. Install with laminated water-resistive and air barrier on exterior side of sheathing.
  - 2. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
  - 3. Use compatible fluid applied weather barrier at transitions to adjacent materials.
  - 4. Apply manufacturer's standard seam tape to joints between sheathing panels. Use tape gun or hard rubber roller as recommended by manufacturer.

5. Treatment of openings, penetrations, patches and repairs are per section 07 2500 weather barriers.

### **3.06 TOLERANCES**

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

### **3.07 CLEANING**

- A. Waste Disposal: Comply with the requirements of Section 01 7419 - Construction Waste Management and Disposal.
  1. Comply with applicable regulations.
  2. Do not burn scrap on project site.
  3. Do not burn scraps that have been pressure treated.
  4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

**END OF SECTION**

**SECTION 06 2000  
FINISH CARPENTRY**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Finish carpentry items.
- B. Wood casings and moldings.
- C. Hardware and attachment accessories.

**1.02 REFERENCE STANDARDS**

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.
- C. BHMA A156.9 - American National Standard for Cabinet Hardware; 2010.
- D. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2009.
- E. PS 1 - Structural Plywood; 2009.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with plumbing rough-in, electrical rough-in, and installation of associated and adjacent components.
- B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data:
  - 1. Provide instructions for attachment hardware and finish hardware.
- C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
  - 1. Scale of Drawings: 1-1/2 inch to 1 foot, minimum.
  - 2. Provide the information required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
- D. Samples: Submit two samples of finish plywood, 8x8 inch in size illustrating wood grain and specified finish.
- E. Samples: Submit two samples of wood trim 12 inch long.

**1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
  - 1. Company with at least one project within the past 5 years with value of woodwork within 20 percent of cost of woodwork for this project.
  - 2. Single Source Responsibility: Provide and install this work from single fabricator.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Protect from moisture damage.

**PART 2 PRODUCTS**

**2.01 FINISH CARPENTRY ITEMS**

- A. Quality Standard: Premium Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Interior Woodwork Items:

1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white pine; prepare for paint finish.

## **2.02 WOOD-BASED COMPONENTS**

- A. Provide sustainably harvested wood, certified or labeled as specified in Section 01 6000 - Product Requirements.

## **2.03 LUMBER MATERIALS**

- A. Hardwood Lumber: \_\_\_\_\_ species, \_\_\_\_\_ sawn, maximum moisture content of 6 percent ; with vertical grain , of quality suitable for transparent finish.

## **2.04 SHEET MATERIALS**

- A. Softwood Plywood, Not Exposed to View: Any face species, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application.
- B. Hardwood Plywood: Face species as indicated, plain sawn, book matched, medium density fiberboard core; HPVA HP-1 Front Face Grade AA, Back Face Grade 1, glue type as recommended for application.

## **2.05 FASTENINGS**

- A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.
- B. Concealed Joint Fasteners: Threaded steel.

## **2.06 ACCESSORIES**

- A. Lumber for Shimming, Blocking, and other concealed spaces: Softwood lumber of Southern Pine species.
- B. Primer: Alkyd primer sealer.
- C. Wood Filler: Solvent base, tinted to match surface finish color.

## **2.07 HARDWARE**

- A. Hardware: Comply with BHMA A156.9.

## **2.08 FABRICATION**

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. Fit exposed sheet material edges with 3/8 inch matching hardwood edging. Use one piece for full length only.
- C. Cap exposed plastic laminate finish edges with aluminum trim.
- D. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.
- E. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
- F. Apply laminate backing sheet to reverse face of plastic laminate finished surfaces.

## **2.09 SHOP FINISHING**

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.
- D. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
  1. Transparent:
    - a. System - 12 Polyurethane Water-based.

- b. Stain: As selected by Architect.
- c. Sheen: Satin.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

#### **3.02 INSTALLATION**

- A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- D. Install hardware supplied by Section \_\_\_\_\_ in accordance with manufacturer's written instructions.

#### **3.03 PREPARATION FOR SITE FINISHING**

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09 9113 and 09 9123.

#### **3.04 TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**

**SECTION 06 4100  
ARCHITECTURAL WOOD MILLWORK**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Custom made specially fabricated cabinet units and assemblies.
- B. Countertops.
- C. Hardware.
- D. Factory finishing.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 12 3400 - Laminate Clad Casework.

**1.03 REFERENCE STANDARDS**

- A. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.
- B. BHMA A156.9 - American National Standard for Cabinet Hardware; 2010.
- C. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
  - 1. Scale of Drawings: 1-1/2 inch to 1 foot, minimum.
  - 2. Provide the information required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
  - 3. Include certification program label.
- C. Product Data: Provide data for hardware accessories.
- D. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.

**1.06 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
- B. Quality Certification:
  - 1. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

**1.07 MOCK-UP**

- A. Provide mock-up of typical countertop, including finishes.
- B. Locate where directed.
- C. Mock-up may remain as part of the Work.

**1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Protect units from moisture damage.

**1.09 FIELD CONDITIONS**

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Single Source Responsibility: Provide and install this work from single fabricator.

### **2.02 CABINETS**

- A. Quality Standard: Premium Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Plastic Laminate Faced Cabinets: Custom grade.
  - 1. Finish - Exposed Exterior Surfaces: HPL veneer.
  - 2. Finish - Exposed Interior Surfaces: HPL veneer.
  - 3. Finish - Semi-Exposed Interior Surfaces: TFL veneer, unless noted otherwise.
  - 4. Finish - Concealed Surfaces: Manufacturer's Standard.

### **2.03 WOOD-BASED COMPONENTS**

- A. Wood fabricated from old growth timber is not permitted.

### **2.04 PLASTIC LAMINATE MATERIALS**

- A. High Pressure Laminate (HPL): NEMA LD 3, types as recommended for specific applications.
- B. Provide specific types as indicated.
  - 1. Vertical Surfaces: VGS, 0.028 inch nominal thickness, through color, Formica, Cognac Maple 7738-58, finish as indicated. (HPL-01).
  - 2. Cabinet Liner: CLS, 0.020 inch nominal thickness, through color, color as selected, finish as indicated.
  - 3. Laminate Backer: BKL, 0.020 inch nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure laminate.

### **2.05 COUNTERTOPS & SILL SURFACES**

- A. Solid Surfacing: Solid surfacing sheet or plastic resin casting over continuous substrate. (Window Sills)
  - 1. Flat Sheet thickness: 1/4" minimum.
  - 2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISSFA-2 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
    - a. Color and Pattern: As selected by Architect from manufacturer's full line.
    - b. Manufacturers:
      - 1) Dupont: Corian Solid Surface. Color: Doeskin. [www.corian.com](http://www.corian.com)
      - 2) Formica Corporation: [www.formica.com](http://www.formica.com)
      - 3) Wilsonart International Inc.: [www.wilsonart.com](http://www.wilsonart.com)
  - 3. Other component thicknesses: 1/2 inch minimum.
  - 4. Exposed Edge Treatment: Built up to minimum 1-1/4 inch thick; square edge.
- B. Quartz Surfacing: Quartz slabs bonded to substrate; use as large pieces as possible with inconspicuous adhesive joints. (Countertops)
  - 1. Product: Cambria. Uniform surface without cracks, void or pin holes.
  - 2. Color: Snowdown White.
  - 3. Stone Thickness: 3/4 inch (2cm) minimum.
  - 4. Surface Finish: Polished.
  - 5. Exposed Edge Treatment: Square profile stone, 1 inch thick with 1/8 inch radius corner.
  - 6. Back and End Splashes: Same material; 3/4 inch (2cm) thickness; for field attachment.
  - 7. Fabricate in accordance with AWI/AWMAC/WI (AWS) Standards, Section 11- Premium Grade.

## 2.06 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Fasteners: Size and type to suit application.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.
- D. Concealed Joint Fasteners: Threaded steel.
- E. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface.

## 2.07 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Adjustable Shelf Supports: Standard side-mounted system using multiple holes for pin supports and coordinated self rests, polished chrome or satin chrome finish, for nominal 1 inch spacing adjustments.
- C. Countertop Supports:
  - 1. Material: Aluminum
  - 2. Finish/Color: Clear anodized.
  - 3. Manufacturers:
    - a. Rakks/Rangine Corporation; Sill Supports: [www.rakks.com/#sle](http://www.rakks.com/#sle)
    - b. Substitutions: See Section 01 6000 - Product Requirements.
- D. Drawer and Door Pulls: Bar Pull. Chrome matt or brushed nickel - to be determined. All pulls to be 96mm spacing and designs to comply with ADA act.
- E. Drawer Slides:
  - 1. Type: Standard extension.
  - 2. Static Load Capacity: Commercial grade.
  - 3. Mounting: Side mounted.
  - 4. Stops: Integral type.
  - 5. Features: Provide self closing/stay closed and soft close type.
  - 6. Manufacturers:
    - a. Accuride International, Inc; Heavy-Duty Drawer Slides: [www accuride.com/#sle](http://www accuride.com/#sle).
    - b. Grass America Inc; Ball Bearing Slide System: [www.grassusa.com/#sle](http://www.grassusa.com/#sle).
    - c. Knappe & Vogt Manufacturing Company; Heavy-Duty Drawer Slides: [www.knapeandvogt.com/#sle](http://www.knapeandvogt.com/#sle).
    - d. Substitutions: See Section 01 6000 - Product Requirements.

## 2.08 FABRICATION

- A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.
- D. Solid Surfacing: Fabricate tops up to 144 inches long in one piece; join pieces with adhesive sealant in accordance with manufacturer's recommendations and instructions.
- E. Matching Wood Grain: Comply with requirements of quality standard for specified Grade and as follows:
  - 1. Provide center matched panels at each elevation.
  - 2. Provide sequence matching across each elevation.
  - 3. Carry figure of cabinet fronts to toe kicks.

- F. Mechanically fasten back splash to countertops with steel brackets at 16 inches on center.

## **2.09 SHOP FINISHING**

- A. Sand work smooth and set exposed nails and screws.
- B. On items to receive transparent finishes, use wood filler matching or blending with surrounding surfaces and of types recommended for applied finishes.
- C. Finish work in accordance with AWI/AWMAc/WI (AWS) or AWMAc/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
  - 1. Transparent:
    - a. System - 11, Polyurethane, Catalyzed.
    - b. Stain: As selected by Architect.
    - c. Sheen: Satin.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

### **3.02 INSTALLATION**

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe millwork abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- E. Secure cabinets to floor using appropriate angles and anchorages.
- F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

### **3.03 ADJUSTING**

- A. Adjust installed work.
- B. Adjust moving or operating parts to function smoothly and correctly.

### **3.04 CLEANING**

- A. Clean millwork, counters, shelves, hardware, fittings, and fixtures.

**END OF SECTION**

**SECTION 06 6100  
CAST POLYMER FABRICATIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Cast plastic Rigid Sheet.
- B. Adhesives.

**1.02 REFERENCE STANDARDS**

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate dimensions, thicknesses, required clearances, tolerances, materials, colors, finishes, fabrication details, field jointing, adjacent construction, design load parameters, methods of support, integration of plumbing components, and anchorages.
- C. Product Data: Provide data on specified component products, electrical characteristics and connection requirements.
- D. Samples: Submit two samples representative of Rigid Sheet, 5x8 inch in size, illustrating color, texture, and finish.
- E. Manufacturer's Installation Instructions: Indicate preparation of opening required, rough-in sizes; provide templates for cast-in or placed frames or anchors; tolerances for item placement, temporary bracing of components, and printed installation instructions for the specified product.
- F. Maintenance Data: Indicate list of approved cleaning materials and procedures required; list of substances that are harmful to the component materials.
- G. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to the site in original packages, containers or bundles bearing brand name and identification. Protect from damage by retaining shipping protection in place until installation.
- B. Store products under cover, elevated above grade, and in a dry, well-ventilated area not exposed to heat or sunlight. Protect from moisture damage.
- C. Handle products to prevent damage to edges, ends, or surfaces.

**1.05 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.
- B. Standard IPC Limited Lifetime Warranty against material and manufacturing defects.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Cast Plastic Fabrications:
  - 1. Products:
    - a. Inpro; Basis of Design: [www.inpro.com](http://www.inpro.com).
    - b. Acrovyn: [www.c-sgroup.com/](http://www.c-sgroup.com/).
    - c. Koroseal: [www.koroseal.com/](http://www.koroseal.com/)
    - d. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 MANUFACTURED UNITS**

- A. Continuum Rigid Sheet

1. Continuum Rigid Sheet Size
    - a. 4'x8' (1.22m x 2.44m), 0.080" = 5/64" (2mm) 610-XXXX Standard.
  2. Finishes:
    - a. Pure White 0383.
- B. Accessories:
1. Trim
    - a. Top Cap; Length: 10' - 61810.
    - b. Vertical Divider Bar; Length: 10' - 61810.
    - c. Inside Corner; Length: 10' - 61910.
    - d. Outside Corner; Length: 10' - 62010.
  2. Continuum Corner Wraps
    - a. 6" Inside Corner Wrap - 696NIC.
    - b. 6" Outside Corner Wrap - 696NOC.
  3. Color Matched Caulk
    - a. Coordinating with sheet color.
  4. Two-Part Urethane Waterproof Sealant (Bright White).

### 2.03 MATERIALS

- A. Vinyl Sheet: Rigid Sheet shall be manufactured from 100% chemical and stain-resistant unplasticized polyvinyl chloride (uPVC). No plasticizers shall be added (plasticizers may aid in bacterial growth).
- B. Extruded Vinyl: Vinyl Trims shall be manufactured from 100% chemical and stain-resistant unplasticized polyvinyl chloride (uPVC). No plasticizers shall be added (plasticizers may aid in bacterial growth).

### 2.04 ACCESSORIES

- A. Top caps, inside corners, divider bars, and outside corners shall be made of extruded uPVC.
- B. Color match caulk to be made of pick-resistant shore 50A sealant.
- C. Adhesives shall be supplied by manufacturer to ensure proper installation.
  1. Drywall Adhesive 547-SSA.
  2. Non-Porous Adhesive 548.

### 2.05 FINISH

- A. Color: Pure White 0383 color .
- B. Exposed to View Surface Visual Texture: velvety texture design.
- C. Vinyl Accessories: Top caps, inside corner, divider bars and outside corners shall be of a color matching the IPC.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that joint preparation and affected dimensions are acceptable.
- C. Do not begin installation until substrates have been properly prepared.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- E. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

### 3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.

- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

**3.03 INSTALLATION**

- A. Install components in accordance with shop drawings and manufacturer's instructions.
- B. Align work plumb and level.
- C. Rigidly anchor to substrate to prevent misalignment.

**3.04 CLEANING**

- A. Clean and polish surfaces in accordance with manufacturer's instructions.

**END OF SECTION**

**SECTION 07 2100  
THERMAL INSULATION**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Board insulation at cavity wall construction, perimeter foundation wall, underside of floor slabs, and exterior wall behind masonry or siding wall finish.
- B. Batt insulation in exterior and interior wall, ceiling, and roof construction.
- C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

**1.02 REFERENCE STANDARDS**

- A. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2009a.
- B. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2010.
- C. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013.
- D. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2015a.
- E. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014.
- F. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- H. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
- I. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials; National Fire Protection Association; 2006.
- J. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components; 2012.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. Installation schedule: Provide description of locations where each proposed product will be installed. Include description of compliance with fire rated, acoustical and NFPA 285 details.
- D. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

**1.04 FIELD CONDITIONS**

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

**PART 2 PRODUCTS**

**2.01 APPLICATION SCHEDULE**

- A. Insulation Under Concrete Slabs: Extruded polystyrene (XPS) board.
- B. Insulation at Perimeter of Foundations, below grade: Extruded polystyrene (XPS) board.

- C. Insulation at Perimeter of Foundations, above grade: Mineral Wool Board.
- D. Insulation as Protection Board at Foundations, below grade only: Extruded polystyrene (XPS) board.
- E. Insulation Inside Cavity of Masonry Veneer Walls, below grade only: Extruded polystyrene (XPS) board.
- F. Insulation on Inside Cavity of Masonry Veneer Walls, above grade: \_\_\_\_\_ board.
- G. Insulation on exterior face of sheathing: Mineral Wool board.
- H. Insulation behind exterior Metal Wall Panels: Mineral Wool board.
- I. Insulation inside STC and Fire Rated partitions: SAFB Mineral Wool Insulation, no vapor retarder.
- J. Insulation inside exterior metal framing walls: Batt insulation with no vapor retarder
- K. Insulation inside metal framed partitions: Batt insulation with no vapor retarder.
- L. Insulation inside Wood Framed Walls: Batt insulation with no vapor retarder.
- M. Insulation in Framed Ceiling Structure: Batt insulation with separate vapor retarder.
- N. Insulation Above Lay-In Acoustical Ceilings: Batt insulation with no vapor retarder.

## 2.02 BOARD INSULATION MATERIALS

- A. Extruded Polystyrene Board Insulation (**XPS**): ASTM C578, Type IV; Extruded polystyrene board with either natural skin or cut cell surfaces; with the following characteristics:
  - 1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
  - 2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
  - 3. Board Size: 48 x 96 inch.
  - 4. Board Thickness: 1-1/2 inches, or unless indicated otherwise.
  - 5. Board Edges: Shiplap.
  - 6. Thermal Conductivity (k factor) at 25 degrees F: 0.18 (R= 5 minimum per inch).
  - 7. Compressive Resistance: 25 psi.
  - 8. Manufacturers:
    - a. Dow Chemical Company: [www.dow.com/#sle](http://www.dow.com/#sle).
    - b. Kingspan Insulation LLC; GreenGuard XPS Type IV, 25 psi: [www.kingspan.com/#sle](http://www.kingspan.com/#sle).
    - c. Owens Corning Corporation; FOAMULAR Extruded Polystyrene (XPS) Insulation: [www.ocbuildingspec.com/#sle](http://www.ocbuildingspec.com/#sle).
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- B. Mineral Wool Board Insulation: Rigid or semi-rigid stone wool insulation, ASTM C612 or ASTM C553; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
  - 1. Combustibility: Behavior of material at 750 degrees as non-combustible per ASTM E136.
  - 2. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
  - 3. Board Size: 16 by 48 inches standard, size varies by manufacturer,.
  - 4. Board Thickness: 2 inches and/or as indicated on drawings.
  - 5. Thermal Resistance: R-value of 4.3 per inch at 75 degrees F, minimum, when tested according to ASTM C518.
  - 6. Minimum Density: 4.3 pound per cubic foot, nominal.
  - 7. Manufacturers:
    - a. Johns Manville;CladStone 45 \_\_\_\_\_: [www.jm.com/#sle](http://www.jm.com/#sle).
    - b. ROCKWOOL (ROXUL, Inc); CAVITYROCK: [www.rockwool.com/#sle](http://www.rockwool.com/#sle).
    - c. Thermafiber, Inc;RainBarrier ic HC 80 \_\_\_\_\_: [www.thermafiber.com/#sle](http://www.thermafiber.com/#sle).
  - 8. Substitutions: See Section 01 6000 - Product Requirements.

## 2.03 BATT INSULATION MATERIALS

- A. Where batt insulation is indicated, either glass fiber or SAFB mineral wool insulation may be used, at Contractor's option, unless specifically noted or required otherwise.
  - 1. Use Sound Attenuation Fire Blanket (SAFB) Mineral Wool at all fire rated assemblies and STC rated wall per drawings and partition schedule and as required by code/UL test.
- B. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
  - 1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
  - 2. Smoke Developed Index: 50 or less, when tested in accordance with ASTM E84.
  - 3. Combustibility: Non-combustible, when tested in accordance with ASTM E136.
  - 4. Formaldehyde Content: Zero.
  - 5. Thermal Resistance: R-value of 3.5 per inch minimum.
  - 6. Thickness: Match cavity thickness or as indicated on drawings or insulation schedule.
  - 7. Facing: Unfaced.
  - 8. Manufacturers:
    - a. CertainTeed Corporation: [www.certainteed.com/#sle](http://www.certainteed.com/#sle).
    - b. Johns Manville: [www.jm.com/#sle](http://www.jm.com/#sle).
    - c. Knauf Insulation GmbH: [www.knaufinsulation.us](http://www.knaufinsulation.us).
    - d. Owens Corning Corp: [www.owenscorning.com](http://www.owenscorning.com).
  - 9. Substitutions: See Section 01 6000 - Product Requirements.
- C. Sound Attenuation Fire Blanket (SAFB) Mineral Wool: Flexible or semi-rigid preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
  - 1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
  - 2. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
  - 3. Thermal Resistance: R-value of 3.5 per inch, minimum.
  - 4. Thickness: Match cavity thickness, indicated on drawings or per insulation schedule.
  - 5. Manufacturers:
    - a. Knauf Insulation; EcoBatt Insulation: [www.knaufinsulation.com/#sle](http://www.knaufinsulation.com/#sle).
    - b. Thermafiber, Inc; SAFB: [www.thermafiber.com/#sle](http://www.thermafiber.com/#sle).
    - c. Substitutions: See Section 01 6000 - Product Requirements.

## **2.04 ACCESSORIES**

- A. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch wide.
- B. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
- C. Wire Mesh: Galvanized steel, hexagonal wire mesh.
- D. Protection Board for Below Grade Insulation: XPS, 2 inch thick.
- E. Adhesive: Type recommended by insulation manufacturer for application.
- F. Spray-foam Insulation: See also Section 07 2119.
  - 1. Polyurethane expanding foam.
  - 2. Products: DuPont Great Stuff; [www.greatstuff.dupont.com](http://www.greatstuff.dupont.com)
  - 3. Dupont Great Stuff

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat.

### **3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER**

- A. Adhere a 6 inch wide strip of polyethylene sheet over construction, control, and expansion joints with double beads of adhesive each side of joint.
  - 1. Tape seal joints.
  - 2. Extend sheet full height of joint.
- B. Apply adhesive to back of boards:
  - 1. Three continuous beads per board length.
  - 2. Full bed 1/8 inch thick.
- C. Install boards horizontally on foundation perimeter.
  - 1. Place boards to maximize adhesive contact.
  - 2. Install in running bond pattern.
  - 3. Butt edges and ends tightly to adjacent boards and to protrusions.
- D. Extend boards over expansion joints, unbonded to foundation on one side of joint.
- E. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- F. Immediately following application of board insulation, place protective boards over exposed insulation surfaces.
  - 1. Apply adhesive in five continuous beads per board length.
  - 2. Install boards horizontally from base of foundation to top of insulation.
  - 3. Butt boards tightly, with joints staggered from insulation joints.

### **3.03 BOARD INSTALLATION AT EXTERIOR WALLS**

- A. Adhere a 6 inch wide strip of polyethylene sheet over building expansion joints with double beads of adhesive each side of joint.
  - 1. Tape seal joints between sheets.
  - 2. Extend sheet full height of joint.
- B. Mechanically fasten insulation boards to sheathing with rust resistant screws and 2" diameter rigid plastic washers to allow secure attachment.
  - 1. Install 24 inches each way or as prescribed by insulation manufacturer.
- C. Install boards horizontally on walls.
  - 1. Install in running bond pattern.
  - 2. Butt edges and ends tightly to adjacent boards and protrusions.
- D. Extend boards over expansion joints, unbonded to wall on one side of joint.
- E. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- F. Fill voids in walls and cavities around perimeter of openings with spray-foam insulation.

### **3.04 BOARD INSTALLATION AT CAVITY WALLS**

- A. Secure impale fasteners to substrate at following frequency:
  - 1. Six (6) per insulation board.
- B. Adhere a 6 inches wide strip of polyethylene sheet over expansion joints with double beads of adhesive each side of joint.
  - 1. Tape seal joints between sheets.
  - 2. Extend sheet full height of joint.
- C. Install boards to fit snugly between wall ties.
- D. Install boards horizontally on walls.
  - 1. Install in running bond pattern.
  - 2. Butt edges and ends tightly to adjacent boards and protrusions.
  - 3. Place impale fastener locking discs.
- E. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- F. Fill voids in walls and cavities around perimeter of openings with spray-foam insulation.

### **3.05 BOARD INSTALLATION UNDER CONCRETE SLABS**

- A. Place insulation under slabs on grade after base for slab has been compacted.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- C. Prevent insulation from being displaced or damaged while placing vapor retarder and placing slab.
- D. Install spray-foam insulation around gaps and voids in penetrations through board insulation.

### **3.06 BOARD INSTALLATION OVER STEEP SLOPE ROOF SHEATHING OR ROOF STRUCTURE**

- A. Installation of board insulation over steep slope roof structure or roof sheathing is specified in Section 06 1000.

### **3.07 BATT INSTALLATION**

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in interior sound attenuated and exterior wall and roof spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Cut and form insulation as necessary to fully fill all cavities and void spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. At attic locations with gyp-bd ceilings, use spray foam around all penetrations through gyp-bd layer. Apply to seal all air leakage around penetrations and to insulate around device. Fill voids around plumbing pipes, conduits, wiring, junction boxes, etc poking through attic ceiling layer.
- F. Install insulation in thicknesses required to achieve minimum desired R-values below; unless noted otherwise.
  - 1. Walls: R-19
  - 2. Floors: R-13
  - 3. Floors above unconditioned spaces: R-19
  - 4. Ceilings at unconditioned attic spaces: R-29
- G. Fill voids in walls and cavities around perimeter of openings with spray-foam insulation. Fill shim spaces around window perimeters full with batt insulation or low-expansion spray-foam insulation.

### **3.08 PROTECTION**

- A. Do not permit installed insulation to be damaged prior to its concealment.

**END OF SECTION**

**SECTION 07 2119  
FOAMED-IN-PLACE INSULATION**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Foamed-in-place insulation installed as part of the exterior building thermal envelope.
- B. At junctions of dissimilar wall and roof materials.
- C. Protective intumescent coating.

**1.02 REFERENCE STANDARDS**

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2010.
- B. ASTM D1622/D1622M - Standard Test Method for Apparent Density of Rigid Cellular Plastics; 2014.
- C. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2012.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- E. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.
- F. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product description, insulation properties, overcoat properties, and preparation requirements and shop drawings identifying locations being applied.
- C. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.
- D. Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than three years of documented experience.
- B. Field Density testing: Take field samples daily and provide report on density of samples.

**1.06 REGULATORY REQUIREMENTS**

- A. Conform to applicable code for flame and smoke limitations.

**1.07 MOCK-UP**

- A. Locate where directed.
- B. Mock-up may remain as part of the Work.

**1.08 FIELD CONDITIONS**

- A. Do not apply foam when temperature is below that specified by the manufacturer for ambient air and substrate.
- B. Do not apply foam when temperature is within 5 degrees F of dew point.

**PART 2 PRODUCTS**

**MANUFACTURERS**

**2.01 FOAMED-IN-PLACE INSULATION:**

UAMSOE24.09

UAMS Gastro Clinic at Freeway

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FOAMED-IN-PLACE INSULATION

02/12/2026

- A. BASF Corporation; WALLTITE US Series Closed Cell: [www.spf.basf.com/#sle](http://www.spf.basf.com/#sle).
- B. Icynene-Lapolla; Icynene ProSeal (MD-C-200 v3): [www.icynene.com/#sle](http://www.icynene.com/#sle).
- C. Johns Manville; JM Corbond III Closed Cell Spray Polyurethane Foam: [www.jm.com/#sle](http://www.jm.com/#sle).
- D. Substitutions: See Section 01 6000 - Product Requirements.

## **2.02 MATERIALS**

- A. Foamed-In-Place Insulation: Medium-density, rigid or semi-rigid, closed cell polyurethane foam; foamed on-site, using blowing agent of water or non-ozone-depleting gas.
  1. Thermal Resistance: R-value of 5.0, minimum, per 1 inch thickness at 75 degrees F mean temperature when tested in accordance with ASTM C518.
  2. Water Vapor Permeance: Vapor retarder; 2 perms, maximum, when tested at intended thickness in accordance with ASTM E96/E96M, desiccant method.
  3. Water Absorption: Less than 1 percent by volume, maximum, when tested in accordance with ASTM D2842.
  4. Air Permeance: 0.04 cfm per square foot, maximum, when tested at intended thickness in accordance with ASTM E2178 at 1.57 psf.
  5. Closed Cell Content: At least 90 percent.
  6. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, maximum, when tested in accordance with ASTM E84.
  7. Density: 2.0 lbs/cuft, nominal, in accordance with ASTM D1622/D1622M.

## **2.03 ACCESSORIES**

- A. Primer: As required by insulation manufacturer.
- B. Overcoat: Intumescent coating of type recommended by insulation manufacturer and as required to comply with applicable codes.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify work within construction spaces or crevices is complete prior to insulation application.
- B. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.

### **3.02 PREPARATION**

- A. Mask and protect adjacent surfaces from over spray or dusting.
- B. Apply primer in accordance with manufacturer's instructions.

### **3.03 APPLICATION**

- A. Apply insulation in accordance with manufacturer's instructions.
- B. Apply insulation by spray method, to a uniform monolithic density without voids.
- C. Apply to achieve a thermal resistance R-value of 20.
- D. Patch damaged areas.
- E. Where applied to voids and gaps assure space for expansion to avoid pressure on adjacent materials that may bind operable parts.
- F. Trim excess away for applied trim or remove as required for continuous sealant bead.
- G. Apply insulation inside of building at all transitions from wall to roof, at underside of all roof ridges, hips and valleys, all penetrations through roofs, and as otherwise indicated at drawings.
- H. Apply overcoat to surface at locations where it is not concealed behind 1/2" thick gypsum board. Overcoat to be equivalent to a 15 minute thermal barrier as required by IBC.

### **3.04 FIELD QUALITY CONTROL**

- A. Inspection will include verification of insulation and overcoat thickness and density. Installer to take daily tests and maintain a log of tests and areas performed.

**3.05 PROTECTION**

- A. Do not permit subsequent construction work to disturb applied insulation.

**END OF SECTION**

**SECTION 07 6200  
SHEET METAL FLASHING AND TRIM**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including flashings, counterflashings, gutters, and downspouts.
- B. Sealants for joints within sheet metal fabrications.
- C. Sheet metal splash pans.

**1.02 REFERENCE STANDARDS**

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.
- B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2013.
- C. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- D. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2014.
- E. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.
- F. ASTM D4479/D4479M - Standard Specification for Asphalt Roof Coatings - Asbestos-Free; 2007 (Reapproved 2012).
- G. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).
- H. CDA A4050 - Copper in Architecture - Handbook; current edition.
- I. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate material profile, material thickness, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Samples: Submit one sample, 12 x 12 inch minimum in size illustrating material and fabrication details of typical standing seam profiles.
- D. Samples: Submit two samples 2 x 3 inch in size illustrating metal finish color.
  - 1. Color chart can be submitted preliminary as long as a physical sample is submitted for final approval

**1.04 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Maintain one copy of each document on site.
- C. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 3 years of documented experience.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

**1.06 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

- B. Reference roofing specifications for warranty limits and terms that apply. Products or fabrications installed with the roofing system to contain manufacturer's warranty as specified in roofing specification section.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Sheet Metal Flashing and Trim Manufacturers:
  - 1. Petersen Aluminum Corporation: [www.pac-clad.com/#sle](http://www.pac-clad.com/#sle).
  - 2. Metal Era Inc. [www.metalera.com](http://www.metalera.com).
  - 3. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 SHEET MATERIALS**

- A. Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 0.032 inch thick minimum; plain finish shop pre-coated with fluoropolymer coating.
  - 1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
  - 2. Color: As selected by Architect from manufacturer's standard colors.

### **2.03 FABRICATION**

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.
- B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
- C. Form sections true to shape, accurate in size, square, and free from distortion or defects. Fabricate metal flashing and trim without excessive oil canning, buckling and tool marks, true to line and levels indicated with exposed edges folded back to form hems.
- D. Form pieces in longest possible lengths to a maximum of 15 feet unless specifically approved otherwise by Architect. Treat seams between two different pieces with flat-lock seams at non-moving joints, unless otherwise indicated. At moving seams, use seated, lapped, bayonet type or interlocking hooked seams.
- E. All exposed edges to be folded back with hem of 1/2 inch; miter and seam corners.
- F. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- G. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- H. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joint of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints. Provide for expansion no more than in 40 feet long sections.
- I. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.
- J. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
  - 1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" for application but not less than the thickness of the metal being secured.

### **2.04 GUTTER AND DOWNSPOUT FABRICATION**

- A. Gutters: SMACNA Architectural Sheet Metal Manual, Square profile - 6".
  - 1. Lengths to be continuous no longer than 40 foot sections.
  - 2. Joints to be flat-lock seam with sealant.

3. Corners to be factory mitered and welded.
  4. Expansion joints to have end of each gutter capped, allow for 1" of expansion between gutters and covered with coverplate.
- B. Downspouts: Rectangular profile 4" wide x 3" deep or unless indicated otherwise.
1. Same as Gutters except: Vertical seams to be Double Corner Seam with sealant.
- C. Accessories: Profiled to suit gutters and downspouts.
1. Anchorage Devices: In accordance with SMACNA requirements with Stainless Steel or Aluminum fasteners.
  2. Gutter Supports: Straps of size per SMACNA requirements, but not less than twice the thickness of the gutter material.
  3. Downspout Supports: Straps.
  4. Valley Diverters: 12-inch x 12-inch minimum at valley, 0.040 inch thick minimum. Extend a minimum of 4" above eave edge.
- D. Splash Pans: Same metal type as downspouts, formed to 8 by 12 inch size; rolled sides of 3 inch high for inverted pan placement.
- E. Seal metal joints, see Joint Sealants.

## **2.05 ACCESSORIES**

- A. Fasteners: Aluminum or Stainless Steel, with soft neoprene washers.
- B. Underlayment: ASTM D226/D226M, organic roofing felt, Type I (No. 15).
- C. Protective Backing Paint: Zinc molybdate alkyd.
- D. Concealed Sealants: Non-curing butyl sealant.
- E. Flexible Flashing: Self-adhered flashing as specified in Section 07 2500.
- F. Sealants: Type as specified in Section 07 9200.
- G. Plastic Cement: ASTM D4586/D4586M, Type I.

## **2.06 LOW-SLOPE ROOF SHEET METAL FABRICATIONS**

- A. Manufactured Straight and Radius Copings: See Section 07 7100.
- B. Manufactured Roof Edge / Gravel Stop Edge: See Section 07 7100.
- C. Accessories:
  1. Splice Plates: Same thickness as coping, minimum.
  2. Cleats: Same thickness as coping, minimum.

## **2.07 WALL SHEET METAL FABRICATIONS**

- A. Opening Flashings in Frame Constructions: Fabricate head, sill and similar flashing to extend beyond openings as indicated. Unless otherwise indicated, form head and sill flashing with 2-inch high end dams.

## **2.08 MISCELLANEOUS SHEET METAL FABRICATIONS**

- A. Beam and Column Surrounds: Fabricate as detailed, reinforced as required for a smooth, even appearance without oil-canning or distortions, with tight seams and all exposed edges hemmed.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

### **3.02 PREPARATION**

- A. Install starter and edge strips, and cleats before starting installation.

- B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

### **3.03 INSTALLATION GENERAL**

- A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted. Install system to comply with FMG or ES-1 system ratings.
- B. Apply plastic cement compound between metal flashings and felt flashings.
- C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- D. Secure gutters and downspouts in place with concealed fasteners. Pop-rivets are not concealed Fasteners.
- E. Set splash pans under downspouts. Coordinate attachment with roofing system.
- F. Finishes: Touchup all scratches to painted finish in field with paint to match.

### **3.04 ROOF DRAINAGE SYSTEM INSTALLATION**

- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored straps spaced not more than 24 inches apart. Provide enclosures and seal watertight with sealant. Slope gutters 1/4 inch per 10 feet minimum to downspouts.
  - 1. Fasten gutter spacers to front and back of gutter.
  - 2. Loosely lock straps to front gutter bead and anchor to roof deck.
  - 3. Anchor and loosely lock back edge of gutter to continuous eave or apron flashing.
  - 4. Anchor back of gutter that extends onto roof deck with cleats spaces not more than 24 inches apart.
  - 5. Install gutter with expansion joints at locations indicated or not exceeding 40 feet apart.
- C. Downspouts: Join sections with 1-1/2" telescoping joints.
  - 1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches o.c. in between.
  - 2. Secure downspouts to building with straps and mechanical fasteners. Do not use pop-rivets.
  - 3. Provide elbows at base of downspout to direct water away from building.
- D. Collection Boxes: Anchor securely to wall.

### **3.05 ROOF FLASHING INSTALLATION**

- A. General: Install sheet metal roof flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, an level as indicated. Install work with laps, joints and seams that will be permanently watertight.
- B. Roof Edge Flashing and Copings: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated. Comply with installation requirements of roofing manufacturer regarding spacing of anchors below membrane flashing in field of roof.
  - 1. Install flexible flashing covering entire substrate beneath coping; not required where roofing material extends beneath coping. Seal perimeters against weather barrier and/or roofing.
  - 2. Interlock bottom edge of roof edge flashing with continuous cleats anchored to substrate at minimum 8-inch centers.

- C. Pipe or Post Counterflashing: Install counter flashing umbrella with close -fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4 inches of base of flashing. Install stainless steel draw band and tighten.
- D. Counterflashing: Coordinate installation of counter flashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with elastomeric sealant.
  - 1. Secure in a waterproof manner by means of anchor and washer at 36-inch centers.
- E. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof.

### **3.06 WALL FLASHING INSTALLATION**

- A. General: Install sheet metal wall flashing to intercept and exclude penetration moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors and louvers.
- B. Opening Flashings in Frame Construction: Install continuous head, sill and similar flashings to extend beyond wall openings a minimum of 4 inches or as indicated.
- C. Install reglets per manufacturer's recommendations.

### **3.07 MISCELLANEOUS FLASHING INSTALLATION**

- A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.

### **3.08 FIELD QUALITY CONTROL**

- A. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

**END OF SECTION**

**SECTION 07 8400  
FIRESTOPPING**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Firestopping systems.
- B. Firestopping of all joints and penetrations in fire resistance rated and smoke resistant assemblies, whether indicated on drawings or not.

**1.02 REFERENCE STANDARDS**

- A. ITS (DIR) - Directory of Listed Products; current edition.
- B. FM (AG) - FM Approval Guide; current edition.
- C. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.
- D. UL (FRD) - Fire Resistance Directory; current edition.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Schedule of Firestopping: List each type of penetration, locations of all rated walls with type of fire stopping system proposed, fire rating of the penetrated assembly, locations of all rated walls with type of fire stopping system proposed, firestopping test or design number, and locations of all rated walls with type of fire stopping system proposed.
- C. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- D. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- E. Certificate from authority having jurisdiction indicating approval of materials used.
- F. Installer Qualification: Submit qualification statements for installing mechanics.

**1.04 QUALITY ASSURANCE**

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
  - 1. Listing in UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
  - 1. Verification of minimum three years documented experience installing work of this type.

**1.05 MOCK-UP**

- A. Install one firestopping assembly representative of each fire rating design required on project.
- B. If accepted, mock-up may remain and represent minimum standard of the Work. Remove and replace mock-ups not accepted.

**1.06 FIELD CONDITIONS**

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Firestopping Materials: Any materials meeting requirements.
- B. Prohibited Materials: Do not use any product that contains asbestos..

- C. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.

## **2.02 FIRESTOPPING SYSTEMS**

- A. Firestopping: Any material meeting requirements.
- B. Firestopping at Uninsulated Metallic Pipe and Conduit Penetrations, of diameter 4 inches or less: Caulk or putty.
- C. Firestopping at Combustible Pipe and Conduit Penetrations, of diameter 4 inches or less: Any material meeting requirements.
- D. Firestopping at Cable Tray Penetrations: Any material meeting requirements.
- E. Firestopping at Cable Penetrations, not in Conduit or Cable Tray: Any material meeting requirements.
- F. Firestopping at Control Joints (without Penetrations): Any material meeting requirements.
- G. Firestopping Between Edge of Floor Slab and Curtain Wall: Fiber firestopping with smoke seal coating.
- H. Firestopping Between Top of Partition Wall and Roof Slab: Fiber firestopping with smoke seal coating.
- I. Temporary Firestopping: Reusable intumescent shapes.

## **2.03 MATERIALS**

- A. Firestopping Sealants: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
- B. Elastomeric Silicone Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
  - 1. Color: Dark Grey or Red
  - 2. Manufacturers:
    - a. A/DFire Protection Systems Inc: [www.adfire.com](http://www.adfire.com).
    - b. 3M Fire Protection Products: [www.3m.com/firestop](http://www.3m.com/firestop).
    - c. Hilti, Inc: [www.us.hilti.com](http://www.us.hilti.com).
    - d. Specified Technologies, Inc: [www.stifirestop.com](http://www.stifirestop.com).
- C. Foam Firestopping: Single component silicone foam compound.
  - 1. Color: Dark Grey or Red.
  - 2. Manufacturers:
    - a. 3M Fire Protection Products: [www.3m.com/firestop](http://www.3m.com/firestop).
    - b. Hilti, Inc: [www.us.hilti.com](http://www.us.hilti.com).
    - c. Specified Technologies, Inc: [www.stifirestop.com](http://www.stifirestop.com).
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- D. Fibered Compound Firestopping: Formulated compound mixed with incombustible non-asbestos fibers.
  - 1. Color: Dark Grey.
  - 2. Manufacturers:
    - a. A/DFire Protection Systems Inc: [www.adfire.com](http://www.adfire.com).
    - b. USG: [www.usg.com](http://www.usg.com).
- E. Fiber Firestopping: Mineral fiber insulation used in conjunction with elastomeric surface sealer forming airtight bond to opening.
  - 1. Manufacturers:
    - a. A/DFire Protection Systems Inc: [www.adfire.com](http://www.adfire.com).
    - b. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
    - c. Thermafiber, Inc: [www.thermafiber.com](http://www.thermafiber.com).

- F. Firestop Devices - Wrap Type: Mechanical device with incombustible filler and sheet stainless steel jacket, intended to be installed after penetrating item has been installed; conforming to the following:
  - 1. Manufacturers:
    - a. RectorSeal: [www.rectorseal.com](http://www.rectorseal.com).
    - b. 3M Fire Protection Products: [www.3m.com/firestop](http://www.3m.com/firestop).
    - c. Hilti, Inc: [www.us.hilti.com](http://www.us.hilti.com).
    - d. Specified Technologies, Inc: [www.stifirestop.com](http://www.stifirestop.com).
    - e. Substitutions: See Section 01 6000 - Product Requirements.
- G. Firestop Devices - Cast-In Type: Sleeve and sealing material, intended to be cast in concrete floor forms or in concrete on metal deck, not requiring any additional materials to achieve penetration seal.
  - 1. Manufacturers:
    - a. 3M Fire Protection Products: [www.3m.com/firestop](http://www.3m.com/firestop).
    - b. Hilti, Inc: [www.us.hilti.com](http://www.us.hilti.com).
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- H. Intumescent Putty: Compound that expands on exposure to surface heat gain; conforming to the following:
  - 1. Potential Expansion: Minimum 1000 percent.
  - 2. Color: Red.
  - 3. Manufacturers:
    - a. RectorSeal: [www.rectorseal.com](http://www.rectorseal.com).
    - b. 3M Fire Protection Products: [www.3m.com/firestop](http://www.3m.com/firestop).
    - c. Hilti, Inc: [www.us.hilti.com](http://www.us.hilti.com).
    - d. Specified Technologies, Inc: [www.stifirestop.com](http://www.stifirestop.com).
    - e. Substitutions: See Section 01 6000 - Product Requirements.
- I. Reusable Firestopping: Removable intumescent compressible shapes, pillows, or blocks specifically tested in removable configuration.
  - 1. Manufacturers:
    - a. RectorSeal: [www.rectorseal.com](http://www.rectorseal.com).
    - b. Hilti, Inc: [www.us.hilti.com](http://www.us.hilti.com).
    - c. Nelson FireStop Products: [www.nelsonfirestop.com](http://www.nelsonfirestop.com).
    - d. Specified Technologies, Inc: [www.stifirestop.com](http://www.stifirestop.com).
- J. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify openings are ready to receive the work of this section.

### **3.02 PREPARATION**

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.
- C. Install backing materials to prevent liquid material from leakage.

### **3.03 INSTALLATION**

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authorities having jurisdiction.
- C. Install labeling required by code.

**3.04 CLEANING**

- A. Clean adjacent surfaces of firestopping materials.

**3.05 PROTECTION**

- A. Protect adjacent surfaces from damage by material installation.

**END OF SECTION**

**SECTION 07 9200  
JOINT SEALANTS**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.

**1.02 REFERENCE STANDARDS**

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2006 (Reapproved 2011).
- B. ASTM C834 - Standard Specification for Latex Sealants; 2014.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
- E. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2008 (Reapproved 2012).
- F. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2014.
- G. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2002 (Reapproved 2013).
- H. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2013.
- I. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2005 (Reapproved 2010).
- J. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
  - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
  - 2. List of backing materials approved for use with the specific product.
  - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
  - 4. Substrates the product should not be used on.
  - 5. Substrates for which use of primer is required.
  - 6. Sample product warranty.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- E. Field Quality Control Plan: Submit at least two weeks prior to start of installation.
- F. Field Quality Control Log: Submit filled out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.

**1.04 MOCK UP**

- A. Provide mock-up of sealant joints in conjunction with wall and air barrier system.

- B. Construct mock-up with specified sealant types and with other components noted.
- C. Locate where directed. Mockup may remain as part of the Work.

### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
- D. Field Quality Control Plan:
  - 1. Visual inspection of entire length of sealant joints.
  - 2. Destructive field adhesion testing of sealant joints, except interior acrylic latex sealant.
    - a. For each different sealant and substrate combination, allow for one test every 100 feet in the first 1000 linear feet, and one test per 1000 linear feet thereafter, or once per floor on each elevation.
    - b. If any failures occur in the first 1000 linear feet, continue testing at frequency of one test per 500 linear feet at no extra cost to Owner.
  - 3. Field testing agency's qualifications.
- E. Field Adhesion Test Procedures:
  - 1. Allow sealants to fully cure as recommended by manufacturer before testing.
  - 2. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
  - 3. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
  - 4. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
  - 5. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.
- F. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.
  - 1. Sample: At least 18 inches long.
  - 2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the "1 inch mark" is that distance from the substrate, the test has failed.
  - 3. If either adhesive or cohesive failure occurs prior to minimum elongation, take necessary measures to correct conditions and re-test; record each modification to products or installation procedures.

### **1.06 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
  - 1. Dow Corning Corporation: [www.dowcorning.com/construction/#sle](http://www.dowcorning.com/construction/#sle).
  - 2. Momentive Performance Materials, Inc (formerly GE Silicones): [www.momentive.com](http://www.momentive.com).

3. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
  4. Sherwin-Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  5. Sika Corporation: [www.usa-sika.com](http://www.usa-sika.com).
  6. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
- B. Self-Leveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint.
1. Dow Corning Corporation: [www.dowcorning.com/construction/#sle](http://www.dowcorning.com/construction/#sle).
  2. Master Builders Solutions by BASF: [www.master-builders-solutions.basf.us/en-us/#sle](http://www.master-builders-solutions.basf.us/en-us/#sle).
  3. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
  4. Sherwin-Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  5. Sika Corporation: [www.usa-sika.com](http://www.usa-sika.com).
  6. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).

## 2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
    - a. Wall expansion and control joints.
    - b. Joints between door, window, and other frames and adjacent construction.
    - c. Joints between different exposed materials.
    - d. Openings below ledge angles in masonry.
    - e. Other joints indicated below.
  2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
    - a. Joints between door, window, and other frames and adjacent construction.
    - b. Other joints indicated below.
  3. Do not seal the following types of joints.
    - a. Intentional weepholes in masonry.
    - b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
    - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
    - d. Joints where installation of sealant is specified in another section.
    - e. Joints between suspended panel ceilings/grid and walls.
- B. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
1. Lap Joints in Sheet Metal Fabrications: Butyl rubber, non-curing; Type H.
  2. Lap Joints between Manufactured Metal Panels: Butyl rubber, non-curing; Type H.
  3. Butt Joints in Exterior Metal Work and Siding: Acrylic Emulsion; Type G.
  4. Joints between concrete panels and between panels of adjacent work:
  5. Joints between masonry and cast stone: Type U with sand.
- C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
  2. Floor Joints in Wet Areas: Non-sag polyurethane "non-traffic-grade" sealant suitable for continuous liquid immersion.
  3. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
  4. Other Floor Joints: Self-leveling polyurethane "traffic-grade" sealant.
- D. Interior Wet Areas: Bathrooms, restrooms, kitchens, food service areas, and food processing areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.

## 2.03 NONSAG JOINT SEALANTS

- A. Type U-1 - Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
  - 1. Movement Capability: Plus 100 percent, minus 50 percent, minimum.
  - 2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
  - 3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
  - 4. Color: Match adjacent finished surfaces.
  - 5. Cure Type: Single-component, neutral moisture curing.
  - 6. Service Temperature Range: Minus 20 to 180 degrees F.
  - 7. Manufacturers:
    - a. Dow Chemical Company; DOWSIL 795 Silicone Building Sealant: [consumer.dow.com/en-us/industry/ind-building-construction.html/#sle](http://consumer.dow.com/en-us/industry/ind-building-construction.html/#sle).
    - b. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- B. Type U-2 - Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
  - 1. Movement Capability: Plus and minus 25 percent, minimum.
  - 2. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
  - 3. Color: Match adjacent finished surfaces.
  - 4. Cure Type: Single-component, neutral moisture curing
  - 5. Service Temperature Range: Minus 65 to 180 degrees F.
  - 6. Manufacturers:
    - a. Dow Chemical Company; DOWSIL 999-A Building and Glazing Sealant: [consumer.dow.com/en-us/industry/ind-building-construction.html/#sle](http://consumer.dow.com/en-us/industry/ind-building-construction.html/#sle).
    - b. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
    - c. Substitutions: See Section 01 6000 - Product Requirements.
- C. Type E - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
  - 1. Color: White.
  - 2. Manufacturers:
    - a. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
- D. Type A - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
  - 1. Movement Capability: Plus and minus 25 percent, minimum.
  - 2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
  - 3. Color: To be selected by Architect from manufacturer's standard range.
  - 4. Service Temperature Range: Minus 40 to 180 degrees F.
  - 5. Manufacturers:
    - a. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
    - b. Sherwin-Williams Company; Stampede-1/-TX Polyurethane Sealant: [www.sherwin-williams.com/#sle](http://www.sherwin-williams.com/#sle).
    - c. BASF Corporation; MasterSeal NP1, One component polyurethane sealant. [www.master-builders-solutions.basf.us](http://www.master-builders-solutions.basf.us)
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- E. Type J - Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface .
  - 1. Movement Capability: Plus and minus 35 percent, minimum.
  - 2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
  - 3. Color: To be selected by Architect from manufacturer's standard range.
  - 4. Service Temperature Range: Minus 40 to 180 degrees F.
  - 5. Manufacturers:

- a. Sika Corporation; Sikaflex-1a: [www.usa-sika.com/#sle](http://www.usa-sika.com/#sle).
  - b. Substitutions: See Section 01 6000 - Product Requirements.
- F. Type B - Non-Sag "Traffic-Grade" Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion and traffic without the necessity to recess sealant below traffic surface.
- 1. Movement Capability: Plus and minus 25 percent, minimum.
  - 2. Hardness Range: 40 to 50, Shore A, when tested in accordance with ASTM C661.
  - 3. Color: To be selected by Architect from manufacturer's standard range.
- G. Type G - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
- 1. Color: Standard colors matching finished surfaces, Type OP (opaque).
  - 2. Manufacturers:
    - a. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
    - b. Sherwin-Williams Company; 850A Acrylic Latex Caulk: [www.sherwin-williams.com/#sle](http://www.sherwin-williams.com/#sle).
    - c. Sherwin-Williams Company; 950A Siliconized Acrylic Latex Caulk: [www.sherwin-williams.com/#sle](http://www.sherwin-williams.com/#sle).
- H. Type C - Butyl Sealant: Solvent-based; ASTM C1311; single component, nonsag; not expected to withstand continuous water immersion or traffic.
- 1. Hardness Range: 10 to 30, Shore A, when tested in accordance with ASTM C661.
  - 2. Color: To be selected by Architect from manufacturer's standard range.
  - 3. Service Temperature Range: Minus 13 to 180 degrees F.
  - 4. Manufacturers:
    - a. Sherwin-Williams Company; Storm Blaster All Season Sealant: [www.sherwin-williams.com/#sle](http://www.sherwin-williams.com/#sle).
    - b. Substitutions: See Section 01 6000 - Product Requirements.
- I. Type H - Non-Curing Butyl Sealant: Solvent-based; ASTM C1311; single component, non-sag, non-skinning, non-hardening, non-bleeding; vapor-impermeable; intended for fully concealed applications.
- 1. Manufacturers:
    - a. Pecora Corporation; Pecora BA-98 Non-Skinning Butyl Sealant: [www.pecora.com/#sle](http://www.pecora.com/#sle).

#### **2.04 SELF-LEVELING SEALANTS**

- A. Type F - Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multi-component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
- 1. Movement Capability: Plus and minus 25 percent, minimum.
  - 2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
  - 3. Color: Grey.
  - 4. Service Temperature Range: Minus 40 to 180 degrees F.
  - 5. Manufacturers:
    - a. Sherwin-Williams Company; Stampede 1SL Polyurethane Sealant: [www.sherwin-williams.com/#sle](http://www.sherwin-williams.com/#sle).
    - b. Sika Corporation; Sikaflex-1c SL: [www.usa-sika.com/#sle](http://www.usa-sika.com/#sle).
- B. Type P - Semi-Rigid Self-Leveling Polyurea Joint Filler: Two-component, 100 percent solids; intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic. Joint filler for areas to receive polished concrete finish. Confirm material with system manufacturer / installer.
- 1. Durometer Hardness, Type A: 75, minimum, after seven days when tested in accordance with ASTM D2240.
  - 2. Color: To be selected by Architect from manufacturer's standard colors.

3. Joint Width, Maximum: 3/4 inch.
4. Manufacturers:
  - a. ARDEX Engineered Cements; ARDEX ARDISEAL RAPID PLUS: [www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
  - b. Euclid Chemical Company; EUCO QWIKjoint UVR: [www.euclidchemical.com/#sle](http://www.euclidchemical.com/#sle).
  - c. Nox-Crete Inc; DynaFlex JF-85: [www.nox-crete.com/#sle](http://www.nox-crete.com/#sle).

## 2.05 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
  1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
  2. Open Cell: 40 to 50 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.
- F. Sand: White or tan sand, selection based on field mockup.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

### 3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

### 3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Install bond breaker backing tape where backer rod cannot be used.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- F. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
- G. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

### **3.04 FIELD QUALITY CONTROL**

- A. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.
- B. Destructive Adhesion Testing: If there are any failures in first 1000 linear feet, notify Architect immediately.
- C. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.
- D. Repair destructive test location damage immediately after evaluation and recording of results.

**END OF SECTION**

**SECTION 08 1113  
HOLLOW METAL DOORS AND FRAMES**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Non-fire-rated hollow metal doors and frames.
- B. Hollow metal frames for wood doors.
- C. Fire-rated hollow metal doors and frames.
- D. Thermally insulated hollow metal doors with frames.
- E. Sound-rated hollow metal doors and frames.
- F. Hollow metal borrowed lites glazing frames. Including lead lined frames at X-ray view windows.
- G. Accessories, including glazing, louvers, and matching panels.

**1.02 REFERENCE STANDARDS**

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.
- C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.
- D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.
- F. 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; 2015.
- G. 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; 2014.
- H. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- I. ASTM E413 - Classification for Rating Sound Insulation; 2010.
- J. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014.
- K. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.
- L. ITS (DIR) - Directory of Listed Products; current edition.
- M. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.
- N. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.
- O. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; 2007.
- P. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.
- Q. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2012.
- R. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.
- S. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

- B. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
- C. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.
- D. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.
- E. Manufacturer's Qualification Statement.

#### **1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.
- B. Maintain at project site copies of reference standards relating to installation of products specified.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Hollow Metal Doors and Frames:
  1. Assa Abloy Ceco, Curries or Flemming; [www.assaabloydss.com](http://www.assaabloydss.com)
  2. Steelcraft, an Allegion brand: [www.allegion.com/#sle](http://www.allegion.com/#sle).
  3. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 PERFORMANCE REQUIREMENTS**

- A. Requirements for Hollow Metal Doors and Frames:
  1. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
  2. Accessibility: Comply with ICC A117.1 and ADA Standards.
  3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
  4. Door Edge Profile: Beveled, both sides.
  5. Typical Door Face Sheets: Flush.
  6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.
  7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
  8. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvanized) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

#### **2.03 HOLLOW METAL DOORS**

- A. Type \_\_\_\_, Exterior Doors: Thermally insulated.

1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 3 - Extra Heavy-duty.
    - b. Physical Performance Level A 1 000 000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 2 - Seamless.
    - d. Door Face Metal Thickness: 20 gage, 0.032 inch, minimum, not less than level specified.
  2. Core Material: Manufacturers standard core material/construction and in compliance with requirements.
  3. Door Thermal Resistance: R-Value of \_\_\_\_\_. U-Value of 0.50 minimum.
  4. Door Thickness: 1-3/4 inch, nominal.
  5. Weatherstripping: Refer to Section 08 7100.
- B. Type \_\_\_\_, Interior Doors, Non-Fire-Rated:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 2 - Heavy-duty.
    - b. Physical Performance Level B 500 000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 2 - Seamless.
    - d. Door Face Metal Thickness: 20 gage, 0.032 inch, minimum, not less than level specified.
  2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
  3. Door Thickness: 1-3/4 inch, nominal.
- C. Type \_\_\_\_, Fire-Rated Doors:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 2 - Heavy-duty.
    - b. Physical Performance Level B 500 000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 2 - Seamless.
    - d. Door Face Metal Thickness: 18 gage, 0.042 inch, minimum, not less than level specified.
  2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
    - a. Provide units listed and labeled by UL (DIR) or ITS (DIR).
    - b. Attach fire rating label to each fire rated unit.
  3. Door Core Material: Manufacturers standard core material/construction in compliance with requirements.
  4. Door Thickness: 1-3/4 inch, nominal.
- D. Type \_\_\_\_, Sound-Rated Interior Doors:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 3 - Extra Heavy-duty.
    - b. Physical Performance Level A 1 000 000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 2 - Seamless.
    - d. Door Face Metal Thickness: 20 gage, 0.032 inch, minimum, not less than level specified.
  2. Sound Transmission Class (STC) Rating of Door and Frame Assembly: STC of 39, minimum, calculated in accordance with ASTM E413, and tested in accordance with ASTM E90.
  3. Door Core Material: Manufacturer's standard construction as required to meet acoustic requirements indicated.
  4. Door Thickness: As required to meet acoustic requirements indicated.
  5. Sound Seals: Refer to Section 08 7100.

## 2.04 HOLLOW METAL FRAMES

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Frame Finish: Factory primed and field finished.
- C. Exterior Door Frames: Fully welded.
  - 1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness.
  - 2. Frame Metal Thickness: 14 gage, 0.067 inch, minimum.
  - 3. Weatherstripping: Separate, see Section 08 7100.
- D. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
  - 1. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.
- E. Door Frames, Fire-Rated: Fully welded type.
  - 1. Fire Rating: Same as door, labeled.
- F. Sound-Rated Door Frames: Fully welded type.
- G. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.
- H. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
- I. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inch high to fill opening without cutting masonry units.
- J. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.
- K. Frame width to extend past face of wall or partition on either sides, unless noted or detailed otherwise.

## **2.05 FINISHES**

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

## **2.06 ACCESSORIES**

- A. Glazing: As specified in Section 08 8000.
- B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.
- C. Astragals for Double Doors: Specified in Section 08 7100.
  - 1. Exterior Doors: Steel, Z-shaped.
  - 2. Fire-Rated Doors: Steel, shape as required for fire rating.
- D. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.
- E. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- F. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

### **3.02 INSTALLATION**

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

- B. Install fire rated units in accordance with NFPA 80.
- C. Coordinate frame anchor placement with wall construction.
- D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- E. Install door hardware as specified in Section 08 7100.
- F. Comply with glazing installation requirements of Section 08 8000.
- G. Coordinate installation of electrical connections to electrical hardware items.
- H. Touch up damaged factory finishes.

**3.03 TOLERANCES**

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

**3.04 ADJUSTING**

- A. Adjust for smooth and balanced door movement.
- B. Adjust sound control doors so that seals are fully engaged when door is closed.

**3.05 SCHEDULE**

- A. Refer to Door and Frame Schedule on the drawings.

**END OF SECTION**

**SECTION 08 1416  
FLUSH WOOD DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Flush wood doors; flush configuration; fire rated, non-rated, acoustical, and special function.

**1.02 RELATED REQUIREMENTS**

- A. Section 08 1113 - Hollow Metal Doors and Frames.
- B. Section 08 7100 - Door Hardware.
- C. Section 08 8000 - Glazing.

**1.03 REFERENCE STANDARDS**

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.
- B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- C. ASTM E413 - Classification for Rating Sound Insulation; 2010.
- D. AWI (QCP) - Quality Certification Program; Current Edition.
- E. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).
- F. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.
- G. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.
- H. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2012.
- I. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- J. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
  - 1. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
- D. Samples: Submit two samples of door construction, 8 by 8 inch in size cut from top corner of door.
- E. Samples: Submit two samples of door veneer, 8 by 8 inch in size illustrating wood grain, stain color, and sheen. Submit stain color selection kit for available factory finishes.
- F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- G. Test Reports: Show compliance with specified requirements for the following:
  - 1. Sound-retardant doors and frames; sealed panel tests are not acceptable.
- H. Manufacturer's Installation Instructions: Indicate special installation instructions.
- I. Specimen warranty.
- J. Warranty, executed in Owner's name.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
  - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- B. Quality Certification:
  - 1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: [www.awiqcp.org/#sle](http://www.awiqcp.org/#sle).
  - 2. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
  - 3. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

#### **1.07 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.
- B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Wood Veneer Faced Doors:
  - 1. Graham Wood Doors: [www.grahamdoors.com](http://www.grahamdoors.com).
  - 2. Eggers Industries: [www.eggersindustries.com](http://www.eggersindustries.com).
  - 3. Marshfield DoorSystems, Inc: [www.marshfielddoors.com](http://www.marshfielddoors.com).
  - 4. VT Industries, Inc.: [www.vtindustries.com](http://www.vtindustries.com)
  - 5. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 DOORS AND PANELS**

- A. Doors: Refer to drawings for locations and additional requirements.
  - 1. Quality Standard: Custom Grade, Standard Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
  - 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
  - 1. Provide solid core doors at each location.
  - 2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with  $\{rs\#1\}$  or 16 CFR 1201 - Negative (Neutral) Pressure; Underwriters Laboratories Inc. (UL) or Intertek/Warnock Hersey (WHI) labeled without any visible seals when door is open.
  - 3. Sound Retardant Doors: Minimum STC of 41, calculated in accordance with ASTM E413, tested in accordance with ASTM E90.
  - 4. Lead Lined (X-ray) Doors: Minimum of 1/16 inch thick, 4 pound lead, unless otherwise indicated. See door schedule and shielding schedule. Physicist to confirm thickness.
  - 5. Wood veneer facing with factory transparent finish.

#### **2.03 DOOR AND PANEL CORES**

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.
- B. Fire-Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.
- C. Sound Retardant Doors: Equivalent to Type particleboard core (PC) construction with core as required to achieve STC rating specified; plies and faces as indicated.
- D. Lead Lined Doors: Equivalent to type, with bonded particleboard core (PC) with continuous lead sheet from edge to edge in center of core or between crossband and core; lead thickness; plies and faces as indicated above. Physicist to confirm thickness in shielding design.

#### **2.04 DOOR FACINGS**

- A. Veneer Facing for Transparent Finish: Birch, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face; unless otherwise indicated.
- B. Facing Adhesive: Type I - waterproof.

#### **2.05 DOOR CONSTRUCTION**

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
  - 1. Provide solid blocks at lock edge for hardware reinforcement.
  - 2. Provide solid blocking for other throughbolted hardware.
- C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
  - 1. Exception: Doors to be field finished.
- E. Provide edge clearances in accordance with the quality standard specified.

#### **2.06 FACTORY FINISHING - WOOD VENEER DOORS**

- A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
  - 1. Transparent, Premium Quality:
    - a. System - 5, Varnish, Conversion.
    - b. Stain: Cocoa Bean.
    - c. Sheen: to be selected.
- B. Factory finish doors in accordance with approved sample.
- C. Seal door top edge with color sealer to match door facing.

#### **2.07 ACCESSORIES**

- A. Hollow Metal Door Frames: As specified in Section 08 1113.
- B. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.
- C. Astragals for Non-Rated Double Doors: Steel, T shaped, overlapping and recessed at face edge.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.

- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

### **3.02 INSTALLATION**

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
  - 1. Install fire-rated doors in accordance with NFPA 80 requirements.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of glazing.

### **3.03 TOLERANCES**

- A. Conform to specified quality standard for fit, clearance tolerances, telegraphing, warp and squareness.

### **3.04 ADJUSTING**

- A. Adjust doors for smooth and balanced door movement. Adjust closers for full closure.

### **3.05 SCHEDULE**

- A. Refer to Door and Frame Schedule appended to this section.

**END OF SECTION**

**SECTION 08 3100  
ACCESS DOORS AND PANELS**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Wall mounted access units.
- B. Ceiling mounted access units.

**1.02 RELATED REQUIREMENTS**

- A. See Fire Protection, Plumbing, Mechanical, Electrical, and other associated trades for components located above hard lid ceilings and within walls that may require access panels to reach them. Locations may not be visually shown on drawings but where device is installed and concealed an access panels must be provided. It is encouraged to locate device, valve, etc. in location accessible to avoid installation of access panel. GC responsible to coordinate panel locations among trades to reduce quantity and verify acceptability with Architect.

**1.03 REFERENCE STANDARDS**

- A. ITS (DIR) - Directory of Listed Products; current edition.
- B. UL (FRD) - Fire Resistance Directory; current edition.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

**PART 2 PRODUCTS**

**2.01 ACCESS DOORS AND PANELS ASSEMBLIES**

- A. Wall-Mounted Units:
  - 1. Panel Material: Steel.
  - 2. Size: 12 inch by 12 inch, minimum or as required to permit access. Coordinate size with other trades access panel is used for.
  - 3. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.
  - 4. Gypsum Board Mounting Criteria: Provide drywall bead frame with door surface flush with wall surface.
- B. Fire-Rated Wall-Mounted Units:
  - 1. Wall Fire-Rating: As indicated on drawings.
  - 2. Panel Material: Steel.
  - 3. Size: 12 inch by 12 inch., minimum or as required to permit access. Coordinate size with other trades access panel is used for.
- C. Fire-Rated Ceiling-Mounted Units:
  - 1. Ceiling Fire-Rating: As indicated on drawings.
  - 2. Panel Material: Steel.
  - 3. Size: 12 inch by 12 inch., minimum, or as required to permit access. Coordinate size with other trades access panel is used for.

**2.02 WALL AND CEILING MOUNTED ACCESS UNITS**

- A. Manufacturers:
  - 1. ACUDOR Products Inc: [www.acudor.com/#sle](http://www.acudor.com/#sle).
  - 2. Cendrex, Inc: [www.cendrex.com/#sle](http://www.cendrex.com/#sle).
  - 3. J.L. Industries Inc: [www.activarcpg.com/jl-industries](http://www.activarcpg.com/jl-industries)
  - 4. Milcor, Inc: [www.milcorinc.com/#sle](http://www.milcorinc.com/#sle).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.

- B. Wall and Ceiling Mounted Units: Factory fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
  - 1. Door Style: Single thickness with rolled or turned in edges.
  - 2. Frames: 16 gage, 0.0598 inch, minimum thickness.
  - 3. Single Steel Sheet Door Panels: 1/16 inch, minimum thickness.
  - 4. Units in Fire-Rated Assemblies: Fire rating as required by applicable code for fire-rated assembly that access doors are being installed.
    - a. Provide products listed by ITS (DIR) or UL (FRD) as suitable for purpose indicated.
    - b. Provide certificate of compliance from authorities having jurisdiction indicating approval of fire rated doors.
  - 5. Steel Finish: Primed.
  - 6. Primed and Factory Finish: Polyester powder coat; color manufacturer's standard.
  - 7. Hardware:
    - a. Hardware for Fire-Rated Units: As required for listing.
    - b. Hinges for Non-Fire-Rated Units: Concealed, constant force closure spring type.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that rough openings are correctly sized and located.

#### **3.02 INSTALLATION**

- A. Install units in accordance with manufacturer's instructions.
- B. Drawings do not show all access panels and Contractor is responsible to provide all access panels as required for a complete installation.
- C. Coordinate installation locations with other trades (Mechanical, Electrical, etc.) to ensure proper size is provided to allow access to items beyond access panel. Adjust size as necessary to accommodate access. Locate and install additional access panels as needed.
- D. Locate devices that require access above lay-in acoustical ceilings when possible. Provide access panel where necessary when behind gypsum board walls / ceilings.
- E. Install frames plumb and level in openings, and secure units rigidly in place.
- F. Position units to provide convenient access to concealed equipment when necessary.
- G. Field paint access panels where necessary to match adjacent finishes.

**END OF SECTION**

**SECTION 08 4229  
AUTOMATIC ENTRANCES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Packaged power-operated door assemblies of following types:
  - 1. Sliding type.
    - a. Single Door, Overhead Concealed.
    - b. Single Door, Surface mount single sliding, no sidelite.
  - 2. Swinging type.
    - a. Double Door.
  - 3. Folding type.
- B. Operators for doors provided in other sections.
- C. Controllers, actuators and safety devices.
- D. Maintenance.

**1.02 RELATED REQUIREMENTS**

- A. Section 28 1000 - Access Control: Connection to access control system; access control devices used as actuators.
- B. Section 28 4600 - Fire Detection and Alarm: Connection to fire alarm system.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. BHMA A156.10 - American National Standard for Power Operated Pedestrian Doors; 2011.
- C. BHMA A156.19 - American National Standard for Power Assist and Low Energy Power Operated Doors; 2013.
- D. ITS (DIR) - Directory of Listed Products; current edition.
- E. NFPA 101 - Life Safety Code; 2015.
- F. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.
- G. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
  - 1. Indicate layout and dimensions; head, jamb, and sill conditions; elevations; components, anchorage, recesses, materials, and finishes, electrical characteristics and connection requirements.
  - 2. Identify installation tolerances required, assembly conditions, routing of service lines and conduit, and locations of operating components and boxes.
- C. Product Data: Provide data on system components, sizes, features, and finishes.
- D. Manufacturer's Qualification Statement.
- E. Installer's Qualification Statement.
- F. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience, and a member of AAADM.

- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience and approved by manufacturer.

#### **1.06 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Provide two year manufacturer warranty.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Swinging Automatic Entrance Door Assemblies:
  - 1. ASSA ABLOY Entrance Solutions; Besam SW200i: [www.besam-usa.com/#sle](http://www.besam-usa.com/#sle).
  - 2. Stanley Access Technologies.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Sliding Automatic Entrance Door Assemblies:
  - 1. ASSA ABLOY Entrance Solutions; Besam SL500: [www.besam-usa.com/#sle](http://www.besam-usa.com/#sle).
  - 2. Stanley Access Technologies; Dura-Glide 2000 Sliding: [www.stanleyaccess.com/#sle](http://www.stanleyaccess.com/#sle).
- C. Door Operators for Swing Doors Specified in Other Sections:
  - 1. LCN, an Allegion brand; \_\_\_\_\_: [www.allegion.com/us/#sle](http://www.allegion.com/us/#sle).
  - 2. Horton Automatics; \_\_\_\_\_: [www.hortondoors.com/#sle](http://www.hortondoors.com/#sle).
  - 3. Stanley Access Technologies; Magic Access LE (Low Energy): [www.stanleyaccess.com/#sle](http://www.stanleyaccess.com/#sle).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 POWER OPERATED DOORS**

- A. Power Operated Doors: Provide products that comply with NFPA 101 and requirements of authorities having jurisdiction; provide equipment selected for actual door weight and for light pedestrian traffic, unless otherwise indicated.
  - 1. Swinging Door Operators: Fully adjustable for opening and closing speeds, checking speeds, and hold-open time; in the event of power failure, disengage operator allowing door to function as a door with a spring closer.
  - 2. Packaged Door Assemblies: Provide components by single manufacturer, factory-assembled, including doors, frames, operators, actuators, and safeties.
- B. Swinging Doors with Full Power Operators: Comply with BHMA A156.10; safeties required.
  - 1. Comply with UL 325; acceptable evidence of compliance includes UL (DIR) or ITS (DIR) listing or test report by testing agency acceptable to authorities having jurisdiction.
  - 2. Force Required to Set Door in Motion When Unpowered: 30 pound-force, maximum, measured at 1 inch from the latch edge of the door at any point in the closing cycle.

#### **2.03 AUTOMATIC ENTRANCE DOOR ASSEMBLIES**

- A. Comply with ADA Standards for egress requirements.
- B. Framing and Transom Members: Provide manufacturer's standard extruded aluminum framing, reinforced as required to support imposed loads.
  - 1. Nominal Sizes:
    - a. Single Slide Sliding Doors: 1-3/4 inch wide by 4-1/2 inch deep.
  - 2. Transoms: Provide flush glazed transom with framing that is integral with automatic entrance framing system.
- C. Door and Sidelight Construction: Heavy duty interlocked extruded aluminum tubular stile and rail sections, through-rod bolted construction with steel corner support at hinge stile of carrier-suspended swinging panels or mechanically fastened corners with welded reinforcing brackets to reduce sag in sliding or breakout mode.
  - 1. Door Thickness: 1-3/4 inch, nominal.

2. Stile Design:
    - a. Wide stile, 4 inch, nominal width.
  3. Top Rail Height: 4 inch, nominal.
  4. Bottom Rail Height: 10 inch, nominal.
  5. Glazing Stops: Manufacturer's standard snap-on extruded aluminum square stops with preformed resilient glazing gaskets.
  6. Glazing Stop Width: Manufacturers standard.
  7. Glazing Thickness: 5/8 inch.
- D. Swinging Automatic Door: Single-acting hinged, electric operation, extruded aluminum glazed door, with extruded tubular frame, and operator concealed overhead.
1. Operation: Full-power open, spring close operation.
  2. Actuator(s): As indicated on drawings.
- E. Sliding Automatic Door: Single leaf track-mounted, electric operation, extruded aluminum glazed door, with frame, and operator concealed overhead.
1. Operation: Power open, power boost operation.
  2. Exterior-Side Actuator/Safety: Motion sensor.
  3. Interior-Side Actuator/Safety: Motion sensor.
  4. Door and Frame Finish: Same as adjacent framing system.

#### **2.04 OPERATORS FOR SWINGING DOORS PROVIDED BY OTHERS**

- A. Door Operator: Electric, surface mounted overhead.
1. Operation: Full-power open, spring close operation.
  2. Variable speed control for opening and closing cycles.
  3. Actuators and Safeties: As indicated on drawings.
  4. Hold Open: Toggle switch at inside head of doors; deactivate hold-open on activation of fire alarm system, refer to Section 28 4600.

#### **2.05 CONTROLLERS, ACTUATORS, AND SAFETIES**

- A. Controller: Provide microprocessor operated controller for each door.
- B. Comply with BHMA A156.10 for actuator and safety types and zones.
- C. Proximity Detector Actuator/Safety: Microwave; distance of control sensitivity adjustable.
- D. Push Plate Actuator: Standard wall mounted, surface mounted momentary contact type; satin stainless steel plate; labeled PUSH.
- E. Swinging Door Safety Device: Door-mounted proximity detector device arranged to prevent operation of door when persons or obstructions are in the swing zone.

#### **2.06 ACCESSORIES**

- A. Steel Clips, Supports, and Steel Anchors: Galvanized to 1.25 oz/sq ft.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that surfaces are ready to receive work and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available and is of the correct characteristics.

#### **3.02 INSTALLATION**

- A. Install equipment in accordance with manufacturer's instructions.
- B. Provide for dimensional distortion of components during operation.
- C. Coordinate installation of components with related and adjacent work; level and plumb.
- D. Where provided, coordinate operation and wiring of Access Control (AC) card reader systems with push button actuators. At door locations provided with AC, Push button to be deactivated

when AC system is active and in locked mode. Upon approved AC user authorization, push button becomes active for use. Coordinate required components with AC provider.

**3.03 ADJUSTING**

- A. Adjust door equipment for correct function and smooth operation.

**3.04 CLEANING**

- A. Remove temporary protection, clean exposed surfaces.

**3.05 CLOSEOUT ACTIVITIES**

- A. Demonstrate operation, operating components, adjustment features, and lubrication requirements.

**3.06 MAINTENANCE**

- A. Provide service and maintenance of operating equipment for one year from Date of Substantial Completion, at no extra charge to Owner.

**END OF SECTION**

**SECTION 08 4313  
ALUMINUM-FRAMED STOREFRONTS**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Aluminum-framed storefront, with insulated glass units installed at exterior openings of building envelope.
- B. Aluminum-framed storefront, with single pane glass installed in interior partitions.
- C. Aluminum entrance doors and frames with insulated glass units installed at exterior openings in building envelope.
- D. Door hardware, weatherstripping and accessories for a storefront installation.

**1.02 REFERENCE STANDARDS**

- A. AAMA 501.2 - Field Check of Metal Storefronts, Curtain Walls, and Sloped Glazing Systems for Water Leakage; 2009.
- B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.
- C. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.
- D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- E. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.
- F. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- G. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2014.
- H. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
- I. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2013.
- J. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).
- K. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.
- L. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2009).

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate with installation of other components that comprise the interior.
- B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, internal drainage details.
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required. Indicate method of installation for all components.

- D. Design Data: Provide framing member structural and physical characteristics, engineering calculations, and dimensional limitations.
- E. Samples: Submit two samples 4x3 inches in size illustrating finished aluminum surface, glass, glazing materials.
- F. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
- G. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

#### **1.05 QUALITY ASSURANCE**

- A. Designer Qualifications: Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Arkansas.
- B. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

#### **1.06 FIELD CONDITIONS**

- A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

#### **1.07 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.
- B. Correct defective Work, including the watertightness of system, within a five year period after Date of Substantial Completion.
- C. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.
- D. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Basis of Design: Kawneer North America; Kawneer Trifab 450. [www.kawneer.com](http://www.kawneer.com)
- B. Other Acceptable - Aluminum-Framed Storefronts Manufacturers:
  1. Manko Window Systems, Inc: [www.mankowindows.com/#sle](http://www.mankowindows.com/#sle).
  2. Oldcastle BuildingEnvelope: [www.oldcastlebe.com/#sle](http://www.oldcastlebe.com/#sle).
  3. Tubelite, Inc: [www.tubeliteinc.com/#sle](http://www.tubeliteinc.com/#sle).
  4. Substitutions: See Section 01 6000 - Product Requirements.

#### **2.02 BASIS OF DESIGN -- FRAMING FOR INSULATING GLAZING**

- A. Center-Set Style:
  1. Vertical Mullion Dimensions: 1 3/4 inches wide by 4 1/2 inches deep.

#### **2.03 BASIS OF DESIGN -- FRAMING FOR MONOLITHIC GLAZING**

- A. Center-Set Style:
  1. Vertical Mullion Dimensions: 1-3/4 inches wide by 4-1/2 inches deep.

#### **2.04 ALUMINUM-FRAMED STOREFRONT**

- A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
  1. Overall U-Value Including Glazing: \_\_\_\_\_, maximum.
  2. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.

3. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.
  4. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
  5. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
- B. Performance Requirements:
1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
    - a. Design Wind Loads: Comply with requirements of ASCE 7.
  2. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8 psf.
  3. Air Leakage Laboratory Test: Maximum of 0.06 cu ft/min sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 psf pressure differential across assembly.

## **2.05 COMPONENTS**

- A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
1. Framing members for interior applications need not be thermally broken.
  2. Glazing Stops: Flush.
  3. Structurally Reinforced Members: Extruded aluminum with internal reinforcement of structural steel member.
  4. Internall reinforce for Hardware attachments as Required.
- B. Swing Doors: Glazed aluminum, thermally broke at exterior locations.

## **2.06 MATERIALS**

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Sheet Aluminum: ASTM B209 (ASTM B209M).
- C. Structural Steel Sections: ASTM A36/A36M; galvanized in accordance with requirements of ASTM A123/A123M.
- D. Fasteners: Stainless steel.
- E. Exposed Flashings: Aluminum sheet, 20 gage, 0.032 inch minimum thickness; finish to match framing members.
- F. Concealed Flashings: 0.032 inch thick aluminum.
- G. Perimeter Sealant: Type A specified in Section 07 9005.
- H. Glass: As specified in Section 08 8000.

## **2.07 FINISHES**

- A. Class I Color Anodized Finish: AAMA 611 AA-M12C22A42 Integrally colored anodic coating not less than 0.7 mils thick.
- B. Color: Black.
- C. Touch-Up Materials: As recommended by coating manufacturer for field application.

## **2.08 HARDWARE**

## **2.09 FABRICATION**

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.

- C. Prepare components to receive anchor devices. Fabricate anchors.
- D. Reinforce framing members for imposed loads.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify dimensions, tolerances, and method of attachment with other work.
- B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

#### **3.02 INSTALLATION**

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
- D. Provide alignment attachments and shims to permanently fasten system to building structure.
- E. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
- F. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- G. Provide thermal isolation where components penetrate or disrupt building insulation.
- H. Install sill flashings in a full bed of sealant. Turn up ends and edges; seal to adjacent work to form water tight end dam.
- I. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing. Do not install screws into vertical leg/face of sill flashing.
- J. Coordinate attachment and seal of perimeter air and vapor barrier materials. Entire inside perimeter of window to be sealed to weather barrier.
- K. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- L. Set thresholds in full bed of sealant and secure.
- M. Install hardware using templates provided.
- N. Install glass and infill panels in accordance with Section 08 8000, using glazing method required to achieve performance criteria.
- O. Install perimeter sealant in accordance with Section 07 9005. Seal interior of window perimeter to weather barrier.
- P. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

#### **3.03 TOLERANCES**

- A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

#### **3.04 FIELD QUALITY CONTROL**

- A. Water-Spray Test: Provide water spray quality test of installed storefront components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.
  - 1. Perform a minimum of two tests in each designated area as indicated on drawings.

2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.

**3.05 ADJUSTING**

- A. Adjust operating hardware and sash for smooth operation.

**3.06 CLEANING**

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.
- C. Remove excess sealant by method acceptable to sealant manufacturer.

**3.07 PROTECTION**

- A. Protect installed products from damage until Date of Substantial Completion.

**END OF SECTION**

**SECTION 08 7100  
DOOR HARDWARE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Hardware for wood, aluminum, hollow metal doors.
- B. Hardware for fire-rated doors.
- C. Lock cylinders for doors with balance of hardware specified in other sections.
- D. Thresholds.
- E. Weatherstripping and gasketing.

**1.02 RELATED REQUIREMENTS**

- A. Section 081113 - Hollow Metal Doors and Frames.
- B. Section 081213 - Hollow Metal Frames.
- C. Section 081416 - Flush Wood Doors.
- D. Section 081433 - Stile and Rail Wood Doors.
- E. Section 083323 - Overhead Coiling Doors: Door hardware, except cylinders.
- F. Section 084313 - Aluminum-Framed Storefronts: Door hardware, except as noted in section.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. 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; 2019.
- C. BHMA A156.1 - American National Standard for Butts and Hinges; 2013.
- D. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches; 2011.
- E. BHMA A156.3 - American National Standard for Exit Devices; 2014.
- F. BHMA A156.4 - American National Standard for Door Controls - Closers; 2013.
- G. BHMA A156.5 - American National Standard for Cylinders and Input Devices for Locks; 2014.
- H. BHMA A156.6 - American National Standard for Architectural Door Trim; 2010.
- I. BHMA A156.7 - American National Standard for Template Hinge Dimensions; 2014.
- J. BHMA A156.16 - American National Standard for Auxiliary Hardware; 2013.
- K. BHMA A156.19 - American National Standard for Power Assist and Low Energy Power Operated Doors; 2013.
- L. BHMA A156.21 - American National Standard for Thresholds; 2014.
- M. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2012.
- N. BHMA A156.26 - American National Standard for Continuous Hinges; 2012.
- O. BHMA A156.28 - American National Standard for Recommended Practices for Mechanical Keying Systems; 2013.
- P. BHMA A156.36 - American National Standard for Auxiliary Locks; 2014.
- Q. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014.
- R. BHMA A156.115W - Hardware Preparation in Wood Doors with Wood or Steel Frames; 2006.

- S. DHI (KSN) - Keying Systems and Nomenclature; 1989.
- T. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.
- U. ITS (DIR) - Directory of Listed Products; current edition.
- V. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.
- W. NFPA 101 - Life Safety Code; 2015.
- X. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2016.
- Y. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2012.
- Z. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.
- AA. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- BB. UL 294 - Access Control System Units; Current Edition, Including All Revisions.
- CC. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.
- DD. UL 1034 - Standard for Burglary-Resistant Electric Locking Mechanisms; 2015.
- EE. UL 1784 - Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.
- FF. DHI (H&S) - Sequence and Format for the Hardware Schedule 2019.
- GG. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames 2004.
- HH. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors 1993; also, in WDHS-1/WDHS-5 Series, 1996.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B. Sequence installation to ensure facility services connections are achieved in an orderly and expeditious manner.
- C. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by affected installers and the following:
  - 1. Architect.
  - 2. Installer's Architectural Hardware Consultant (AHC).
  - 3. Hardware Installer.
  - 4. Owner's Security Consultant.
- D. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- E. Keying Requirements Meeting:
  - 1. Attendance Required:
    - a. Architect.
    - b. Installer's Architectural Hardware Consultant (AHC).
  - 2. Agenda:
    - a. Establish keying requirements.
    - b. Verify locksets and locking hardware are functionally correct for project requirements.
    - c. Verify that keying and programming complies with project requirements.
    - d. Establish keying submittal schedule and update requirements.
  - 3. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
  - 4. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

5. Deliver established keying requirements to manufacturers.

#### **1.05 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- C. Shop Drawings - Door Hardware Schedule: A detailed listing that includes each item of hardware to be installed on each door.
  1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
  2. Comply with DHI (H&S) using door numbering scheme and hardware set numbers as indicated in Contract Documents.
    - a. Submit in vertical format.
  3. Include complete description for each door listed.
- D. Shop Drawings - Electrified Door Hardware: Include diagrams for power, signal, and control wiring for electrified door hardware that include details of interface with building safety and security systems. Provide elevations and diagrams for each electrified door opening as follows:
  1. Prepared by or under supervision of Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC).
  2. Elevations: Include front and back elevations of each door opening showing electrified devices with connections installed and an operations narrative describing how opening operates from either side at any given time.
  3. Diagrams: Include point-to-point wiring diagrams that show each device in door opening system with related colored wire connections to each device.
- E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- F. Manufacturer's qualification statement.
- G. Installer's qualification statement.
- H. Supplier's qualification statement.
- I. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- J. Keying Schedule:
  1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.
- K. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- L. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.
- M. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
  1. See Section 016000 - Product Requirements, for additional provisions.

#### **1.06 QUALITY ASSURANCE**

- A. Standards for Fire-Rated Doors: Maintain one copy of each referenced standard on site, for use by Architect and Contractor.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- C. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

- D. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC) to assist in work of this section.

### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

### **1.08 WARRANTY**

- A. See Section 017800 - Closeout Submittals for additional warranty requirements.
- B. Manufacturer Warranty: Provide manufacturer warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion. Complete forms in Owner's name and register with manufacturer.
  - 1. Closers: 25 years, minimum.
  - 2. Exit Devices: Three years, minimum.
  - 3. Locksets and Cylinders: Three years, minimum.

## **PART 2 PRODUCTS**

### **2.01 GENERAL REQUIREMENTS**

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.
- C. Locks: Provide a lock for each door, unless it's indicated that lock is not required.
  - 1. Lock Function: Provide lock and latch function numbers and descriptions of manufacturer's Series. As indicated in hardware sets.
  - 2. Trim: Provide lever handle or pull trim on outside of each lock, unless otherwise indicated.
  - 3. Strikes:
    - a. Finish: To match lock or latch.
    - b. Curved-Lip Strikes: Provide as standard, with extended lip to protect frame, unless otherwise indicated.
    - c. Center Strike at Pairs of Doors: 7/8 inch lip.
- D. Door Pulls and Push Plates:
  - 1. Provide door pulls and push plates on doors without a lockset, latchset, exit device, or auxiliary lock unless otherwise indicated.
- E. Closers:
  - 1. Provide door closer on each exterior door, unless otherwise indicated.
  - 2. Provide door closer on each fire-rated and smoke-rated door.
  - 3. Spring hinges are not an acceptable self-closing device, unless otherwise indicated.
- F. Drip Guards: Provide at head of out swinging exterior doors unless protected by roof or canopy directly overhead.
- G. Weatherstripping and Gasketing:
  - 1. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.
  - 2. Provide door bottom sweep as indicated in hardware set, unless otherwise indicated.
- H. Fasteners:
  - 1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
    - a. Aluminum fasteners are not permitted.
    - b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
  - 2. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
    - a. Self-drilling (Tek) type screws are not permitted.

3. Provide stainless steel machine screws and lead expansion shields for concrete and masonry substrates.
4. Provide wall grip inserts for hollow wall construction.
5. Fire-Resistance-Rated Applications: Comply with NFPA 80.
  - a. Provide wood or machine screws for hinges mortised to doors or frames, strike plates to frames, and closers to doors and frames.
  - b. Provide steel through bolts for attachment of surface mounted closers, hinges, or exit devices to door panels unless proper door blocking is provided.

## 2.02 PERFORMANCE REQUIREMENTS

- A. Provide door hardware products that comply with the following requirements:
  1. Applicable provisions of federal, state, and local codes.
    - a. NFPA 101.
  2. Accessibility: ADA Standards and ICC A117.1.
  3. Fire-Resistance-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.
  4. Hardware on Fire-Resistance-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), testing firm acceptable to authorities having jurisdiction, or as suitable for application indicated.
  5. Hardware for Smoke and Draft Control Doors (Indicated as "S" on Drawings): Provide door hardware that complies with local codes, and requirements of assemblies tested in accordance with UL 1784.
  6. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
  7. Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W.
  8. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified.

## 2.03 HINGES

- A. Manufacturers: Conventional butt hinges.
  1. BEST; dormakaba Group: [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
- B. Properties:
  1. Butt Hinges: As applicable to each item specified.
    - a. Standard Weight Hinges: Minimum of two (2) permanently lubricated non-detachable bearings.
    - b. Heavy Weight Hinges: Minimum of four (4) permanently lubricated bearings on heavy weight hinges.
    - c. Template screw hole locations.
    - d. Bearing assembly installed after plating.
    - e. Bearings: Exposed fully hardened bearings.
    - f. Bearing Shells: Shapes consistent with barrels.
    - g. Pins: Easily seated, non-rising pins.
      - 1) Fully plate hinge pins.
      - 2) Non-Removable Pins.
    - h. UL 10C listed for fire-resistance-rated doors.
  2. Continuous Hinges: As applicable to each item specified.
    - a. Geared Continuous Hinges: As applicable to each item specified.
      - 1) Non-handed.
      - 2) Anti-spinning through-fastener.
      - 3) UL 10C listed for fire-resistance-rated doors.
        - (a) Metal Door Installation: Rated up to 90 minutes.
        - (b) Wood Door Installation: Rated up to 60 minutes.
      - 4) Sufficient size to permit door to swing 180 degrees

- C. Sizes: See Door Hardware Schedule.
  - 1. Hinge Widths: As required to clear surrounding trim.
  - 2. Sufficient size to allow 180-degree swing of door.
- D. Finishes: See Door Hardware Schedule.
  - 1. Fully polish hinges, front, back, and barrel.
- E. Grades:
  - 1. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
  - 2. Continuous Hinges: Comply with BHMA A156.26, Grade 1.
- F. Material: Base metal as indicated for each item by BHMA material and finish designation.
- G. Types:
  - 1. Butt Hinges: Include full mortise hinges.
  - 2. Continuous Hinges: Include geared hinges.
- H. Quantities:
  - 1. Butt Hinges: Three (3) hinges per leaves up to 90 inches in height. Add one (1) for each additional 30 inches in height or fraction thereof.
    - a. Hinge weight and size unless otherwise indicated in hardware sets:
      - 1) For doors up to 36 inches wide and up to 1-3/4 inches thick provide hinges with a minimum thickness of 0.134 inch and a minimum of 4-1/2 inches in height.
      - 2) For doors from 36 inches wide up to 42 inches wide and up to 1-3/4 inches thick provide hinges with a minimum thickness of 0.145 inch and a minimum of 4-1/2 inches in height.
      - 3) For doors from 42 inches wide up to 48 inches wide and up to 1-3/4 inches thick provide hinges with a minimum thickness of 0.180 inch and a minimum of 5 inches in height.
      - 4) For doors greater than 1-3/4 inches thick provide hinges with a minimum thickness of 0.180 inch and a minimum of 5 inches in height.
  - 2. Continuous Hinges: One per door leaf.
- I. Applications: At swinging doors.
  - 1. Provide non-removable pins at out-swinging doors with locking hardware and all exterior doors.
- J. Products:
  - 1. Butt Hinges:
    - a. Ball Bearing, Five (5) Knuckle.
  - 2. Continuous Hinges:
    - a. Aluminum geared hinges.

## 2.04 BOLTS

- A. Manufacturers:
  - 1. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
- B. Properties:
  - 1. Flush Bolts:
    - a. Manual Flush Bolts: Manually latching upon closing of door leaf.
      - 1) Bolt Throw: 3/4 inch, minimum.
    - b. Automatic Flush Bolts: Automatically latching upon closing of door leaf.
      - 1) Bolt Throw: 3/4 inch, minimum.
    - c. Self-Latching Flush Bolts: Automatically latching upon closing of door; manually retracted; located on inactive leaf of pair.
      - 1) Bolt Throw: 3/4 inch, minimum.
  - 2. Dustproof Strikes: For bolting into floor, provide except at metal thresholds.
- C. Options:
  - 1. Extension Bolts: In leading edge of door, one bolt into floor, one bolt into top of frame.

2. Lever extensions: Provide for top bolt at oversized doors.

D. Products:

1. Manual flush bolts.
2. Automatic flush bolts.

## 2.05 EXIT DEVICES

A. Manufacturers:

1. BEST, dormakaba Group: [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
2. Von Duprin, Allegion Group.

B. Properties:

1. Touchpads: 'T' style metal touchpads and rail assemblies with matching chassis covers end caps.
2. Latch Bolts: Stainless steel deadlocking with 3/4-inch 0.75 inch projection using latch bolt.
3. Lever Design: Match project standard lockset trims.
4. Cylinder: Include where cylinder dogging or locking trim is indicated.
5. Strike as recommended by manufacturer for application indicated.
6. Sound dampening on touch bar.
7. Dogging:
  - a. Non-Fire-Resistance-Rated Devices: Hex key 1/4-inch 0.24 inch hex key dogging.
  - b. Fire-Resistance-Rated Devices: Manual dogging not permitted.
8. Touch bar assembly on wide style exit devices to have a 1/4-inch 0.25 inch clearance to allow for vision frames.
9. All exposed exit device components to be of architectural metals and "true" architectural finishes.
10. Handing: Field-reversible.
11. Fasteners on Back Side of Device Channel: Concealed - exposed fasteners not allowed.
12. Vertical Latch Assemblies' Operation: Gravity, without use of springs.

C. Grades: Complying with BHMA A156.3, Grade 1.

1. Provide exit devices tested and certified by UL or by a recognized independent laboratory for mechanical operational testing to 10 million cycles minimum with inspection confirming Grade 1 Loaded Forces have been maintained.

D. Options:

1. Electrified Devices
2. MLR: Motorized latch retraction.
3. Electrified Device Voltage: 24 VAC.

E. Products:

1. 2000.

## 2.06 ELECTRIC STRIKES

A. Manufacturers:

B. Properties:

1. Provide UL (DIR) listed burglary-resistant devices.
2. Provide UL 1034 compliant devices.
3. Provide UL 10C compliant devices.
4. Non-handed devices suitable for door frame material and scheduled lock configuration.
5. Include transformer and rectifier as necessary for complete installation.
6. Holding Force: 1,500 lbs (680.4 kg).
7. Accommodating latch projections of 1/2 inch, 5/8 inch, or 3/4 inch.

C. Options: As applicable to each item specified.

1. Voltage: 12 VDC.

D. Installation: Connect electric strikes into fire alarm where non-rated doors are scheduled to release with fire or sprinkler alarm condition.

E. Products:

## 2.07 LOCK CYLINDERS

A. Manufacturers:

1. BEST, dormakaba Group: [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
2. Match existing Best key system.

B. Properties:

1. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
  - a. Provide cylinders from same manufacturer as locking device.
  - b. Provide cams and/or tailpieces as required for locking devices.
  - c. Provide cylinders with appropriate format conventional cores where indicated.

C. Grades:

1. Standard Security Cylinders: Comply with BHMA A156.5.

D. Material:

E. Types: As applicable to each item specified.

F. Applications: At locations indicated in hardware sets, and as follows

1. As required for items with locking devices provided by other sections, including at elevator controls and cabinets.
  - a. When provisions for lock cylinders are referenced elsewhere in the Project Manual to this Section, provide compatible type of lock cylinder, keyed to building keying system, unless otherwise indicated.

G. Products:

1. Rim/mortise 12E/1E.

## 2.08 CYLINDRICAL LOCKS

A. Manufacturers:

1. BEST, dormakaba Group: [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
2. Substitutions: Not permitted.

B. Properties:

1. Mechanical Locks:
  - a. Fitting modified ANSI A115.2 door preparation.
  - b. Door Thickness Fit: 1-3/8 inches to 2-1/4 inches thick doors.
  - c. Construction: Hub, side plate, shrouded rose, locking pin to be a one-piece casting with a shrouded locking lug.
    - 1) Through-bolted anti-rotational studs.
  - d. Cast stainless steel latch retractor with roller bearings for exceptionally smooth operation and superior strength and durability.
  - e. Bored Hole: 2-1/8 inch diameter.
  - f. Backset: 5 inches unless otherwise indicated.
  - g. Latch: Single piece tail-piece construction.
    - 1) Latchbolt Throw: 9/16 inch, minimum.
  - h. Cylinders:
    - 1) Cylinder Core Types: Locks capable of supporting manufacturers' cores, as applicable.
      - (a) Small format interchangeable.
  - i. Lever Trim:
    - 1) Style: See Door Hardware Schedule.
    - 2) Functionality: Allow the lever handle to move up to 45 degrees from horizontal position prior to engaging the latchbolt assembly.

- 3) Strength: Locksets outside locked lever designed to withstand minimum 1,400 inch-lbs (158.2 Nm) of torque. In excess of that, a replaceable part will shear. Key from outside and/or inside lever will still operate lockset.
  - 4) Independent spring mechanism for each lever.
    - (a) Contain lever springs in the main lock hub.
  - 5) Outside Lever Sleeve: Seamless one-piece construction.
  - 6) Keyed Levers: Removable only after core is removed by authorized control key.
- 2. Electrified Locks: Same properties as standard locks, and as follows:
    - a. Voltage: 24 VAC.
    - b. Function: Electrically locked (Fail Safe) or unlocked (Fail Secure), as indicated for each lock in Door Hardware Schedule.
    - c. Temperature Control Module (TCM).
  - C. Finishes: See Door Hardware Schedule.
    - 1. Core Faces: Match finish of lockset.
  - D. Grades: Comply with BHMA A156.2, Grade 1, Series 4000, Operational Grade 1, Extra Heavy Duty.
    - 1. Durability: Passing 50 million cycle tests verified by third party testing agency.
  - E. Material: Manufacturer's standard for specified lock.
    - 1. Critical Latch and Chassis Components: Brass or corrosion-resistance treated steel.
    - 2. Outside Lever Sleeve: Hardened steel alloy.
  - F. Options:
  - G. Products: Cylindrical locks, including mechanical and electrified types.
    - 1. 9K (Grade 1).
    - 2. 9KW (Grade 1).

## **2.09 AUXILIARY LOCKS (DEADLOCKS)**

- A. Manufacturers:
  - 1. dormakaba; dormakaba Group: [www.dormakaba.com/us-en/#sle](http://www.dormakaba.com/us-en/#sle).
- B. Properties:
  - 1. Backset: 2-3/4 inch, unless otherwise indicated.
  - 2. Strike: Appropriate for door frame.
  - 3. Cylindrical Deadbolt: Manufacturer's standard, adjustable to accommodate range of door thicknesses indicated.
    - a. Door Thickness Fit: 1-3/4 inches to 2 inches thick doors.
    - b. Bolt Throw: 1 inch hardened steel.
    - c. UL listed for up to 3 hours.
- C. Grades:
  - 1. Cylindrical Deadbolts: Tested and approved by BHMA A156.36, Operational Grade 1.
- D. Products:
  - 1. D800 (Cylindrical, Grade 1).

## **2.10 DOOR PULLS AND PUSH PLATES**

- A. Manufacturers:
  - 1. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
- B. Properties:
  - 1. Pull Type: Straight, unless otherwise indicated.
  - 2. Push Plate Type: Flat, with square corners, unless otherwise indicated.
    - a. Edges: Beveled, unless otherwise indicated.
- C. Grades: Comply with BHMA A156.6.
- D. Material: Stainless steel, unless otherwise indicated.

- E. Products:
  - 1. 1001-11.

## 2.11 DOOR PULLS AND PUSH BARS

- A. Manufacturers:
  - 1. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
  - 2. Ives
- B. Properties:
  - 1. Bar Type: Bar set, unless otherwise indicated.
  - 2. Pulls and Handles:
    - a. Tubular Bars:
      - 1) Bar Diameter: 1 inch.
- C. Grades: Comply with BHMA A156.6.
- D. Material: Stainless steel, unless otherwise indicated.

## 2.12 COORDINATORS

- A. Manufacturers:
  - 1. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
- B. Properties:
  - 1. General: Non-handed devices, with field-selectable active door leaf.
  - 2. Coordinators: Devices on pairs of doors with closers and self-latching or automatic flush bolts installed.
    - a. Coordinator Operation: Only when inactive door is opened.
- C. Grades:
  - 1. Closer and Coordinator Combinations: Comply with BHMA A156.4, Grade 1.
- D. Code Compliance: As required by authorities having jurisdiction in the State in which the Project is located.
  - 1. Meet UL 10C for Positive Pressure.
- E. Types:
  - 1. Coordinators: Bar.
- F. Installation:
  - 1. Mounting: Provide necessary mounting brackets and filler bars to ensure proper installation of coordinator and related hardware.
  - 2. Coordination: Properly sequence installation of other door hardware affected by placement of coordinators and carry bars.
- G. Products:
  - 1. 3090 Series.

## 2.13 CLOSERS

- A. Manufacturers:
  - 1. BEST, dormakaba Group [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
  - 2. Corbin Russwin, Assa Abloy Group.
  - 3. dormakaba; dormakaba Group: [www.dormakaba.com/us-en/#sle](http://www.dormakaba.com/us-en/#sle).
  - 4. LCN, Allegion Group.
- B. Properties:
  - 1. Surface Mounted Closers: Manufacturer's standard.
    - a. Construction: R14 high silicon aluminum alloy.
    - b. Maximum Projection from Face of Door: 2-1/8 inches.
    - c. Mechanism: Separate tamper-resistant adjusting valves for closing and latching speeds.
      - 1) Include advanced backcheck feature.

- 2) Include delayed action feature.
  - d. Hydraulic Fluid: All-weather type.
  - e. Arm Assembly: Standard for product specified.
    - 1) Include hold-open, integral stop, or spring-loaded stop feature, as specified in Door Hardware Schedule.
    - 2) Parallel arm to be a heavy-duty rigid arm.
    - 3) Where "IS" or "S-IS" arms are specified in hardware sets, if manufacturer does not offer this arm provide a regular arm mount closer in conjunction with a heavy-duty overhead stop equal to a dormakaba 900 Series.
  - f. Covers:
    - 1) Type: Standard for product selected.
      - (a) Full.
      - (b) Slim.
    - 2) Material: Plastic.
    - 3) Finish: Painted.
- C. Grades:
- 1. Closers: Comply with BHMA A156.4, Grade 1.
    - a. Underwriters Laboratories Compliance:
      - 1) Product Listing: UL (DIR) and ULC for use on fire-resistance-rated doors.
        - (a) UL 228 - Door Closers-Holders, With or Without Integral Smoke Detectors.
- D. Code Compliance: As required by authorities having jurisdiction in the State in which the Project is located.
- 1. Devices listed with California Department of Forestry and Fire Protection, Office of the State Fire Marshal.
- E. Types:
- 1. Rack-and-pinion, surface-mounted. 1-1/2 inches minimum bore.
- F. Options:
- 1. Delayed action, adjustable with an independent valve.
- G. Installation:
- 1. Mounting: Includes surface mounted installations.
  - 2. Mount closers on non-public side of door and stair side of stair doors unless otherwise noted in hardware sets.
  - 3. At out swinging exterior doors, mount closer on interior side of door.
  - 4. Provide adapter plates, shim spacers, and blade stop spacers as required by frame and door conditions.
  - 5. Where an overlapping astragal is included on pairs of swinging doors, provide coordinator to ensure door leaves close in proper order.
- H. Products:
- 1. Surface Mounted:
    - a. HD7000.
    - b. 8600.

## 2.14 SWINGING DOOR OPERATORS

- A. Manufacturers:
  - 1. See Section 087113 Auto Operators .

## 2.15 PROTECTION PLATES

- A. Manufacturers:
  - 1. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
- B. Properties:
  - 1. Plates:

- a. Armor Plates: Provide on bottom half of push side of doors that require protection from objects moving through openings that may damage door surface.
    - 1) Size: high by 1-1/2 inch less door width (LDW) on pull side and 2 inch LDW on push side of door.
  - b. Kick Plates: Provide along bottom edge of push side of every wood door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
    - 1) Size: 10 inches high by 2 inch less door width (LDW) on push side of door.
  - c. Mop Plates: Provide along bottom edge of push side of doors to provide protection from cleaning liquids and equipment damage to door surface.
    - 1) Size: high by 1-1/2 inch less door width (LDW) on pull side and 2 inch LDW on push side of door.
  - d. Edges: Beveled, on four (4) unless otherwise indicated.
- C. Grades: Comply with BHMA A156.6.
  - D. Material: As indicated for each item by BHMA material and finish designation.
    - 1. Metal Properties: Stainless steel.
      - a. Metal, Standard Duty: Thickness 0.050 inch, minimum.
    - 2. Plastic Properties:
      - a. Plastic, Flexible PVC: Thickness 0.060 inch, minimum.
  - E. Installation:
    - 1. Fasteners: Countersunk screw fasteners
  - F. Products: K0050, K6000

## 2.16 STOPS AND HOLDERS

- A. Manufacturers:
  - 1. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
- B. Properties:
  - 1. Wall Bumpers: 1270WV.
- C. Grades:
  - 1. Door Holders and Wall Bumpers: Comply with BHMA A156.16 and Resilient Material Retention Test as described in this standard.
- D. Material: Base metal as indicated for each item by BHMA material and finish designation.
- E. Types:
  - 1. Wall Bumpers: Bumper, concave, wall stop.
- F. Installation:
  - 1. Non-Masonry Walls: Confirm adequate wall reinforcement has been installed to allow lasting installation of wall bumpers.
- G. Products:
  - 1. Wall Bumpers 1270WV.

## 2.17 THRESHOLDS

- A. Manufacturers:
  - 1. National Guard Products, Inc: [www.ngpinc.com/#sle](http://www.ngpinc.com/#sle).
- B. Properties:
  - 1. Threshold Surface: Fluted horizontal grooves across full width.
- C. Grades: Thresholds: Comply with BHMA A156.21.
- D. Products:
  - 1. 896

## 2.18 WEATHERSTRIPPING AND GASKETING

- A. Manufacturers:

1. National Guard Products, Inc: [www.ngpinc.com/#sle](http://www.ngpinc.com/#sle).
- B. Properties:
1. Weatherstripping Air Leakage Performance: Not exceeding of door opening at 0.3 inches of water pressure differential for single doors, and of door area at 0.3 inches of water pressure differential for double doors for gasketing other than smoke control, as tested according to ASTM E283/E283M; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
  2. Adhesive-Backed Perimeter Gasketing: Silicone gasket material applied to frame with self-adhesive.
  3. Door Sweeps: Neoprene gasket material held in place by flat aluminum housing or flange; surface mounted to face of door with screws.
- C. Grades: Comply with BHMA A156.22.
- D. Products:
1. Weatherstripping: See Door Hardware Schedule.
  2. Smoke Seals: See Door Hardware Schedule.
  3. Meeting Stile Seals: See Door Hardware Schedule.
  4. Door Bottom Seals:
    - a. Door Sweeps: See Door Hardware Schedule.

## 2.19 MISCELLANEOUS ITEMS

- A. Manufacturers:
1. Trimco: [www.trimcohardware.com/#sle](http://www.trimcohardware.com/#sle).
- B. Properties:
1. Coat Hooks: Provide on room side of door, screw fastened.
    - a. Material: Stainless steel.
  2. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
    - a. Single Door: Provide three on strike jamb of frame.
    - b. Pair of Doors: Provide two on head of frame, one for each door at latch side.
    - c. Material: Rubber, gray color.
- C. Products:
1. Coat Hooks.
  2. Silencers.

## 2.20 ELECTRIFIED HARDWARE

- A. Manufacturers:
1. BEST, dormakaba Group: [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
  2. Substitutions: Not permitted.
- B. Properties:
1. Power Supply Units: Manufacturer's standard.
    - a. Regulatory Compliance:
      - 1) United States Compliance:
        - (a) UL listed for Class II Output.
        - (b) Comply with UL 294 Standards incorporating enhanced Access Control communications capabilities.
      - 2) Canada Compliance:
        - (a) Comply with ULC S-319 Electronic Access Control Systems.
    - b. Enclosures: Lockable NEMA Type 1, with hinged cover and knockouts.
    - c. Power: 24 VAC, 10 Amp; field-selectable.
      - 1) Incoming Power Voltage: 120 VAC.
    - d. Emergency Release Terminals: Designed to release devices upon activation of fire alarm system.

- e. Auxiliary contacts for remote signaling.
  - f. User-selectable time delay from 0 to 4 minutes.
  - g. Fire Alarm System Interface: Standard.
    - 1) Fire alarm terminal with green LED indicating power is available.
  - h. Output Distribution Board with indicator LEDs.
  - i. On/Off LED power indicator.
  - 2. Power Transfers: Manufacturer's standard.
    - a. Mortised Type:
      - 1) Stainless steel housing and flexible tube.
      - 2) Accommodate 120 degree door swing.
    - b. Mortised Type with Wires & Connectors:
      - 1) Listed by UL and ULC.
      - 2) Stainless steel housing and spring conduit.
      - 3) Wire Harness: Pre-installed, twelve wire, equipped with ten (10) 24 gauge wires and two 18 gauge wires.
      - 4) Accommodate 180 degree door swing.
      - 5) Quick-Connect Plugs: Pre-installed.
  - 3. Wire Harnesses: Of sufficient length, with quick connectors.
    - a. Wire Harness End Connection to Power Supply or Junction Box: One end with bare leads.
- C. Products:
- 1. Power Supplies:
    - a. RPSMLR2.
  - 2. Power Transfers:
    - a. EPT-12C.
  - 3. Wire Harnesses:
    - a. BEST wire harnesses.

## 2.21 KEYS AND CORES

- A. Manufacturers:
  - 1. BEST, dormakaba Group: [www.bestaccess.com/#sle](http://www.bestaccess.com/#sle).
  - 2. Substitutions: Not permitted.
- B. Properties: Complying with guidelines of BHMA A156.28.
  - 1. Provide small format interchangeable core.
  - 2. Provide Patented CORMAX keys and cores.
  - 3. Provide keying information in compliance with DHI (KSN) standards.
  - 4. Keying Schedule: Arrange for a keying meeting, with Architect, Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying complies with project requirements.
  - 5. Keying: Master keyed.
  - 6. Include construction keying and control keying with removable core cylinders.
  - 7. Supply keys in following quantities:
    - a. Grand Master Keys: 1 each.
    - b. Master Keys: 4 each.
    - c. Construction Master Keys: 6 each.
    - d. Construction Keys: 15 each.
    - e. Construction Control Keys: 2 each.
    - f. Control Keys if New System: 2 each.
    - g. Change Keys: 2 each for each keyed core.
  - 8. Provide key collection envelopes, receipt cards, and index cards in quantity suitable to manage number of keys.
  - 9. Deliver keys with identifying tags to Owner by security shipment direct from manufacturer.

10. Permanent Keys and Cores: Stamped with applicable key marking for identification. Do not include actual key cuts within visual key control marks or codes. Stamp permanent keys "Do Not Duplicate."
11. Include installation of permanent cores and return construction cores to hardware supplier. Construction cores and keys to remain property of hardware supplier.

C. Products:

1. Patented:
  - a. CORMAX.

## **2.22 FINISHES**

- A. Finishes: Identified in Hardware Sets.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.
- B. Correct all defects prior to proceeding with installation.
- C. Verify that electric power is available to power operated devices and of correct characteristics.

### **3.02 INSTALLATION**

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Install hardware using the manufacturer's fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use "Riv-Nuts" or similar products.
- C. Install hardware on fire-rated doors and frames in accordance with applicable codes and NFPA 80.
- D. Install hardware for smoke and draft control doors in accordance with NFPA 105.
- E. Use templates provided by hardware item manufacturer.
- F. Do not install surface mounted items until application of finishes to substrate are fully completed.
- G. Wash down masonry walls and complete painting or staining of doors and frames.
- H. Complete finish flooring prior to installation of thresholds.
- I. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.
- J. Include in installation for existing doors and frames any necessary field modification and field preparation of doors and frames for new hardware. Provide necessary fillers, reinforcements, and fasteners for mounting new hardware and to cover existing door and frame preparations.

### **3.03 ADJUSTING**

- A. Adjust work under provisions of Section 017000 - Execution and Closeout Requirements.
- B. Adjust hardware for smooth operation.
- C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

### **3.04 CLEANING**

- A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

### **3.05 PROTECTION**

- A. Protect finished Work under provisions of Section 017000 - Execution and Closeout Requirements.
- B. Do not permit adjacent work to damage hardware or finish.

### 3.06 DOOR SCHEDULE

#### Manufacturer list

BES	BEST
PRE	BEST (Precision)
DK	dormakaba
DKA	dormakaba Architectural
NGP	National Guard Products
RCI	Rutherford Controls Inc
TRI	Trimco

#### Option list

Code:	Name:
B4E Heavy	Heavy Bevel Edges
C	Pre-Terminated Quick Connect Plug
CSK	Counter Sunk Holes
LAR	Length As Required
MLR	Motorized Latch Retraction
RQE	Request to Exit
S3	ANSI 4 7/8" Strike
TDS	Touchbar Monitoring Double Switch

#### Finish list

Code:	Name:
26D	Satin Chrome
28	Brushed Anodized Aluminum
626	Satin Chrome
630	Satin Stainless Steel
689	Aluminum
A	Anodized Aluminum
B	Brown

# Specification Report

## Set #1

6	Hinge	FBB168 45X45	26D	BES
2	Pull	1191 4	630	TRI
1	Exit Device	2803 C03	630	PRE
1	Exit Device	2802	630	PRE
1	Rim Cylinder	12E 7 2 PATD	626	BES
1	Magnetic Lock	8320	28	RCI
1	Door Closer	HD70 16 DS FPC SNDTPK	689	BES
1	Door Closer	HD70 16 AO8P FPC SNDTPK	689	BES
4	Kick Plate	KA050 36" X 1" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
2	Door Position Switch	By Access Control Provider		
1	Wall Stop	1270 WV	630	TRI
2	Card Reader	By Access Control Provider		

## Set #2

3	Hinge	FBB179 45X45	26D	BES
1	Exit Device	2103 4903 B	630	PRE
1	Rim Cylinder	12E 7 2 PATD	626	BES
1	Door Closer	HD70 16 AO8P FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Wall Stop	1270 WV	630	TRI
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI

## Set #3

1	Continuous Hinge	HD1400 EPT PREP	A	NGP
1	Power Transfer	EPT-12C		PRE
1	Exit Device	C MLR TDS 2103 4903 B	630	PRE
1	Rim Cylinder	12E 7 2 PATD	626	BES
1	Door Closer	HD70 16 AO8P FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Power Supply	RPSMLR2BB		PRE
1	Door Position Switch	By Access Control Provider		

1	Wiring Harness	WH-192P		BES
1	Wiring Harness	WH-38P		BES
1	Wiring Harness	WH-6E		BES
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI
1	Wall Stop	1270 WV	630	TRI
1	Card Reader	By Access Control Provider		

#### Set #4

3	Hinge	FBB179 45X45	26D	BES
1	Cylindrical Lock	9K 3 0 N 16 D S3	626	BES
1	Deadbolt	D9 71	626	DKA
1	Door Closer	HD70 16 AO8P FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Coat Hook	3072	630	TRI
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI

#### Set #5

3	Hinge	FBB179 45X45	26D	BES
1	Cylindrical Lock	9K 3 0 N 16 D S3	626	BES
1	Door Closer	HD70 16 AO8P FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI
1	Wall Stop	1270 WV	630	TRI

#### Set #6

3	Hinge	FBB179 45X45	26D	BES
1	Cylindrical Lock	9K 3 0 N 16 D S3	626	BES
1	Door Closer	HD70 16 IS FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI
1	Wall Stop	1270 WV	630	TRI

### Set #7

3	Hinge	FBB179 45X45	26D	BES
1	Cylindrical Lock	9K 3 0 N 16 D S3	626	BES
1	Overhead Stop	70 2 S	689	DK
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Coat Hook	3072	630	TRI
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI

### Set #8

3	Hinge	FBB179 45X45	26D	BES
1	Power Transfer	EPT-12C		PRE
1	Electromechanical Cylindrical Lock	9KW 3 7 DEU 16 D S3 C RQE PATD	626	BES
1	Door Closer	HD70 16 DS FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Power Supply	By Access Control Provider		
1	Door Position Switch	By Access Control Provider		
1	Wiring Harness	WH-192P		BES
1	Wiring Harness	WH-38P		BES
1	Wiring Harness	WH-6E		BES
1	Card Reader	By Access Control Provider		
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI

### Set #9

3	Hinge	FBB179 45X45	26D	BES
1	Power Transfer	EPT-12C		PRE
1	Electromechanical Cylindrical Lock	9KW 3 7 DEU 16 D S3 C RQE PATD	626	BES
1	Door Closer	HD70 16 AO8P FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Power Supply	By Access Control Provider		
1	Door Position Switch	By Access Control Provider		
1	Wiring Harness	WH-192P		BES

1	Wiring Harness	WH-38P		BES
1	Wiring Harness	WH-6E		BES
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI
1	Wall Stop	1270 WV	630	TRI
1	Card Reader	By Access Control Provider		

### Set #10

3	Hinge	FBB179 45X45	26D	BES
1	Power Transfer	EPT-12C		PRE
1	Electromechanical Cylindrical Lock	9KW 3 7 DEU 16 D S3 C RQE PATD	626	BES
1	Door Closer	HD70 16 IS FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Power Supply	By Access Control Provider		
1	Door Position Switch	By Access Control Provider		
1	Wiring Harness	WH-192P		BES
1	Wiring Harness	WH-38P		BES
1	Wiring Harness	WH-6E		BES
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI
1	Wall Stop	1270 WV	630	TRI
1	Card Reader	By Access Control Provider		

### Set #11

3	Hinge	FBB179 45X45	26D	BES
1	Cylindrical Lock	9K 3 7 AB 16 D S3 PATD	626	BES
1	Door Closer	HD70 16 AO8P FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI
1	Wall Stop	1270 WV	630	TRI

### Set #12

3	Hinge	FBB179 45X45	26D	BES
1	Cylindrical Lock	9K 3 7 D 16 D S3 PATD	626	BES
1	Door Closer	HD70 16 FH FPC SNDTPK	689	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI

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DOOR HARDWARE

1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI
1	Wall Stop	1270 WV	630	TRI

### Set #13

3	Hinge	FBB179 45X45	26D	BES
1	Cylindrical Lock	9K 3 7 R 16 D S3 PATD	626	BES
1	Kick Plate	K0050 10" X 2" LDW CSK B4E Heavy	630	TRI
1	Gasketing	5075 Head & Jambs (2)	B	NGP
1	Sweep	198N LAR	A	NGP
1	Mop Plate	KM050 6" X 1" LDW CSK B4E Heavy	630	TRI
1	Wall Stop	1270 WV	630	TRI

### Set #14

NOTE: All hardware devices to hang, secure, close, and gasket opening provided by door manufacturer.

### Set #15

1 MORTISE CYLINDER 1E 7 4 PATD 626 BES

NOTE: REMAINDER OF HARDWARE BY DOOR SUPPLIER. COORDINATE WITH DOOR SUPPLIER TO VERIFY QUANTITY / TYPE OF CYLINDERS REQUIRED.

**END OF SECTION**

**SECTION 08 8000  
GLAZING**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Insulating glass units.
- B. Glazing units to be installed in window opening or door assemblies.
- C. Fire-resistant rated and Fire-Protection rated glazing.
- D. Glazing compounds and accessories.
- E. Unframed glass or mirrors applied directly to wall surfaces.

**1.02 REFERENCE STANDARDS**

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.
- B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; 2010.
- C. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.
- D. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).
- E. ASTM C1036 - Standard Specification for Flat Glass; 2021.
- F. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.
- G. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass; 2015.
- H. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2015.
- I. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2012a.
- J. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.
- K. GANA (GM) - GANA Glazing Manual; 2009.
- L. GANA (SM) - GANA Sealant Manual; 2008.
- M. GANA (LGRM) - Laminated Glazing Reference Manual; 2009.
- N. ICC (IBC) - International Building Code; 2015.
- O. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use; 1990 (2004).
- P. ITS (DIR) - Directory of Listed Products; current edition.
- Q. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2012.
- R. NFPA 257 - Standard on Fire Test for Window and Glass Block Assemblies; 2012.
- S. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2014.
- T. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2014.
- U. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2014.
- V. UL (DIR) - Online Certifications Directory; current listings at [database.ul.com](http://database.ul.com).
- W. UL 9 - Standard for Fire Tests of Window Assemblies; Current Edition, Including All Revisions.

- X. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- Y. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- Z. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.

### **1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.

### **1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
- C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
- D. Samples: Submit one sample 12 by 12 inch in size of glass units.
- E. Certificate: Certify that products of this section meet or exceed specified requirements.
- F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

### **1.05 QUALITY ASSURANCE**

- A. Perform Work in accordance with GANA (GM), GANA (SM), GANA (LGRM), and IGMA TM-3000 for glazing installation methods. Maintain one copy on site.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years documented experience.

### **1.06 MOCK-UPS**

- A. Provide mock-up of window assembly including glass and air barrier and vapor retarder seal.

### **1.07 FIELD CONDITIONS**

- A. Do not install glazing when ambient temperature is less than 40 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

### **1.08 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.
- B. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Float Glass Manufacturers:
  - 1. AGC Glass North America, Inc: [www.agcglass.com/#sle](http://www.agcglass.com/#sle).
  - 2. Guardian Glass, LLC: [www.guardianglass.com/#sle](http://www.guardianglass.com/#sle).
  - 3. Pilkington North America Inc: [www.pilkington.com/na/#sle](http://www.pilkington.com/na/#sle).
  - 4. Vitro Architectural Glass (formerly PPG Glass): [www.vitroglazings.com/#sle](http://www.vitroglazings.com/#sle).
  - 5. Substitutions: Refer to Section 01 6000 - Product Requirements.
- B. Fire-Resistance-Rated and Fire-Protection-Rated Glass: Provide products as required to achieve indicated fire-rating period.

1. Manufacturers:
  2. SAFTIFIRST, a division of O'Keeffe's Inc; SuperLite II-XL: [www.safti.com/#sle](http://www.safti.com/#sle).
  3. Technical Glass Products; Pilkington Pyrostop: [www.fireglass.com/#sle](http://www.fireglass.com/#sle).
  4. Vetrotech North America; Contraflam: [www.vetrotechusa.com/#sle](http://www.vetrotechusa.com/#sle).
- C. Mirrored Glass Manufacturers:
1. Pilkington North America Inc; Pilkington Mirropane Transparent Mirror: [www.pilkington.com/na/#sle](http://www.pilkington.com/na/#sle).

## 2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

- A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
1. Design Pressure: Calculated in accordance with ASCE 7 or no less than as indicated on structural plans for building ultimate wind speed.
  2. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
  3. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/200 of their lengths under specified design load.
  4. Glass thicknesses listed are minimum.
- B. Vapor Retarder and Air Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier.
1. In conjunction with vapor retarder and joint sealer materials described in other sections.
  2. To utilize the inner pane of multiple pane insulating glass units for the continuity of the vapor retarder and air barrier seal.
- C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
  2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
  3. Solar Optical Properties: Comply with NFRC 300 test method.

## 2.03 GLASS MATERIALS

- A. Float Glass: Provide float glass based glazing unless otherwise indicated.
1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
  2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
  3. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
  4. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.
  5. Tinted Type: ASTM C1036, Class 2 - Tinted, with color and performance characteristics as indicated.
  6. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

## 2.04 INSULATING GLASS UNITS

- A. Manufacturers:
1. Any of the manufacturers specified for float glass.
  2. Substitutions: Refer to Section 01 6000 - Product Requirements.
- B. Insulating Glass Units: Types as indicated.
1. Durability: Certified by an independent testing agency to comply with ASTM E2190.

2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
  3. Metal Edge Spacers: Aluminum, bent and soldered corners.
  4. Spacer Color: Black.
  5. Edge Seal:
    - a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
  6. Color: Black.
  7. Purge interpane space with dry air, hermetically sealed.
- C. Type IG-1 - Insulating Glass Units: Vision glass, double glazed.
1. Applications: Typical all \_\_\_\_\_ Exterior glazing locations unless specifically noted otherwise.
  2. Space between lites filled with air.
  3. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    - a. Tint: Clear.
    - b. Coating: \_\_\_\_\_ Vitro SolarBan 60 Optiblue, on #2 surface.
  4. Inboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    - a. Tint: Clear.
  5. Total Thickness: 1 inch.
  6. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.29, nominal.
  7. Visible Light Transmittance (VLT): 51 percent, nominal.
  8. Solar Heat Gain Coefficient (SHGC): 0.35, nominal.
- D. Type IG-2 - Insulating Glass Units: Spandrel glazing.
1. Applications: Exterior spandrel glazing unless otherwise indicated.
  2. Space between lites filled with air.
  3. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    - a. Tint: Clear.
    - b. Coating: Same as on vision units, on #2 surface.
  4. Inboard Lite: Heat-strengthened float glass, 1/4 inch thick.
    - a. Opacifier: Ceramic frit, on #4 surface.
    - b. Opacifier Color: to be selected by Architect.
    - c. Opacifier may be exposed on interior; apply sufficient coats of opacifier to achieve 100% even spaced coverage when viewed from interior.
  5. Total Thickness: 1 inch.
  6. Glazing Method: Dry glazing method, gasket glazing.
- E. Type IG-3 - Insulating Glass Units: Safety glazing.
1. Applications: provide this type of glazing in the following locations:
    - a. Glazed lites in all exterior doors.
    - b. Glazed sidelights and panels next to doors.
    - c. Other locations required by applicable federal, state, and local codes and regulations.
    - d. Other locations indicated on drawings.
  2. Space between lites filled with air.
  3. Glass Type: Same as other vision glazing except use fully tempered float glass for both outboard and inboard lites.

## 2.05 GLAZING UNITS

- A. Type G-2 - Monolithic Interior Vision Glazing:
1. Applications: Typical Interior glazing unless otherwise indicated.
  2. Glass Type: Annealed float glass.
  3. Tint: Clear.

4. Thickness: 1/4 inch, nominal.
  5. Glazing Method: Dry glazing method, gasket glazing.
- B. Type G-3 - Fire-Resistance-Rated Glazing: Type, thickness, and configuration of glazing that contains flame, smoke, and blocks radiant heat, as required to achieve indicated fire-rating period exceeding 45 minutes.
1. Applications:
    - a. Glazing in fire-rated door and window assemblies.
    - b. Glazing in sidelites, borrowed lites, and other glazed openings in fire-rated wall assemblies.
  2. Glass Type: Multi-laminate annealed glass with intumescent fire retardant interlayers, or other pre-approved type that meets rating and testing requirements.
  3. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.
  4. Safety Glazing Certification: 16 CFR 1201 Category II.
  5. Glazing Method: As required for fire rating.
  6. Fire-Rating Period: 60 minutes or greater as required by drawings.
  7. Markings for Fire-Resistance-Rated Glazing Assemblies: Provide permanent markings on fire-resistance-rated glazing in compliance with ICC (IBC), local building code, and authorities having jurisdiction.
    - a. "W" - meets wall assembly criteria of ASTM E119 or UL 263 fire test standards.
    - b. "D" - meets fire door assembly criteria of NFPA 252, UL 10B, or UL 10C fire test standards.
    - c. "H" - meets fire door assembly hose stream test of NFPA 252, UL 10B, or UL 10C fire test standards.
    - d. "T" - meets temperature rise of not more than 450 degrees F above ambient at end of 30 minutes fire exposure in accordance with NFPA 252, UL 10B, or UL 10C fire test standards.
    - e. "XXX" - placeholder that represents fire-rating period, in minutes.
- C. Type G-4 - Fire-Protection-Rated Glazing: Type, thickness, and configuration of glazing that contains flame, smoke, and does not block radiant heat, as required to achieve fire-doors indicated fire-rating period of 45 minutes or less.
1. Applications:
    - a. Glazing in fire-rated door and window assemblies.
    - b. Other locations as indicated on drawings.
  2. Glass Type: Specialty tempered float glass with modifications such as surface applied films as necessary or required.
  3. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.
  4. Safety Glazing Certification: 16 CFR 1201 Category II.
  5. Glazing Method: As required for fire rating.
  6. Fire-Rating Period: 45 minutes or less as indicated on drawings.
  7. Markings for Fire-Protection-Rated Glazing Assemblies: Provide permanent markings on fire-protection-rated glazing in compliance with ICC (IBC), local building code, and authorities having jurisdiction
    - a. "D" - meets fire door assembly criteria of NFPA 252, UL 10B, or UL 10C fire test standards.
    - b. "OH" - meets fire window assembly criteria including hose stream test of NFPA 257, or UL 9 fire test standards.
    - c. "H" - meets fire door assembly hose stream test of NFPA 252, UL 10B, or UL 10C fire tests standards.
    - d. "XXX" - placeholder that represents fire-rating period, in minutes.
- D. Type G-5 - Monolithic Safety Glazing: Non-fire-rated.
1. Applications: Provide this type of glazing in the following locations, non-fire rated:

- a. Glazed lites in interior doors and sidelights.
- b. Other locations required by applicable federal, state, and local codes and regulations.
- c. Other locations indicated on drawings.
- 2. Glass Type: Fully tempered safety glass as specified.
- 3. Tint: Clear or as indicated.
- 4. Thickness: 1/4 inch, nominal.
- E. Type M-1 - Clear, tempered safety glass; ASTM C1048, with copper and silver coatings, and protective overcoating.
  - 1. Applications: Locations as indicated on drawings.
  - 2. Thickness: 1/4 inch.
  - 3. Glass Tint: None..
  - 4. Glass Type: Fully tempered.

## **2.06 GLAZING COMPOUNDS**

- A. Manufacturers:
  - 1. BASF Corporation: [www.basf.com/#sle](http://www.basf.com/#sle).
  - 2. Dow Corning Corporation: [www.dowcorning.com/construction/#sle](http://www.dowcorning.com/construction/#sle).
  - 3. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
  - 4. Substitutions: Refer to Section 01 6000 - Product Requirements.

## **2.07 ACCESSORIES**

- A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.
- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
- D. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.
- E. Glazing Clips: Manufacturer's standard type.
- F. Mirror Adhesive: Chemically compatible with mirror coating and wall substrate.

## **PART 3 EXECUTION**

### **3.01 VERIFICATION OF CONDITIONS**

- A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

### **3.02 PREPARATION**

- A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

### **3.03 INSTALLATION, GENERAL**

### **3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)**

- A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building. Follow window assembly manufacturer instructions for placement of glazing.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact. Apply sealant at corners as necessary to ensure gasket has full contact.

### **3.05 INSTALLATION - DRY GLAZING METHOD (TAPE AND TAPE)**

- A. Application - Interior Glazed: Set glazing infills from the interior of the building.
- B. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
- C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- D. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
- E. Place glazing tape on free perimeter of glazing in same manner described above.
- F. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact. Apply sealant at corners as necessary to ensure gasket has full contact.
- G. Carefully trim protruding tape with knife.

### **3.06 INSTALLATION - MIRRORS**

- A. Install mirrors in accordance with GANA (TIPS) and manufacturers recommendations.
- B. Set mirrors plumb and level, and free of optical distortion.
- C. Set mirrors with edge clearance free of surrounding construction including countertops or backsplashes.

### **3.07 CLEANING**

- A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
- B. Remove non-permanent labels immediately after glazing installation is complete.
- C. Clean glass and adjacent surfaces after sealants are fully cured.
- D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

### **3.08 PROTECTION**

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.
- B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

**END OF SECTION**

**SECTION 09 0561  
COMMON WORK RESULTS FOR FLOORING PREPARATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
  - 1. Resilient tile and sheet.
  - 2. Broadloom carpet.
  - 3. Carpet tile.
  - 4. Thin-set ceramic tile and stone tile.
- B. Removal of existing floor coverings.
- C. Preparation of new and existing concrete floor slabs for installation of floor coverings.
- D. Testing of concrete floor slabs for moisture and alkalinity (pH).
- E. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
  - 1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.
- F. Patching compound.
- G. Remedial floor coatings.
- H. Remedial floor sheet membrane.

**1.02 REFERENCE STANDARDS**

- A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2013.
- B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 1999 (Reapproved 2014).
- C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.
- D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2011.
- E. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2011.
- F. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute; October 2011.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

**1.04 SUBMITTALS**

- A. Visual Observation Report: For existing floor coverings to be removed.
- B. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
  - 1. Moisture and alkalinity (pH) limits and test methods.
  - 2. Manufacturer's required bond/compatibility test procedure.
- C. Testing Agency's Report:
  - 1. Description of areas tested; include floor plans and photographs if helpful.
  - 2. Summary of conditions encountered.

3. Moisture and alkalinity (pH) test reports.
  4. Copies of specified test methods.
  5. Recommendations for remediation of unsatisfactory surfaces.
  6. Product data for recommended remedial coating.
  7. Submit report to Architect.
  8. Submit report not more than two business days after conclusion of testing.
- D. Adhesive Bond and Compatibility Test Report.
- E. Copy of RFCI (RWP).

#### **1.05 QUALITY ASSURANCE**

- A. Moisture and alkalinity (pH) testing will be performed by an independent testing agency employed and paid by Owner.
- B. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.
- C. Contractor's Responsibility Relating to Independent Agency Testing:
1. Provide access for and cooperate with testing agency.
  2. Confirm date of start of testing at least 10 days prior to actual start.
  3. Allow at least 4 business days on site for testing agency activities.
  4. Achieve and maintain specified ambient conditions.
  5. Notify Owner when specified ambient conditions have been achieved and when testing will start.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, handle, and protect products in accordance with manufacturer's instructions and recommendations.
- B. Deliver materials in manufacturer's packaging; include installation instructions.
- C. Keep materials from freezing.

#### **1.07 FIELD CONDITIONS**

- A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.
- B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
  2. Latex or polyvinyl acetate additions are permitted; gypsum content is prohibited.
  3. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
- B. Remedial Floor Coating: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.

1. Thickness: 1/8 inch, maximum.
2. Products:
  - a. ARDEX Engineered Cements; ARDEX MC RAPID: [www.ardexamericas.com/#sle](http://www.ardexamericas.com/#sle).
  - b. Floor Seal Technology, Inc; MES 100 with Floor Seal FloorCem SLU: [www.floorseal.com/#sle](http://www.floorseal.com/#sle).
  - c. Sika Corporation; Sikafloor Moisture Tolerance Epoxy Primer and Sikafloor Self-Leveling Moisture Tolerant Resurfacer: [www.sikafloorusa.com/#sle](http://www.sikafloorusa.com/#sle).
  - d. Tnemec Company, Inc; Series 208 Epoxoprime MVT: [www.tnemec.com/#sle](http://www.tnemec.com/#sle).
- C. Remedial Floor Sheet Membrane: Pre-formed multi-ply sheet membrane installed over concrete subfloor and intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
  1. Thickness: 28 mil (0.028 inch).
  2. Tape: Types recommended by underlayment manufacturer to install membrane and cover seams.
  3. Products:
    - a. GCP Applied Technologies; Kovara MBX: [www.gcpat.com/#sle](http://www.gcpat.com/#sle).
    - b. Substitutions: See Section 01 6000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 CONCRETE SLAB PREPARATION**

- A. Perform following operations in the order indicated:
  1. Preliminary cleaning.
  2. Moisture vapor emission tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.
  3. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  4. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  5. Specified remediation, if required.
  6. Patching, smoothing, and leveling, as required.
  7. Other preparation specified.
  8. Adhesive bond and compatibility test.
  9. Protection.
- B. Remediations:
  1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.
  2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating or remedial sheet membrane over entire suspect floor area.
  3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

### **3.02 REMOVAL OF EXISTING FLOOR COVERINGS**

- A. Comply with local, State, and federal regulations and recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings, as applicable to floor covering being removed.

- B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

### **3.03 PRELIMINARY CLEANING**

- A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.
- B. Do not use solvents or other chemicals for cleaning.

### **3.04 MOISTURE VAPOR EMISSION TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F1869 and as follows.
- D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet per 24 hours.
- F. Report: Report the information required by the test method.

### **3.05 INTERNAL RELATIVE HUMIDITY TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F2170 Procedure A and as follows.
- D. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.
- F. Report: Report the information required by the test method.

### **3.06 ALKALINITY TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.
  - 1. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.
  - 2. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.
  - 3. Use of a digital pH meter with probe is acceptable; follow meter manufacturer's instructions.

- C. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

### **3.07 PREPARATION**

- A. See individual floor covering section(s) for additional requirements.
- B. Comply with requirements and recommendations of floor covering manufacturer.
- C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- D. Do not fill expansion joints, isolation joints, or other moving joints.

### **3.08 ADHESIVE BOND AND COMPATIBILITY TESTING**

- A. Comply with requirements and recommendations of floor covering manufacturer.

### **3.09 APPLICATION OF REMEDIAL FLOOR COATING**

- A. Comply with requirements and recommendations of coating manufacturer.

### **3.10 INSTALLATION OF REMEDIAL FLOOR SHEET MEMBRANE**

- A. Install in accordance with sheet membrane manufacturer's instructions.

**END OF SECTION**

**SECTION 09 2116  
GYPSUM BOARD ASSEMBLIES**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Performance criteria for gypsum board assemblies.
- B. Metal partition and soffit framing.
- C. Metal channel ceiling framing.
- D. Acoustic insulation.
- E. Cementitious backing board.
- F. Gypsum wallboard.
- G. Joint treatment and accessories.
- H. Framing Accessories.

**1.02 REFERENCE STANDARDS**

- A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.
- B. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.
- C. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.
- D. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.
- E. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.
- F. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2015.
- G. 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; 2014.
- H. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2014a.
- I. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.
- J. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels; 2013.
- K. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.
- L. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- M. ASTM E413 - Classification for Rating Sound Insulation; 2010.
- N. GA-216 - Application and Finishing of Gypsum Board; 2013.
- O. GA-600 - Fire Resistance Design Manual; 2015.
- P. UL (FRD) - Fire Resistance Directory; current edition.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.
  - 1. Indicate special details associated with fireproofing and acoustical seals.

2. Indicate component details, stud layout, framed openings, anchorage to structure, acoustic details, type and location of fasteners, accessories, and items of other related work.
  3. Describe method for securing studs to track, splicing, and for blocking and reinforcing of framing connections.
  4. Provide partition legend indicating proposed assembly components at each partition type.
- C. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system. Include framing load charts and limitations.
- D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- E. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

#### **1.04 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of documented experience.

#### **1.05 MOCK-UP**

- A. Provide mock-up of stud wall, ceiling, and soffit framing including insulation, sheathing, window frame, and door frame and finish specified in other sections. Coordinate installation of associated work specified in other sections.
1. Mock-up may remain part of finish work.

### **PART 2 PRODUCTS**

#### **2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
1. See PART 3 for finishing requirements.
- B. Interior Partitions, Indicated as Acoustic and/or STC on partition schedule: Provide completed assemblies with the following characteristics:
1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
  2. Treat all penetrations and perimeters of wall assembly with acoustical sealant, both sides of wall.
- C. Shaft Walls at HVAC Shafts: Provide completed assemblies with the following characteristics:
1. Air Pressure Within Shaft: Sustained loads of 5 lbf/sq ft with maximum mid-span deflection of L/240.
  2. Acoustic Attenuation: STC of 35-39 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- D. Shaft Walls at Elevator Shafts: Provide completed assemblies with the following characteristics:
1. Air Pressure Within Shaft: Intermittent loads of 5 lbf/sq ft with maximum mid-span deflection of L/240.
  2. Acoustic Attenuation: STC of 35-39 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- E. Fire Rated Assemblies: Provide completed assemblies as indicated on partition schedule and complying with applicable code.
1. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL (FRD).

#### **2.02 METAL FRAMING MATERIALS**

- A. Manufacturers - Metal Framing, Connectors, and Accessories:
1. ClarkDietrich: [www.clarkdietrich.com/#sle](http://www.clarkdietrich.com/#sle).

2. Marino: [www.marinoware.com/#sle](http://www.marinoware.com/#sle).
  3. Phillips Manufacturing Co: [www.phillipsmfg.com/#sle](http://www.phillipsmfg.com/#sle).
  4. Substitutions: See Section 01 6000 - Product Requirements.
- B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf, with steel thickness not less than 20 gauge (30 mils). Adjust steel thickness to comply with deflection with stud heights. Walls with tile or masonry veneer, comply with deflection of wall framing of L/360 at 5psf.
1. Studs: "C" shaped with knurled or embossed faces.
  2. Runners: U shaped, sized to match studs.
  3. Ceiling Channels: C-shaped.
  4. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch.
- C. Shaft Wall Studs and Accessories: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 and specified performance requirements.
- D. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.
- E. Tracks and Runners: Same material and thickness as studs, bent leg retainer notched to receive studs.
- F. Furring and Bracing Members: Of same material as studs; thickness to suit purpose; complying with applicable requirements of ASTM C754.
- G. Metal Framing Fasteners: ASTM C1002 self-piercing tapping screws.
- H. Sheet Metal Backing: 0.036 inch thick, galvanized.
- I. Partial Height partitions: Use steel wall stiffeners bolted to floor surface and stud framing at 48" o.c., minimum of two per wall. Provide No-Flex Stud Stiffeners, or approved equal. [www.noflex.com](http://www.noflex.com).

### 2.03 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
1. American Gypsum Company: [www.americangypsum.com/#sle](http://www.americangypsum.com/#sle).
  2. Georgia-Pacific Gypsum: [www.gpgypsum.com/#sle](http://www.gpgypsum.com/#sle).
  3. National Gypsum Company: [www.nationalgypsum.com/#sle](http://www.nationalgypsum.com/#sle).
  4. Temple-Inland Building Product by Georgia-Pacific, LLC: [www.temple.com](http://www.temple.com).
  5. USG Corporation: [www.usg.com/#sle](http://www.usg.com/#sle).
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Use for standard vertical surfaces and ceilings, unless otherwise indicated.
  2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
    - a. Mold-resistant board is required whenever board is being installed before the building is enclosed and conditioned.
    - b. Mold resistant board is required at all toilet rooms, janitor closets, laundry rooms, kitchen and similar wet areaat all wet locations such as: Locker, shower, toilet rooms, kitchens, janitor closets, etc and behind plumbing fixtures locations. Also refer to partition schedule and locations otherwise noted.
  3. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
  4. Thickness:
    - a. Vertical Surfaces: 5/8 inch.
    - b. Ceilings: 5/8 inch., sag resistant.
  5. Paper-Faced Products:
    - a. American Gypsum Company; LightRoc Gypsum Wallboard.

- b. Georgia-Pacific Gypsum; ToughRock.
- c. Georgia-Pacific Gypsum; ToughRock Fireguard X.
- d. Georgia-Pacific Gypsum; ToughRock Fireguard C.
- e. Substitutions: See Section 01 6000 - Product Requirements.
- 6. Mold Resistant Paper Faced Products:
  - a. American Gypsum Company; M-Bloc.
  - b. Continental Building Products; Mold Defense Type X.
  - c. Georgia-Pacific Gypsum; ToughRock Mold-Guard.
  - d. Georgia-Pacific Gypsum; ToughRock Fireguard X Mold-Guard.
  - e. National Gypsum Company; Gold Bond XP Gypsum Board.
  - f. Lafarge North America Inc; Mold Defense Drywall.
  - g. National Gypsum Company; Gold Bond Brand XP Gypsum Board.
  - h. Temple-Inland Building Product by Georgia-Pacific, LLC; ComfortGuard Mold Resistant Gypsum Board.
  - i. USG Corporation; Sheetrock Brand Mold Tough Gypsum Panels.
- C. Tile Backer Board: As specified in section 09 3000.
- D. Exterior Sheathing Board: As specified in Section 06 1000.
- E. Shaftwall and Coreboard: Type X; 1 inch thick by 24 inches wide, beveled long edges, ends square cut.
  - 1. Glass Mat Faced Type: Glass mat shaftliner gypsum panel or glass mat coreboard gypsum panel as defined in ASTM C1658/C1658M.
  - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

#### **2.04 GYPSUM WALLBOARD ACCESSORIES**

- A. Acoustic Insulation: As specified in Section 07 2100.
- B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
- C. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
- D. Water-Resistive Barrier: As specified in Section 07 2500.
- E. Finishing Accessories: ASTM C1047, galvanized steel, pre-approved rigid plastic, rolled zinc, pre-approved rigid plastic, or pre-approved rigid plastic, unless noted otherwise.
  - 1. Types: As detailed or required for finished appearance.
  - 2. Special Shapes: In addition to conventional corner bead and control joints, provide U-bead at exposed panel edges.
  - 3. Products:
    - a. Phillips Manufacturing Co: [www.phillipsmfg.com/#sle](http://www.phillipsmfg.com/#sle).
    - b. Trim-tex, Inc: [www.trim-tex.com/#sle](http://www.trim-tex.com/#sle).
    - c. Fry Reglet Corporation; [www.fryreglet.com](http://www.fryreglet.com)
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- F. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
  - 1. Fiberglass Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
  - 2. Paper Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
  - 3. Joint Compound: Drying type, vinyl-based, ready-mixed.
  - 4. Joint Compound: Setting type, field-mixed.
- G. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.

- H. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

## **2.05 FABRICATION**

- A. Fabricate assemblies of framed sections to sizes and profiles required.
- B. Fit, reinforce, and brace framing members to suit design requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that project conditions are appropriate for work of this section to commence.
- B. Verify existing conditions before starting work.
- C. Verify that rough-in utilities are in proper location.

### **3.02 SHAFT WALL INSTALLATION**

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
  - 1. Fasten runners to structure with short leg to finished side, using appropriate power-driven fasteners at not more than 24 inches on center.
  - 2. Install studs at spacing required to meet performance requirements.
- B. Shaft Wall Liner: Cut panels to accurate dimensions and install sequentially between special friction studs.
  - 1. On walls over sixteen feet high, screw-attach studs to runners top and bottom.
  - 2. Seal perimeter of shaft wall and penetrations with acoustical sealant.

### **3.03 FRAMING INSTALLATION**

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members at 16 inches on center.
  - 1. Laterally brace entire suspension system.
- C. Studs: Space studs at 16 inches on center or as otherwise scheduled.
  - 1. Extend partition framing to structure in all locations or as otherwise specifically noted on partition schedule.
  - 2. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging.
  - 3. Align stud web openings horizontally.
  - 4. Secure studs to track using fastener method. Do not weld.
  - 5. Stud splicing is not permissible.
  - 6. Fabricate corners using a minimum of three studs.
- D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jamb, not more than 2 inches from each side of opening. Refer to framing details on plans.
- E. Standard Wall Furring: Install at concrete walls scheduled to receive gypsum board, not more than 4 inches from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches on center.
  - 1. Orientation: Horizontal.
  - 2. Spacing: As indicated.
- F. Acoustic Furring: Install resilient channels at maximum 24 inches on center. Locate joints over framing members.
- G. Furring for Fire-Resistance Ratings: Install as required for fire-resistance ratings indicated and to GA-600 requirements.

- H. Blocking: Coordinate installed bucks, support systems, anchors and blocking with electrical, mechanical and other work to be placed within or behind stud framing. Install wood blocking for support of:
  - 1. Wall-mounted cabinets.
  - 2. Plumbing fixtures.
  - 3. Toilet partitions.
  - 4. Toilet accessories.
  - 5. Wall-mounted door hardware.

#### **3.04 CEILING AND SOFFIT FRAMING**

- A. Install furring after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.
- B. Install furring independent of walls, columns, and above-ceiling work.
- C. Securely anchor hangers to structural members or embed in structural slab. Space hangers as required to limit deflections to criteria indicated. Use rigid hangers at exterior soffits.
- D. Space main carrying channels at maximum 72 inch on center, and not more than 6 inches from wall surfaces. Lap splice securely.
- E. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.
- F. Place furring channels perpendicular to carrying channels, not more than 2 inches from perimeter walls and rigid secure. Lap splices securely.
- G. Laterally brace suspension system.

#### **3.05 ACOUSTIC ACCESSORIES INSTALLATION**

- A. Install insulation material type as indicated in 07 2100 into partition cavities.
- B. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions. At locations in stud cavities not covered by sheetrock, install strapping or retainer wires to hold insulation in place.
- C. Acoustic Sealant: Install in accordance with manufacturer's instructions.
  - 1. Place one bead continuously on substrate before installation of perimeter framing members.
  - 2. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

#### **3.06 BOARD INSTALLATION**

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
- C. Double-Layer, Nonrated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Use glass mat faced gypsum board at exterior walls and at other locations as indicated. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.
- D. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- E. Mold Resistant Gypsum Board: Use at all wall and ceiling surfaces in toilet rooms, janitor closets, laundry rooms, kitchens, and similar wet areas not indicated to receive wall tile.
  - 1. At single plumbing fixtures locations: Install from floor to 24 inches vertically above fixture and 12 inches horizontally past edge of fixture.

- F. Tile Backer Board: Install at all locations scheduled to receive tile. Seal all joints penetrations through backer board with sealant. Install in accordance with ANSIO A108.11 and manufacturer's instructions.
- G. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of nonrated double-layer assemblies, which may be installed by means of adhesive lamination.
- H. Moisture Protection: Treat cut edges and holes in moisture resistant gypsum board and exterior gypsum soffit board with sealant.

### **3.07 INSTALLATION OF TRIM AND ACCESSORIES**

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
  1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
  2. Not more than 30 feet apart on ceiling over 50 feet long and/or where framing changes directions.
  3. At exterior soffits, not more than 30 feet apart in both directions.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.
- D. Exterior Soffit Vents: Install according to manufacturer's written instructions and in locations indicated on the drawings. Provide vent area specified or no less than 1/150 of area vented.

### **3.08 JOINT TREATMENT**

- A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, embed and finish with setting type joint compound.
- B. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.
- C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
  1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish, walls behind specialty dry-erase coatings and other areas specifically indicated.
  2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
  3. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
  4. Level 1: Wall areas above finished ceilings, whether or not accessible in the completed construction. Installation must conform to UL or STC ratings at Fire Rated and Acoustical Partitions.
- D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  1. Feather coats of joint compound so that camber is maximum 1/32 inch.
  2. Taping, filling, and sanding are not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.
  3. Taping, filling and sanding is not required at base layer of double layer applications, unless required by UL fire resistance rating.
- E. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

### **3.09 QUALITY CONTROL**

- A. Prior to installation of wall board on stud walls, coordinate review with Architect and AHJ inspections and approvals.
- B. Prior to covering up with suspended ceilings, coordinate above ceiling review with Architect. Review to observe installation of acoustical sealant, fire wall installation and labels, mechanical equipment installation and clearances, etc. Coordinate with AHJ inspections and approvals.

### **3.10 TOLERANCES**

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

**END OF SECTION**

**SECTION 09 5100  
ACOUSTICAL CEILINGS**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

**1.02 REFERENCE STANDARDS**

- A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- B. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2014.
- C. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2013a.
- D. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2013.
- E. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2014.
- F. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2014.
- G. UL (FRD) - Fire Resistance Directory; current edition.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Sequence 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.
- B. Do not install acoustical units until after interior wet work is dry.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate grid layout and related dimensioning.
- C. Product Data: Provide data on suspension system components and acoustical units.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Acoustical Units: Provide two unopened cartons of each type of ceiling tile if different from campus standard. Confirm campus standards with architect..

**1.05 QUALITY ASSURANCE**

- A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

**1.06 FIELD CONDITIONS**

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Acoustic Tiles/Panels:

1. Armstrong World Industries, Inc; Basis of Design: [www.armstrongceilings.com/#sle](http://www.armstrongceilings.com/#sle).
2. USG Corporation: [www.usg.com/ceilings/#sle](http://www.usg.com/ceilings/#sle).
3. Rockfon: [www.rockfon.com](http://www.rockfon.com).
4. Substitutions: See Section 01 6000 - Product Requirements.

- B. Suspension Systems:
1. Same as for acoustical units.

## 2.02 ACOUSTICAL UNITS

- A. Acoustical Tiles, Type ACT-1: Painted mineral fiber, with the following characteristics:
1. Product: Armstrong Ultima High NRC
  2. Item Number: 2081
  3. Classification: ASTM E1264 Class A.
  4. Size: 24 by 24 inches.
  5. Thickness: 1 inch.
  6. Composition: Match surrounding spaces.
  7. Light Reflectance: 85 percent, determined in accordance with ASTM E1264.
  8. NRC: 0.85, determined in accordance with ASTM E1264.
  9. Ceiling Attenuation Class (CAC): 35, determined in accordance with ASTM E1264.
  10. Panel Edge: Beveled Tegular.
  11. Color: White
  12. Suspension System Type[Prelude XL 15/16"]: Exposed grid.
- B. Acoustical Tiles, Type ACT-02: Painted mineral fiber, with the following characteristics:
1. Product: Armstrong Ultima Healthzone High NRC.
  2. Item: 1447
  3. Classification: ASTM E1264 Type A.
  4. Size: 24 by 24 inches.
  5. Thickness: 7/8 inches.
  6. Light Reflectance: 0.86 percent, determined in accordance with ASTM E1264.
  7. NRC: 0.80, determined in accordance with ASTM E1264.
  8. Ceiling Attenuation Class (CAC): 35, determined in accordance with ASTM E1264.
  9. Panel Edge: Beveled Tegular.
  10. Color: White.
  11. Suspension System Type 15/16" Prelude XL: Exposed grid.

## 2.03 SUSPENSION SYSTEM(S)

- A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

## 2.04 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Hanger Wire: 12-gage 0.08 inch galvanized steel wire.
- C. Perimeter Moldings: Same metal and finish as grid.
1. Angle Molding: L-shaped, for mounting at same elevation as face of grid.
- D. Acoustical Insulation: Specified in Section 07 2100.
1. Thickness: 2 inch.
  2. Size: To fit acoustical suspension system.
- E. Gypsum Board: Fire rated type; 5/8 inch thick, ends and edges square, paper faced.
- F. Acoustical Sealant For Perimeter Moldings: Specified in Section 07 9005.
- G. Touch-up Paint: Type and color to match acoustical ceiling tiles and grid units.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Coordinate and verify that layout of hangers will not interfere with other work.

### **3.02 INSTALLATION - SUSPENSION SYSTEM**

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, ASTM C636/C636M, ASTM E580/E580M, ASTM C636/C636M, and ASTM E580/E580M and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
  - 1. Use longest practical lengths.
- D. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- H. Do not eccentrically load system or induce rotation of runners.

### **3.03 INSTALLATION - ACOUSTICAL UNITS**

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- E. Cutting Acoustical Units:
  - 1. Make field cut edges of same profile as factory edges.
  - 2. Double cut and field paint exposed reveal edges.
- F. Where round obstructions occur, provide preformed closures to match perimeter molding.
- G. At partitions that extend only to underside of ceiling grid, lay acoustical insulation for a distance of 48 inches either side of acoustical partitions.
- H. Install hold-down clips on each panel to retain panels tight to grid system; comply with fire rating requirements.

### **3.04 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.

**END OF SECTION**

**SECTION 09 5423  
LINEAR METAL CEILINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Linear, formed metal panels.
  - 1. Suspended metal support system and perimeter trim.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 5100 - Interior Lighting: Light fixtures.

**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- C. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2009a.
- D. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2013.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- F. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2014.

**1.04 DESIGN REQUIREMENTS**

- A. Design components to ensure light fixtures will not induce eccentric loads. Where components may induce rotation of ceiling system components, provide stabilizing reinforcement.

**1.05 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination: Coordinate work of this section with installation of mechanical and electrical components and with other construction activities affected by work of this section.

**1.06 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Furnish for component profiles.
- C. Shop Drawings: Indicate reflected ceiling plan.
- D. Samples: Submit two samples 6 by \_\_\_ inch in size illustrating color and finish of exposed to view components.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Supply additional material (full-size ceiling panels) equal to 5% of ceiling area. Additional material should match Products installed and have the appropriate labels and identification.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Accept factory-finished products on site in manufacturer's unopened factory packaging only; reject opened packages.
- B. Protect factory-finished products from damage to appearance by storing products in manufacturer's unopened factory packaging in dry storage area.

**1.08 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.

- B. Provide five year manufacturer warranty; include coverage for corrosion resistance and discoloration of surface finish.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Linear Metal Ceilings:
  - 1. Rockfon, LLC; Basis of Design: [www.rockfon.com/#sle](http://www.rockfon.com/#sle).
  - 2. USG Corporation; Paraline Linear Metal System: [www.usg.com/ceilings/#sle](http://www.usg.com/ceilings/#sle).
  - 3. Armstrong Ceilings: <https://www.armstrongceilings.com/commercial/en/>.
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 LINEAR METAL CEILINGS**

- A. Linear Metal Ceiling System: Panels, suspension members, trim, and accessories as required to provide a complete system.
- B. Performance Requirements:
  - 1. Design to support imposed loads of indicated items without eccentric loading of supports.
  - 2. Design for maximum deflection of 1/360 of span.

### **2.03 COMPONENTS**

- A. Linear Metal Panels: Type WD CLG. Linear Metal Ceiling System, PLANAR LINEAR CEILINGS by Rockfon with following characteristics:
  - 1. Surface: Smooth.
  - 2. Composition: L Metal.
  - 3. Material: 0.024" Aluminum.
  - 4. Edges: Square.
  - 5. Profile Size: 4 inches.
  - 6. Color: 655R - Bamboo.
  - 7. Filler: Recessed.
  - 8. Recycled Content: up to 85%.
- B. Accessories:
  - 1. Planar Filler Strips (Recessed): Manufactured from aluminum 3/4 inch wide by 144 inches long coated to match panel with linear metal panels.
  - 2. Panel Splices: Manufactured from 0.025" thick aluminum 8 3/4 inches long coated with black baked-on polyester enamel, with profile compatible with linear panels.
  - 3. End Plugs: Manufactured from 0.025" thick aluminum with square edges. Coated identical to linear metal panels.
  - 4. Access Doors: manufactured from galvanized steel with square edges. Coated identical to linear metal panels.
  - 5. Perimeter Trim:
    - a. Rockfon Infinity: extruded aluminum perimeter trim.
    - b. Planar Wall Channel: Manufactured from 0.025" thick aluminum 1-13/16" I.C. by 1-7/8" inch top flange by 1 inch bottom flange by 120 inches long. Coated identical to linear metal panels.
    - c. Wall Angle: Manufactured from 0.025" thick aluminum 15/16 inch wide by 3/4 inch high by 144 inches long with hemmed edges.
- C. Suspension System
  - 1. Symmetrical Carrier:
    - a. Manufactured to an inverted "U" shape from 0.040" aluminum 144 inches long. Coated with black polyester enamel.
    - b. Slotted at appropriate intervals to receive stabilizing components as described below.
  - 2. Stabilizers Bars: Manufactured from 0.025" thick aluminum length as recommended by manufacture. Coated with black polyester enamel.

3. Radius Carrier: Manufactured to an inverted "U" shape from 0.040" thick aluminum 144" inches long with integral carrier tabs, painted black.
  4. T-Bar Carrier: Manufactured from 0.015 galvanized steel, 1-1/2" in height, with 15/16" face, with carrier tabs extending downward to accept panel installation, painted black.
  5. Cross Tees: Manufactured from galvanized steel, 1-1/2" in height, 15/16" face, black.
- D. Acoustical Material
1. Blanket type black vinyl faced one side 1 inches by 1 pounds per cubic foot density with 0.80 NRC.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.
- C. Verify that required utilities are available, in proper location, and ready for use.
- D. Verify that field measurements are as indicated.

### **3.02 INSTALLATION**

- A. Suspension Components:
  1. Install after above-ceiling work is complete in accordance with ASTM C636/C636M, ASTM E580/E580M, ASTM C636/C636M, ASTM E580/E580M, ASTM C636/C636M, and ASTM E580/E580M.
  2. Hang carrying members independent of walls, columns, ducts, light fixtures, pipe, and conduit; where carrying members are spliced, avoid visible displacement of face panels with adjacent panels.
  3. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest adjacent hangers to span the required distance.
  4. Locate suspension system for linear panel layout on room axis according to reflected plan.
- B. Linear Metal Ceiling:
  1. Install linear panels and other system components in accordance with manufacturer's instructions.
  2. Install filler strips between linear panels at interior locations.
  3. Install end caps at sight-exposed ends of linear panels.
  4. Exercise care when site cutting sight-exposed finished components to ensure surface finish is not defaced.
- C. Insulation: Install above panel members; fit tight between grid members ; place insulation with facing side down.

### **3.03 CLEANING**

- A. Clean exposed surfaces.
- B. Replace damaged or abraded components.

**END OF SECTION**

**SECTION 09 6500  
RESILIENT FLOORING**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Resilient sheet flooring.
- B. Resilient tile flooring.
- C. Resilient base.
- D. Installation accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

**1.03 REFERENCE STANDARDS**

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2014c.
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.
- C. ASTM F970 - Standard Test Method for Static Load Limit; 2007 (Reapproved 2011).
- D. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2014).
- E. ASTM F1700 - Standard Specification for Solid Vinyl Tile; 2013a.
- F. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012).
- G. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2011.
- H. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2011.
- I. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; [www.baaqmd.gov](http://www.baaqmd.gov); 2002.
- J. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute; October 2011.
- K. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; [www.aqmd.gov](http://www.aqmd.gov).

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Shop Drawings: Indicate seaming plans and floor patterns.
- D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- E. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.
- F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Flooring Material: 10 percent or 45 square feet of each type and color.

3. Extra Wall Base: 20 linear feet of each type and color.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Protect roll materials from damage by storing on end.

#### **1.06 FIELD CONDITIONS**

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

### **PART 2 PRODUCTS**

#### **2.01 SHEET FLOORING**

- A. Vinyl Sheet Flooring - Type[SRS-01]: Homogeneous without backing, with color and pattern throughout full thickness.
  1. Manufacturers:
    - a. Shaw Contract; Basis of Design: [www.shawcontract.com](http://www.shawcontract.com)
    - b. Mannington Commercial: [www.manningtoncommercial.com/](http://www.manningtoncommercial.com/).
    - c. Teknoflor (Shannon Specialty): [www.hmtxcommercial.com/](http://www.hmtxcommercial.com/).
    - d. Substitutions: See Section 01 6000 - Product Requirements.
  2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with NFPA 253, ASTM E 648, NFPA 253, or ASTM E 648.
  3. VOC Content Limits: As specified in Section 01 6116.
  4. Thickness: 0.079 inch nominal.
  5. Sheet Width: 78 inch minimum.
  6. Static Load Resistance: 250 psi minimum, when tested as specified in ASTM F970.
  7. Seams: Heat welded. Refer to drawings for seam locations.
    - a. Welding Rod Style Number: 184CA.
  8. Pattern: Traction Aqua 4493V.
  9. Color: Dash 00114.
  10. Finish: ExoGuard.
- B. Welding Rod: Solid bead in material compatible with flooring, produced by flooring manufacturer for heat welding seams, and in color matching field color.

#### **2.02 TILE FLOORING**

- A. Luxury Vinyl Tile - Type LVT-01: Printed film type, with transparent or translucent wear layer; acoustic interlayer or backing.
  1. Manufacturers:
    - a. Mannington Commercial; Basis of Design: [www.manningtoncommercial.com/](http://www.manningtoncommercial.com/).
    - b. Shaw Contract; Basis of Design: [www.shawcontract.com/](http://www.shawcontract.com/).
    - c. Patcraft: [www.patcraft.com](http://www.patcraft.com)
    - d. Substitutions: See Section 01 6000 - Product Requirements.
  2. Minimum Requirements: Comply with ASTM F1700, Class III.
  3. VOC Content Limits: As specified in Section 01 6116.
  4. Plank Tile Size: 18 by 36 inch.
  5. Wear Layer Thickness: 0.030 inch.
  6. Total Thickness: 0.098 inch.
  7. Tile Edge: Straight.
  8. Pattern: Drift Collection - Stone.
  9. Color: Motus Lurex D201.

#### **2.03 RESILIENT BASE**

- A. Resilient Base - Type RBB-01: ASTM F1861, Type TV, vinyl, thermoplastic; top set Style B, Cove.

1. Manufacturers:
  - a. Mannington Commercial; Basis of Design: [www.manningtoncommercial.com/](http://www.manningtoncommercial.com/).
  - b. Johnsonite, a Tarkett Company; Baseworks: [www.johnsonite.com/#sle](http://www.johnsonite.com/#sle).
  - c. Shaw Contract: [www.shawcontract.com](http://www.shawcontract.com)
  - d. Substitutions: See Section 01 6000 - Product Requirements.
2. Height: 4 inch.
3. Thickness: 0.125 inch.
4. Finish: Satin.
5. Length: Roll.
6. Color: Gray 204.

#### **2.04 ACCESSORIES**

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Leveling and Patching compound: As recommended by flooring manufacturer.
- C. Moisture Membrane: As required or recommended by flooring manufacturer.
- D. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer based on application type.
  1. Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168 and the Bay Area Air Quality Management District Regulation 8, Rule 51.
  2. Provide product compatible with concrete subfloor relative humidity and ph levels.
- E. Cap Strip: Use same manufacturer as flooring. Seal against wall.
- F. Filler for Flase Cove Base: Plastic, Rubber, or Metal. Use same manufacturer as flooring.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Cementitious Sub-floor Surfaces: Verify that substrates have fully cured and ready for resilient flooring installation by testing for moisture, pH and compression strength.
  1. Test as Follows:
    - a. Alkalinity (pH): ASTM F710.
    - b. Internal Relative Humidity: ASTM F2170.
    - c. Moisture Vapor Emission: ASTM F1869.
  2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
  3. Verify cementitious sub-floor and any fillers have reached minimum 3000 psi strength.

#### **3.02 PREPARATION**

- A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).
- B. Prepare floor substrates as recommended by flooring and adhesive manufacturers. Remove curing compounds, surface hardeners or other chemicals that may interfere with adhesive bonding. Where subfloor moisture levels are higher than acceptable installation range, prepare or condition space as necessary to permit installation. The use of moisture barrier membrane is acceptable.
- C. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.

- D. Prohibit traffic until filler is fully cured.
- E. Clean substrate.

### **3.03 INSTALLATION - GENERAL**

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door. Where flooring is similar, continue seamlessly through opening.
- D. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated. Provide nosings at corners of floor plane transitions such as at steps..
- E. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- F. Install flooring in recessed floor access covers, maintaining floor pattern.
- G. At movable partitions, install flooring under partitions without interrupting floor pattern.
- H. Install feature strips where indicated.

### **3.04 INSTALLATION - SHEET FLOORING**

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.
- B. Seal seams by heat welding where indicated.

### **3.05 INSTALLATION - TILE FLOORING**

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern.
- C. Install tile to match patterns as indicated on drawings. Allow minimum 1/2 full size tile width at room or area perimeter.

### **3.06 INSTALLATION - RESILIENT BASE**

- A. Fit joints tightly and make vertical. Use coil stock when available and install in longest runs with minimal joints possible.
- B. Miter internal corners. At external corners, 'V' cut back of base strip to 2/3 of its thickness and fold.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

### **3.07 CLEANING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's written instructions.

### **3.08 PROTECTION**

- A. Prohibit traffic on resilient flooring for 48 hours after installation.
- B. Seal and Wax resilient flooring with two coats and/as recommended by manufacturer. For products that do not require wax, provide temporary protection until project completion.

**END OF SECTION**

**SECTION 09 7200  
WALL COVERINGS**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Surface preparation and prime painting.
- B. Wall covering and borders.

**1.02 REFERENCE STANDARDS**

- A. ASTM D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes; 2002 (Reapproved 2013).
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- C. ASTM F793/F793M - Standard Classification of Wall Coverings by Use Characteristics; 2015.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on wall covering and adhesive.
- C. Shop Drawings: Indicate wall elevations with seaming layout.
- D. Samples: Submit two samples of wall covering, 8 by 5 inch in size illustrating color, finish, and texture.
- E. Test Reports: Indicate verification of flame and smoke ratings, when tested by UL.
- F. Manufacturer's Installation Instructions: Indicate special procedures.
- G. Maintenance Data: Submit data on cleaning, touch-up, and repair of covered surfaces.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Wall Covering Materials: 30 linear feet (or min. 5%) of each color and pattern of wall covering; store where directed.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

**1.05 MOCK-UP**

- A. Locate where directed.
- B. Mock-up may remain as part of the Work.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Inspect roll materials at arrival on site, to verify acceptability.
- B. Protect packaged adhesive from temperature cycling and cold temperatures.
- C. Do not store roll goods on end.

**1.07 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the adhesive or wall covering product manufacturer.
- B. Maintain these conditions 24 hours before, during, and after installation of adhesive and wall covering.

**PART 2 PRODUCTS**

## 2.01 WALL COVERINGS

- A. General Requirements:
  - 1. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84.
  - 2. Chemical and Stain Resistance: No visible staining or discoloration and no damage to surface texture when tested in accordance with ASTM D1308.
- B. Wall Covering - Type WC-01: Fabric-backed vinyl roll stock.
  - 1. Comply with ASTM F793/F793M, Category V, Type II.
  - 2. Total Weight: 20 oz/sq yd.
  - 3. Roll Width: 54 inches.
  - 4. Backing: Woven, osnaburg fabric.
  - 5. Color: Teak.
  - 6. Pattern: Alpine.
  - 7. Number:FBV-60290.
  - 8. Pattern Match: Reverse Random
  - 9. Manufacturers:
    - a. Koroseal/RJF International; \_\_\_\_\_: [www.koroseal.com/#sle](http://www.koroseal.com/#sle).
    - b. MDC Wallcoverings; \_\_\_\_\_: [www.mdcwall.com/#sle](http://www.mdcwall.com/#sle).
    - c. Momentum Textiles; Basis of Design: <https://momentumtextilesandwalls.com/collections/p3tec>.
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- C. Adhesive: Type recommended by wall covering manufacturer to suit application to substrate.
- D. Substrate Filler: As recommended by adhesive and wall covering manufacturers; compatible with substrate.
- E. Substrate Primer and Sealer: Alkyd enamel type.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that substrate surfaces are prime painted and ready to receive work, and comply with requirements of wall covering manufacturer.
- B. Measure moisture content of surfaces using an electronic moisture meter. Do not apply wall coverings if moisture content of substrate exceeds level recommended by wall covering manufacturer.
- C. Verify flatness tolerance of surfaces does not vary more than 1/8 inch in 10 feet nor vary at a rate greater than 1/16 inch/ft.

### 3.02 PREPARATION

- A. Fill cracks in substrate and smooth irregularities with filler; sand smooth.
- B. Finish surface of gypsum board to level as required by wallcovering manufacturer and per spec 09 2116. Wallcoverings may require Level 5 finish prior to installation.
- C. Wash impervious surfaces with tetra-sodium phosphate, rinse and neutralize; wipe dry.
- D. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- E. Surfaces: Correct defects and clean surfaces that affect work of this section. Remove existing coatings that exhibit loose surface defects.
- F. Marks: Seal with shellac those that may bleed through surface finishes.
- G. Apply one coat of primer sealer to substrate surfaces. Allow to dry. Lightly sand smooth.
- H. Vacuum clean surfaces free of loose particles.

### 3.03 INSTALLATION

- A. Apply adhesive and wall covering in accordance with manufacturer's instructions.
- B. Apply adhesive to wall surface immediately prior to application of wall covering.
- C. Apply wall covering smooth, without wrinkles, gaps or overlaps. Eliminate air pockets and ensure full bond to substrate surface.
- D. Butt edges tightly.
- E. Horizontal seams are not acceptable.
- F. Do not seam within 2 inches of internal corners or within 6 inches of external corners.
- G. Install wall covering before installation of bases and items attached to or spaced slightly from wall surface.
- H. Cover spaces above and below windows, above doors, in pattern sequence from roll.
- I. Where wall covering tucks into reveals, or metal wallboard or plaster stops, apply with contact adhesive within 6 inches of wall covering termination. Ensure full contact bond.
- J. Remove excess adhesive while wet from seam before proceeding to next wall covering sheet. Wipe clean with dry cloth.

#### **3.04 CLEANING**

- A. Clean wall coverings of excess adhesive, dust, dirt, and other contaminants.
- B. Reinstall wall plates and accessories removed prior to work of this section.

#### **3.05 PROTECTION**

- A. Do not permit construction activities at or near finished wall covering areas.

**END OF SECTION**

**SECTION 09 8453  
SOUND BARRIER MULLION TRIM CAP**

**PART 1 GENERAL**

**1.01 REFERENCE STANDARDS**

- A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- C. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.
- D. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015.
- E. GA-600 - Fire Resistance Design Manual; 2015.
- F. ICC (IBC) - International Building Code; 2015.
- G. ISO 9001 - Quality Management Systems-Requirements; 2008.

**1.02 SECTION INCLUDES**

- A. **Sound barrier mullion trim cap system providing sound transmission control at aluminum store front system.**

**1.03 RELATED REQUIREMENTS**

- A. **Section 07 9200 - Joint Sealants.**
- B. **Section 08 4100 – Entrances and Storefronts.**
- C. **Section 08 4400 – Curtain Wall and Glazed Assemblies.**
- D. **Section 09 2116 – Gypsum Board Assemblies.**
- E. **Section 09 2153 – Expandable Partition Gap Filler.**
- F. **Section 09 8454 – Fire-Rated Sound Barrier Mullion Trim Cap.**

**1.04 SUBMITTALS**

- A. **See Section 01 3000 - Administrative Requirements for submittal procedures.**
- B. **Product Data:**
  - 1. **Sound barrier mullion trim cap system.**
    - a. **Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for sound barrier mullion trim cap system.**
- C. **Shop Drawings: Indicate special details associated with acoustic sound barrier mullion trim cap system indicating:**
  - 1. **Dimensioned cross-section(s) where gypsum board terminates at aluminum storefront system.**
  - 2. **Finish.**
- D. **Samples: For each exposed product and for each color specified.**
  - 1. **Size: 6 inch sound barrier mullion trim cap sample and 2 inch by 3-1/2 inch**
  - 2. **Finish: Anodized finish sample.**
- E. **Product Test Reports: For each sound barrier mullion trim cap assembly, ASTM E90 tests performed by a qualified third-party testing agency.**
- F. **Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.**

**1.05 QUALITY ASSURANCE**

- A. **Manufacturer Qualifications:** *Manufacturer of aluminum extrusions and anodizing shall be ISO 9001 certified.*
- B. **Installer Qualifications:** *Company approved by manufacturer and trained to perform work of this section.*
- C. **Testing Agency Qualifications:** *ASTM E90 testing to be performed by laboratory accredited by IAS.*

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. **Do not deliver sound barrier mullion trim caps until spaces to receive them are clean, dry, and ready for installation.**
- B. **Store sound barrier mullion trim caps in original undamaged packaging inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.**

#### **1.07 WARRANTY**

- A. **See Section 01 7800 – Closeout Submittals, for additional warranty requirements.**
- B. **Manufacturer's Warranty:** *Manufacturer agrees to repair or replace sound barrier mullion trim caps that fail in materials or workmanship within warranty period.*
  - 1. **Warranty Period:** *Ten years limited warranty from date of Substantial Completion.*
  - 2. **Limited warranty does not cover adjacent products or improper installation.**

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. **Mull-it-Over Products; Sound Barrier Mullion Trim Cap System:** [www.mullitoverproducts.com](http://www.mullitoverproducts.com)
  - 1. **MC-4 - 60 Flush Sound Barrier Mullion Trim Cap System.**
- B. **Gordon Incorporated; Mullion Mate:** [www.gordon-inc.com/products/partition-gap-closures](http://www.gordon-inc.com/products/partition-gap-closures).
- C. **Emseal Joint Systems LTD.; QuietJoint:** [www.emseal.com/product/quietjoint-acoustic-joint-filler](http://www.emseal.com/product/quietjoint-acoustic-joint-filler).
- D. **Substitutions:** *See Section 01 6000 – Product Requirements.*

#### **2.02 SYSTEM DESCRIPTION**

- A. **General:** *Provide sound barrier mullion trim caps of design, basic profile, and materials indicated. Provide units with capability to accommodate variations and differential movement in adjacent surfaces.*
- B. **Furnish units in lengths of sufficient for field trimming to required length to match variations in construction tolerances of adjacent systems.**

#### **2.03 PERFORMANCE REQUIREMENTS**

- A. **Sound Transmission:**
  - 1. **Double-Sided Installations:** *STC 60.*
- B. **Thermal Movements:** *Allow for thermal movements from ambient and surface temperature changes.*
  - 1. **Mullion trim cap to be sized to accommodate thermal movement.**

#### **2.04 COMPONENTS**

- A. **Aluminum Extrusions:**
  - 1. **Thickness:** *0.125 inches.*
  - 2. **Profile:** *As selected and approved by Architect to allow solid attachment and fastening to the partition wall framing*
- B. **Sound Absorbing Foam:**

1. **Resistant to smoke, flame, and microbial growth.**
  2. **Fire Rating: ASTM E84 Class 1.**
  3. **Fungi Resistance: Zero rating per ASTM G21.**
- C. **Compressible Foam:**
1. **Between edge of extrusion and interior face of glass at aluminum mullion.**
    - a. **Thickness: As required to accommodate mullion deflection.**
  2. **Color: Charcoal.**
- D. **Fasteners:**
1. **Self-Tapping or appropriate threaded fastener. Provided by installing sub-contractor.**
- E. **Snap Cover: Snap-on fastener cover.**
1. **Finish to match mullion trim cap.**
- F. **Acoustical Sound Sealant: Acrylic latex not exposed to view.**
1. **Vertical sealant bead full height of mullion trim cap. One per side on double-sided installations. Provided by installing sub-contractor.**

## **2.05 FABRICATION**

- A. **Extrusions and generic profiles to be shipped in custom lengths as required to meet project requirements or shipped in standard incremental foot lengths and cut to exact length on jobsite.**
1. **FINISHES**
  2. **Custom Paint Finish: Organic coatings system complying with AAMA 2605, including at least 70 percent polyvinylidene fluoride (PVDF) resin to match aluminum store front system.**

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. **Verify that project conditions are appropriate for work of this section to commence.**
- B. **Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.**
- C. **Examine walls and adjacent aluminum store front system for suitable conditions where sound barrier mullion trim cap will be installed.**
- D. **Proceed with installation only after unsatisfactory conditions have been corrected.**

### **3.02 INSTALLATION**

- A. **Measure and cut sound barrier mullion trim cap to proper lengths.**
- B. **Notch around horizontal mullions, sills, or other obstructions leaving appropriate gap for differential movement between sound barrier mullion trim cap and obstruction.**
- C. **Apply continuous bead of acoustical sound sealant to unexposed side of extruded aluminum surface in contact with gypsum board edge.**
- D. **Place sound barrier mullion trim cap on vertical surface of the gypsum board partition wall and loosely install fasteners in the top and bottom slotted holes of mullion trim cap.**
- E. **Plumb mullion trim cap leaving recommended gap spacing between interior glass surface and mullion trim cap. Foam gasket to be in contact with glass.**
- F. **Tighten top and bottom fasteners to secure mullion trim cap.**
- G. **Install additional fasteners at 12 inches on center, minimum.**
- H. **Install snap cover to conceal fasteners.**
- I. **Apply color matched sealant at joints of dissimilar materials. (Sealant provided by building sealant sub-contractor.)**

**3.03 CLEANING**

- A. *After work is complete in adjacent areas, clean exposed surfaces with suitable cleaner that will not harm or attack mullion trim cap finish.*

**3.04 PROTECTION**

- A. *Protect sound barrier mullion trim caps from damage during installation, general construction activities, and until turnover of structure.*

**END OF SECTION**

**SECTION 09 9123  
INTERIOR PAINTING**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
  - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
  - 2. Prime surfaces to receive wall coverings.
  - 3. Mechanical and Electrical:
    - a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
    - b. In finished areas, paint shop-primed items.
    - c. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
- D. Do Not Paint or Finish the Following Items:
  - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
  - 5. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, and lead items.
  - 6. Marble, granite, slate, and other natural stones.
  - 7. Floors, unless specifically indicated.
  - 8. Ceramic and other tiles.
  - 9. Glass.
  - 10. Concealed pipes, ducts, and conduits.

**1.02 DEFINITIONS**

- A. Comply with ASTM D16 for interpretation of terms used in this section.

**1.03 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, [www.paintinfo.com](http://www.paintinfo.com).
- E. SSPC-SP 1 - Solvent Cleaning; 2015.
- F. SSPC-SP 2 - Hand Tool Cleaning; 1982 (Ed. 2004).
- G. SSPC-SP 3 - Power Tool Cleaning; 1982 (Ed. 2004).
- H. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
  - 2. MPI product number (e.g. MPI #47).
  - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
  - 4. Manufacturer's installation instructions.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
  - 1. Where sheen is specified, submit samples in only that sheen.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
  - 3. Label each container with color in addition to the manufacturer's label.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

#### **1.06 MOCK-UP**

- A. See Section 01 4000 - Quality Requirements, for general requirements for mock-up.
- B. Provide panel, 3 feet long by 3 feet wide, illustrating each paint color, texture, and finish.
- C. Provide mock-up on-site of each accent paint colors selected by Architect, minimum 3 feet long by 3 feet wide, in location as directed by Architect. Accent colors to be reviewed by Architect for final approval PRIOR to accent painting starting. Proceeding with Accent painting without approval is done so at Contractor's own risk.
- D. Provide door and frame assembly illustrating paint color, texture, and finish.
- E. Locate where directed by Architect.
- F. Mock-up may remain as part of the work.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

#### **1.08 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.
- D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.

- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
  - 1. Base Manufacturer: Sherwin Williams Company.
  - 2. Behr Process Corporation: [www.behr.com/#sle](http://www.behr.com/#sle).
  - 3. Pittsburgh Paints: [www.ppgpaints.com/#sle](http://www.ppgpaints.com/#sle).
- C. Primer Sealers: Same manufacturer as top coats.
- D. Block Fillers: Same manufacturer as top coats.

### **2.02 PAINTS AND FINISHES - GENERAL**

- A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
  - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.
  - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Colors: As indicated on drawings.
  - 1. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.
  - 2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

### **2.03 PAINT SYSTEMS - INTERIOR**

- A. Paint WI-OP-3L - Wood, Opaque, Latex, 3 Coat:
  - 1. One coat of latex primer sealer. PrepRite ProBlock Latex Primer Sealer B51 Series
  - 2. Semi-gloss: Two coats of latex enamel; Pro Industrial Acrylic Semi Gloss B66-650 Series.
- B. Paint MI-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:
  - 1. One coat of acrylic primer. ProCryl Universal Primer B66-310 Series
  - 2. Semi-gloss: Two coats of acrylic enamel; Pro Industrial Semi-Gloss B66-650 Series.
- C. Paint MI-OP-2A - Ferrous Metals, Primed, Acrylic, 2 Coat:
  - 1. Touch-up with recommended primer.
  - 2. Semi-gloss: Two coats of acrylic enamel; Pro Industrial Semi Gloss B66-650 Series.
- D. Paint MI-OP-2L - Ferrous Metals / Roof Deck / Exposed Interior Structure, Primed, Latex, 2 Coat:
  - 1. Touch-up with recommended primer. Pro-Cryl B66-310 Series
  - 2. Semi-gloss: Two coats of water borne acrylic dryfall Pro Industrial Semi Gloss B42-80 Series. .
- E. Paint CI-OP-3E - Concrete/Masonry, Epoxy Enamel, 3 Coat:
  - 1. One coat of catalyzed epoxy primer. Loxon Block Surfacer A24W200
  - 2. Gloss: Two coats of catalyzed epoxy enamel: Full Gloss. Pro Industrial Precatalyzed Gloss Epoxy B73-300 Series .
- F. Paint GI-OP-3L - Gypsum Board/Plaster, Latex, 3 Coat:
  - 1. One coat of alkyd primer sealer. ProMar 200 Primer B28W2600 Series
  - 2. Semi-gloss: Two coats of latex enamel.
  - 3. Eggshell: Two coats of latex enamel; ProMar 200 B20-2600 Series.

4. Flat: Two coats of latex enamel; B30-2600 Series (ceilings).
- G. Paint GI-OP-3M - Gypsum Board/Plaster, Epoxy Enamel, 3 Coat:
  1. One coat of latex primer sealer. ProMar 200 Latex Primer B28W2600 Series
  2. Gloss: Two coats of water based catalized epoxy enamel; Pro Industrial Epoxy B73-300 Series.
- H. Paint FI-OP-3A - Fabrics/Insulation Jackets, Alkyd, 3 Coat:
  1. One coat of alkyd primer sealer.
  2. Eggshell: Two coats of alkyd enamel.

#### **2.04 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Do not begin application of paints and finishes until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  1. Gypsum Wallboard: 12 percent.
  2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

#### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete:
  1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- G. Masonry:
  1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
- H. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
- I. Galvanized Surfaces:
  1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
- J. Ferrous Metal:
  1. Solvent clean according to SSPC-SP 1.

2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
  3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.
- K. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- L. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.
- M. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

### **3.03 APPLICATION**

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- E. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- F. Sand wood and metal surfaces lightly between coats to achieve required finish.
- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- H. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

### **3.04 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

### **3.05 PROTECTION**

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

**END OF SECTION**

**SECTION 10 1400  
SIGNAGE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Room and door signs.
- B. Vinyl Signs.

**1.02 REFERENCE STANDARDS**

- A. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
- B. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines; 2002.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
  - 1. When room numbers to appear on signs differ from those on the drawings, include the drawing room number on schedule.
  - 2. When content of signs is indicated to be determined later, request such information from Owner through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
  - 3. Submit for approval by Owner through Architect prior to fabrication.
- D. Samples: Submit two samples of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment.
- E. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
- F. Verification Samples: Submit samples showing colors specified.
- G. Manufacturer's Installation Instructions: Include installation templates and attachment devices.
- H. Maintenance Materials: Furnish the following for UAMS's and Owner's use in maintenance of project.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Package signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.
- C. Store tape adhesive at normal room temperature.

**1.05 FIELD CONDITIONS**

- A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
- B. Maintain this minimum temperature during and after installation of signs.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Public Signs; DFI Architectural Signs; [www.dfisigns.com](http://www.dfisigns.com).
- B. Interior Signs:
  - 1. Best Sign Systems, Inc: [www.bestsigns.com/#sle](http://www.bestsigns.com/#sle).
  - 2. Mohawk Sign Systems, Inc: [www.mohawksign.com/#sle](http://www.mohawksign.com/#sle).
  - 3. DFI Architectural Signs; [www.dfisigns.com](http://www.dfisigns.com).

- C. Dimensional Letter Signs:
  - 1. Cosco Industries; Cast Aluminum: [www.coscoarchitecturalsigns.com/#sle](http://www.coscoarchitecturalsigns.com/#sle).
  - 2. DFI Architectural Signs; [www.dfisigns.com](http://www.dfisigns.com).

## 2.02 SIGNAGE APPLICATIONS

- A. Manufacturer's standard monolithic tactile plaque constructed of one material utilizing a thermoforming process, which provides a monolithic plaque sign. The sign body, face, raised text and Braille are compression molded to form a single dimensional component that results in a sign surface that exhibits a toughness that resists scratching, cracking, gouging and graffiti.
- B. Accessibility Compliance: All signs are required to comply with ADA Standards for Accessible Design and ANSI/ICC A 117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- C. Room and Door Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.

## 2.03 SIGN TYPES

- A. General:
  - 1. Construction: One-piece, one material; added-on, engraved, or photopolymer characters not acceptable.
  - 2. Tactile Characters/Symbols: Raised 1/32 inch from sign plate face
  - 3. Braille: Grade 2 braille, placed directly below last line of characters
  - 4. Contrast: Letters, numbers and symbols shall contrast with background
  - 5. Font: Karla, bold and regular
  - 6. Font Size: Varies
  - 7. Font Color: Charcoal, Architect and Designer to approve final color
  - 8. Acrylic Color: 1/8 inch Impact Series ADA, color SW7009 Pearly White
  - 9. Laminate Color: Wilsonart Neo Walnut 7991-38; Fine Velvet Texture.
  - 10. Mounting: DS Tape and Silicone
  - 11. Provide backer panel for all signage installed on glass walls or windows
- B. Type A - ADA Sign:
  - 1. Overall Laminate Size: 6 inches wide x 4 inches high x 1/4 inch thick
  - 2. Applied Accent Panel Size: 6 inches wide x 3 inches high x 1/8 inch thick
  - 3. Material: Laminate, Wilsonart Neo Walnut 7991-38; Fine Velvet Texture; Impact Series ADA, color SW7009 Pearly White.
  - 4. Copy Color: Charcoal
  - 5. Mounting Method: Foam Tape
- C. Type B - ADA Sign with Slide Insert:
  - 1. Overall Laminate Size: 6 inches wide x 4 inches high x 1/4 inch thick
  - 2. Applied Accent Panel Size: 6 inches wide x 3 inches high x 1/8 inch thick with 1/2 inch window for owner provided insert
  - 3. Material: Laminate, Wilsonart Neo Walnut 7991-38; Fine Velvet Texture; Impact Series ADA, color SW7009 Pearly White.
  - 4. Copy Color: Charcoal
  - 5. Mounting Method: Foam Tape
- D. Type C - Restroom Sign:
  - 1. Overall Size: 12 inches wide x 5 inches high x 3/4 inch thick
  - 2. Material: Impact Series ADA, color MPI0269 Dark Slate
  - 3. Copy and Graphics Colors: White
  - 4. Mounting Method: Foam Tape
- E. Type E - Back of House Sign:
  - 1. Overall Size: 6 inches x 6 inches x 1/8 inch thick

2. Material: Impact Series ADA, color MPI0269 Dark Slate
  3. Copy and Graphics Colors: Brushed Aluminum
  4. Mounting Method: Foam Tape
- F. Type F - Evacuation Sign:
1. Overall Laminate Size: 11 inches wide x 12-1/2 inches high x 1/4 inch thick
  2. Applied Accent Panel Size: 11 inches wide x 11-1/2 inches high x 1/8 inch thick with 8-1/2 x 11" inch window for owner-provided insert
  3. Material: Laminate, Wilsonart Neo Walnut 7991-38 (Fine Velvet Texture) and Impact Series ADA, color SW7009 Pearly White
  4. Copy Color: Charcoal
  5. Mounting Method: Foam Tape
- G. Type G - Direct mounted Aluminum Sign:
1. Overall Size: 3/8 inch thick, see drawing for height and width of sign
  2. Material: Aluminum Plate
  3. Copy and Graphics Color: Design to be client logo, final design and color to be determined.
  4. Mounting Method: Frosted acrylic panel mounted on stand-offs or mounted directly to wall with studs and silicone
    - a. 400 Waiting: Studs and Silicone, to be mounted on vinyl wallcovering
    - b. 700 Waiting: 66 inches x 39 inches x 1/2 inch acrylic panel on stand-offs (wall is textured porcelain tile)
    - c. 732 Nurse Station: Studs and Silicone, to be mounted on vinyl wallcovering
    - d. 741 Nurse Station: Studs and Silicone, to be mounted on vinyl wallcovering
    - e. 800 Waiting: Studs and Silicone, to be mounted on painted gyp. wallboard
    - f. 804 Nurse Station: Studs and Silicone, to be mounted on vinyl wallcovering
- H. Type I - Applied Vinyl
1. Overall Size: Multiple sizes specified, see drawings for details.
  2. Material: Vinyl
  3. Copy and Graphics Color: Multiple vinyl colors to be used - final design and color to be determined
  4. Mounting Method: Direct Applied
- I. Color and Font: To Be Selected

## **2.04 TACTILE SIGNAGE MEDIA**

- A. Engraved Panels: Laminated colored plastic; engraved through face to expose core as background color:
1. Total Thickness: 1/16 inch.

## **2.05 ACCESSORIES**

- A. Concealed Screws: Stainless steel, galvanized steel, chrome plated, or other non-corroding metal.
- B. Tape Adhesive: Double sided tape, permanent adhesive.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrate surfaces are ready to receive work.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.
- C. Locate signs where indicated:

1. Room and Door Signs: Locate on wall at latch side of door with centerline of sign at 60 inches above finished floor.
  2. If no location is indicated obtain Owner's instructions.
- D. Protect from damage until Substantial Completion; repair or replace damage items.

**END OF SECTION**

**SECTION 10 2601  
WALL & CORNER GUARDS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Corner guards.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Blocking for wall and corner guard anchors.
- B. Section 09 2116 - Gypsum Board Assemblies: Placement of supports in stud wall construction.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics; 2010.
- C. ASTM D543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents; 2014.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2021a.
- E. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2015.
- F. ASTM F476 - Standard Test Methods for Security of Swinging Door Assemblies; 2014.
- G. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate physical dimensions, features, wall mounting brackets with mounted measurements, anchorage details, and rough-in measurements.
- C. Shop Drawings: Include plans, elevation, sections, and attachment details. Show design and spacing of supports for protective corridor handrails, required to withstand structural loads.
- D. Samples: Submit samples illustrating component design, configurations, joinery, color and finish.
  - 1. Submit two sections of corner guards, 24 inches long.
  - 2. Submit two samples of protective wall covering and door surface protection, 6 by 6 inches square.
- E. Manufacturer's Instructions: Indicate special procedures, perimeter conditions requiring special attention.
- F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- G. Maintenance Data: For each type of product. Include information regarding recommended and potentially detrimental cleaning materials and methods.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver wall and door protection items in original, undamaged protective packaging. Label items to designate installation locations.
- B. Protect work from moisture damage.

**1.06 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.
- B. Provide five year manufacturer and installer warranty for metal crash rails.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Wall and Corner Guards:
  - 1. Construction Specialties, Inc: [www.c-sgroup.com](http://www.c-sgroup.com).
  - 2. Inpro; Basis of Design: [www.inprocorp.com](http://www.inprocorp.com).
  - 3. Pawling Corp: [www.pawling.com](http://www.pawling.com).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 PERFORMANCE CRITERIA**

- A. Impact Strength: Unless otherwise noted, provide protection products and assemblies that have been successfully tested for compliance with applicable provisions of ASTM D256 and/or ASTM F476.
- B. Chemical and Stain Resistance: Unless otherwise noted, provide protection products and assemblies with chemical and stain resistance complying with applicable provisions of ASTM D543.
- C. Fungal Resistance: Unless otherwise noted, provide protection products and assemblies which pass ASTM G21 testing.

### **2.03 PRODUCT TYPES**

- A. Corner Guards (CG-01): Stainless steel corner guard, type 304 alloy with #4 satin finish .
  - 1. Manufacturer: Inpro: [www.inprocorp.com](http://www.inprocorp.com).
    - a. Model SS Corner Guard 90° stainless steel corner guard with 1/8" radius and 2" standard legs. Bull nose 3/4" (19.1mm) radius. Mounted with stainless steel screws.
    - b. Product Number: SAS-1828H-430.
  - 2. Nose Radius: 1/8 inch
  - 3. Resistant to certain bacterial & fungal growth per ASTM G 2276 and ASTM G 2196
  - 4. Chemical resistant per ASTM D 543
  - 5. Impact resistant per ASTM F 47684
  - 6. UL Class A/1 fire rated and labeled
  - 7. California 01350 Testing VOC Emissions
  - 8. Height: 8 feet.
- B. Corner Guard (CG-02): Surface mount stainless steel end wall protector.
  - 1. Manufacturer: Inpro: [www.inprocorp.com](http://www.inprocorp.com).
  - 2. Leg: 2 inches
  - 3. Corner Radius: 1/8 inch
  - 4. Thickness: 0.080 inches
  - 5. Height: 96 inches.
  - 6. Material: Stainless Steel, type 430, 16 gauge stainless.
  - 7. Attachment: Screw-on.
  - 8. Finish: Stainless steel, No. 4 sating finish.
- C. Accessories: J cap and T molding as provided by manufacturer.
- D. Adhesives and Primers: As recommended by manufacturer.
- E. Mounting Brackets and Attachment Hardware: Appropriate to component and substrate.
- F. See Section 06 1000 for wood blocking for wall and corner guard anchors.
- G. See Section 09 2116 for supports in stud wall construction.

### **2.04 FABRICATION**

- A. Fabricate components with tight joints, corners and seams.
- B. Form end trim closure by capping and finishing smooth.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.
- B. Verify that field measurements are as indicated on drawings.

### **3.02 INSTALLATION**

- A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to supporting construction.
- B. Position protective wall covering no less than 2 inch above finished floor to allow for floor level variation.
  - 1. Wainscot Installation: Establish a level line at the specified height for entire length of run. Install by aligning top of edge of covering with this line.
  - 2. Apply adhesive with 1/8 inch V-notch trowel to an area of wall surface that can be completed within cure time of the adhesive.
  - 3. Install trim pieces as required for a complete installation. Allow tolerance for thermal movement.
  - 4. Use a roller to ensure maximum contact with adhesive.
  - 5. At inside and outside corners cut covering sheets to facilitate installation of trim pieces or corner guards.

### **3.03 CLEANING**

- A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.
- B. Clean wall and door protection items of excess adhesive, dust, dirt, and other contaminants.

**END OF SECTION**

**SECTION 10 2800  
TOILET ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Accessories for toilet rooms, showers, and utility rooms.
- B. Grab bars.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000-Rough Carpentry: Placement of reinforcement for backing plate reinforcement.
  - 1. Provide blocking in walls at locations indicated for all accessories including owner supplied accessories.
- B. Section 08 8300 - Mirrors: Unframed Mirrors.

**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.
- B. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.
- C. ASTM C1036 - Standard Specification for Flat Glass; 2021.
- D. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2008 (Reapproved 2013).
- E. ASTM F2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use; 2004 (Reapproved 2010).

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

**1.06 COORDINATION**

- A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Toilet Accessories:
  - 1. Bobrick is specified, equivalent accessories from ASI and/or Bradley are acceptable.
  - 2. A & J Washroom Accessories Inc: [www.ajwashroom.com](http://www.ajwashroom.com).
  - 3. American Specialties, Inc: [www.americanspecialties.com](http://www.americanspecialties.com).
  - 4. Bradley Corporation: [www.bradleycorp.com](http://www.bradleycorp.com).
  - 5. Substitutions: Section 01 6000 - Product Requirements.

**2.02 MATERIALS**

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
- B. Stainless Steel Sheet: ASTM A666/A666M, Type 304.

- C. Galvanized Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.
- D. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.
- E. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.
  - 1. Same material as accessory unit, or of galvanized steel where concealed.

### 2.03 FINISHES

- A. Baked Enamel: Pretreat to clean condition, apply one coat primer and minimum two coats epoxy baked enamel.

### 2.04 TOILET ROOM ACCESSORIES

- A. Toilet Paper Dispenser (**TA-1 & TA-1A**): Double & Single roll, surface mounted bracket type, chrome-plated zinc alloy brackets .Owner furnished - Contractor installed.
  - 1. Product: B-6867 & 6857 manufactured by Bobrick.
- B. Paper Towel Dispenser (**TA-2**): Folded paper type, Plastic, surface-mounted, with viewing slots on sides as refill indicator and tumbler lock. Owner furnished - Contractor installed.
- C. Waste Receptacle (**TA-4a**): Stainless steel, freestanding style .Owner Furnished-Owner Installed
  - 1. Liner: Removable, heavy-duty vinyl liner[3944-134 by Bobrick], attached at a minimum of 4 points with stainless steel grommets and hooks.
  - 2. Minimum capacity: 13 gallons.
  - 3. Products:
    - a. B-277 by Bobrick.
- D. Waste Receptacle (**TA-4**): Stainless steel, freestanding style . Owner Furnished-Owner Installed
  - 1. Liner: Removable, heavy-duty vinyl liner[3944-134 by Bobrick], attached at a minimum of 4 points with stainless steel grommets and hooks.
  - 2. Minimum capacity: 12.75 gallons.
  - 3. Products:
    - a. B-2260 by Bobrick.
- E. Soap Dispenser: (**TA-6**) Liquid soap dispenser, wall-mounted, surface, with stainless steel cover and horizontal stainless steel tank and working parts; push type soap valve, check valve, and window gage refill indicator, tumbler lock.
  - 1. Owner furnished - Contractor installed.
- F. Mirrors: (**TA-11**) Stainless steel framed, 6 mm thick float glass mirror.
  - 1. Size: As indicated on drawings.
  - 2. Frame: 0.05 inch angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; No.4 finish.
  - 3. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.
  - 4. Fixed Tilt Mirrors: Minimum 3 inches tilt from top to bottom.
- G. Grab Bars (**TA-7**): Stainless steel, 1-1/4 inches outside diameter, minimum 0.05 inch wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 inches clearance between wall and inside of grab bar.
  - 1. Length and configuration: As indicated on drawings.
  - 2. Product: B-6806 x Length manufactured by Bobrick.
- H. Sanitary Napkin Disposal Unit (**TA-8a & TA-8b**): Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle. Owner furnished-Owner installed
  - 1. Product: B-270 manufactured by Bobrick.

2. Owner furnished - Contractor installed.
- I. Specimen Pass-Thru Cabinet (**TA-16**): Stainless steel, Type 304
  1. Self closing doors.
  2. Interlocking mechanism to prevent both doors opening at the same time.
  3. Removable stainless steel tray.
  4. Adjustable for walls 3 to 10 inch thickness.
  5. Product: B-50517 manufactured by Bobrick.
- J. Diaper Changing Station (**TA-10**): Wall-mounted folding diaper changing station for use in commercial toilet facilities, meeting or exceeding ASTM F 2255.
  1. Style: Horizontal.
  2. Material: Stainless Steel.
  3. Mounting: Surface.
  4. Manufacturers:
    - a. Bobrick: Model KB110-SSWM; www.bobrick.com  
(Koala Kare Products)
    - b. Substitutions: 01 6000 - Product Requirements.

## 2.05 OTHER ACCESSORIES

- A. Shower Curtain Rod: Stainless steel tube, 1 inch outside diameter, 0.04 inch wall thickness, satin-finished, with 3 inch outside diameter, minimum 0.04 inch thick satin-finished stainless steel flanges, for installation with exposed fasteners.
  1. Products:
    - a. B-207x36 by Bobrick.
    - b. B=207x64 by Bobrick.
- B. Shower Curtain:
  1. Material: Opaque vinyl, 0.008 inch thick, matte finish, with antibacterial treatment, flameproof and stain-resistant.
  2. Size: 36 by 72 inches, hemmed edges.
  3. Grommets: Stainless steel; pierced through top hem on 6 inch centers.
  4. Color: White.
  5. Shower curtain hooks: Chrome-plated or stainless steel spring wire designed for snap closure.
- C. Robe Hook (**TA-15**) : Heavy-duty stainless steel, single-prong, rectangular-shaped bracket and backplate for concealed attachment, satin finish.
  1. Product: B-76717 manufactured by Bobrick.

## 2.06 UTILITY ROOM ACCESSORIES

- A. Mop and Broom Holder (**MBH-1**): 0.05 inch thick stainless steel, Type 304, hat-shaped channel.
  1. Holders: 3 spring-loaded rubber cam holders.
  2. Length: 36 inches.
  3. Products:
    - a. B-223 x 36 as manufactured by Bobrick.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.

### 3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

### **3.03 INSTALLATION**

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

**END OF SECTION**

**SECTION 10 4400  
FIRE PROTECTION SPECIALTIES**

**PART 1 GENERAL V.22**

**1.01 SECTION INCLUDES**

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Accessories.

**1.02 REFERENCE STANDARDS**

- A. NFPA 10 - Standard for Portable Fire Extinguishers; 2013.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide extinguisher operational features.
- C. Shop Drawings: Indicate locations of cabinets and cabinet physical dimensions.
- D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.
- E. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

**1.04 FIELD CONDITIONS**

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Fire Extinguishers:
  - 1. Ansul, a Tyco Business; Cleanguard: [www.ansul.com/#sle](http://www.ansul.com/#sle).
  - 2. Pyro-Chem, a Tyco Business: [www.pyrochem.com](http://www.pyrochem.com).
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Fire Extinguisher Cabinets and Accessories:
  - 1. Activar Construction Products Group - JL Industries: [www.activarcpg.com/#sle](http://www.activarcpg.com/#sle).
  - 2. Larsen's Manufacturing Co: [www.larsensmfg.com](http://www.larsensmfg.com).
  - 3. Potter-Roemer: [www.potterroemer.com](http://www.potterroemer.com).
  - 4. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 FIRE EXTINGUISHERS**

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
- B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
  - 1. Stored Pressure Operated: Deep Drawn.
  - 2. Class: A:B:C type.
  - 3. Size: 10 pound.
  - 4. Temperature range: Minus 65 degrees F to 120 degrees F.

**2.03 FIRE EXTINGUISHER CABINETS**

- A. Cabinet Configuration: Semi-recessed type, coordinate with wall cavity depth.
  - 1. Size to accommodate accessories.
- B. Door: 0.036 inch metal thickness, reinforced for flatness and rigidity with nylon catch. Hinge doors for 180 degree opening with two butt hinge.
- C. Door Glazing: Acrylic plastic, clear, 1/8 inch thick, flat shape and set in resilient channel glazing gasket.

- D. Cabinet Mounting Hardware: Appropriate to cabinet, with pre-drilled holes for placement of anchors.
- E. Finish of Cabinet Exterior Trim and Door: No. 4 - Brushed stainless steel.
- F. Finish of Cabinet Interior: White colored enamel.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

#### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions per NFPA and ADA standards.
  - 1. Handle for Fire Extinguisher Cabinet shall not be installed higher than 52" above finished floor.
  - 2. The top of the Fire Extinguisher mounted inside of Cabinet shall not be higher than 60" above finished floor.
- B. Secure rigidly in place.
- C. Place extinguishers in cabinets.

**END OF SECTION**

**SECTION 12 2400  
WINDOW SHADES**

**PART 1 GENERAL V.20**

**1.01 SECTION INCLUDES**

- A. Interior manual roller shades.
- B. Interior motorized roller shades.
- C. Motor controls.

**1.02 REFERENCE STANDARDS**

- A. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015.
- B. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films; 2015.
- C. WCMA A100.1 - Safety of Corded Window Covering Products; Current Edition, Including All Revisions.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.
  - 1. Motorized Shades: Include power requirements and standard wiring diagrams for specified products.
- C. Shop Drawings: Include shade schedule indicating size, location and keys to details, head, jamb and sill details, mounting dimension requirements for each product and condition, and operation direction.
  - 1. Motorized Shades: Provide schematic system riser diagram indicating component interconnections. Include requirements for interface with other systems.
- D. Selection Samples: Include fabric samples in full range of available colors and patterns.
  - 1. Motorized Shades: Include finish selections for controls.
- E. Verification Samples: Minimum size 6 inches square, representing actual materials, color and pattern.
- F. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- G. Project Record Documents: Record actual locations of control systems and show interconnecting wiring.
- H. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of shop drawings.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of this type with minimum two years of documented experience with shading systems of similar size and type.

**1.05 MOCK-UP**

- A. Mock-Up: Provide full size mock-up of window shade system complete with selected shade fabric including example of seams and batten pockets when applicable.
  - 1. Obtain Architect's approval of light and privacy characteristics of fabric prior to fabrication.
  - 2. Full-sized mock-up may become part of the final installation.

**1.06 DELIVERY, STORAGE, AND HANDLING**

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WINDOW SHADES

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- A. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.

### **1.07 PROJECT CONDITIONS**

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

### **1.08 WARRANTY**

- A. See Section 01 7800 - CLOSEOUT SUBMITTALS, for additional warranty requirements.
- B. Provide manufacturer's warranty from Date of Substantial Completion, covering the following:
  - 1. Chain and Hardware: 25 years.
  - 2. Fabric / Shadecloth: 25 years.
  - 3. Electric Motors: Five years.
  - 4. Electronic Control Equipment: Five years.
  - 5. Aluminum and Steel Coatings: One year.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Interior Manually Operated Roller Shades:
  - 1. Draper, Inc; Clutch Operated FlexShade: [www.draperinc.com/#sle](http://www.draperinc.com/#sle).
  - 2. Hunter Douglas Architectural; RB500 Manual Roller Shades: [www.hunterdouglasarchitectural.com/#sle](http://www.hunterdouglasarchitectural.com/#sle).
  - 3. Levolor: [www.levolor.com/commercial/#sle](http://www.levolor.com/commercial/#sle).
  - 4. MechoShade Systems LLC; Mecho/5 System: [www.mechoshade.com/#sle](http://www.mechoshade.com/#sle).
  - 5. Substitutions: See Section 01 6000 - Product Requirements.

### **2.02 ROLLER SHADES**

- A. General:
  - 1. Provide shade system components that are easy to remove or adjust without removal of mounted shade brackets.
  - 2. Provide shade system that operates smoothly when shades are raised or lowered.
- B. Roller Shades Manual - Basis of Design: MechoShade Systems LLC; Mecho/5 System; [www.mechoshade.com/#sle](http://www.mechoshade.com/#sle).
  - 1. Description: Single roller, manually operated fabric window shades.
  - 2. Brackets and Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
  - 3. Roller Tubes:
    - a. Material: Extruded aluminum.
    - b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
    - c. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge. Shade band to be removable and replaceable without removing roller tube from brackets or inserting spline from the side of the roller tube.
    - d. Roller tubes to be capable of being removed and reinstalled without affecting roller shade limit adjustments.
  - 4. Hembars: Designed to maintain bottom of shade straight and flat.
  - 5. Clutch Operator: Manufacturer's standard material and design integrated with bracket/brake assembly.
    - a. Provide a permanently lubricated brake assembly mounted on an oil-impregnated hub with wrapped spring clutch.
    - b. Brake must withstand minimum pull force of 50 pounds in the stopped position.
    - c. Mount clutch/brake assembly on the support brackets, fully independent of the roller tube components.
  - 6. Drive Chain: Continuous loop stainless steel beaded ball chain, 95 pound minimum breaking strength. Provide upper and lower limit stops.

- a. Chain Retainer: Chain tensioning device complying with WCMA A100.1.
- 7. Accessories:
  - a. Fascia: Extruded aluminum, size as required to conceal shade mounting, attachable to brackets without exposed fasteners; clear anodized finish.

### **2.03 SHADE FABRIC**

- A. Fabric: Non-flammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.
  - 1. Manufacturers:
    - a. MechoShade Systems LLC; Soho - 1100 Series (1% open): [www.mechoshade.com/#sle](http://www.mechoshade.com/#sle).
    - b. Substitutions: See Section 01 6000 - Product Requirements.
  - 2. Material:
    - a. WDS-01: 75% PVC and 25% Polyester
    - b. WDS-02: 50% Acrylic Coating and 50% Polyester
  - 3. Performance Requirements:
    - a. Flammability: Pass NFPA 701 large and small tests.
    - b. Fungal Resistance: No growth when tested according to ASTM G21.
  - 4. Openness Factor:
    - a. WDS-01: 3%
    - b. WDS-02: Blackout
  - 5. Color: As selected by Architect from manufacturer's full range of colors.

### **2.04 ROLLER SHADE FABRICATION**

- A. Field measure finished openings prior to ordering or fabrication.
- B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
  - 1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch space between bottom bar and window stool.
  - 2. Horizontal Dimensions - Inside Mounting: Provide symmetrical light gaps on both sides of shade not to exceed 3/4 inch total.
- C. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers; butt rollers end-to-end.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine finished openings for deficiencies that may preclude satisfactory installation.
- B. Start of installation shall be considered acceptance of substrates.

### **3.02 PREPARATION**

- A. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.
- B. Coordinate with window installation and placement of concealed blocking to support shades.

### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.
- B. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

### **3.04 PROTECTION**

- A. Protect installed products from subsequent construction operations.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION**

**SECTION 12 3400  
LAMINATE CLAD CASEWORK**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Fixed modular laminate clad casework and components.
- B. Countertops.

**1.02 RELATED SECTIONS**

- A. Metal Accent Trim - Division 5.
- B. Blocking within walls where indicated: Division 6.
- C. Base molding: Division 9.
- D. Appliances: Division 11.
- E. Electrical service fixtures: Division 26.

**1.03 DEFINITIONS**

- A. Identification of casework components and related products by surface visibility.
  - 1. Open Interiors: Any open storage unit without solid door or drawer fronts, units with full glass insert doors and/or acrylic doors, and units with sliding solid doors.
  - 2. Closed Interiors: Any closed storage unit behind solid door or drawer fronts.
  - 3. Exposed Ends: Any storage unit exterior side surface that is visible after installation.
  - 4. Other Exposed Surfaces: Faces of doors and drawers when closed, and tops of cabinets less than 72 inches above furnished floor.
  - 5. Semi-Exposed Surfaces: Interior surfaces which are visible, bottoms of wall cabinets and tops of cabinets 72 inches or more above finished floor.
  - 6. Concealed Surfaces: Any surface not visible after installation.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer: Minimum of 5 years experience in providing manufactured casework systems for similar types of projects, produce evidence of financial stability, bonding capacity, and adequate facilities and personnel required to perform on this project.
- B. Manufacturer: Provide products certified as meeting or exceeding ANSI-A 161.1-2000 testing standards.
- C. Quality Standard: Unless otherwise indicated, comply with AWI's Architectural Woodwork Quality Standards for grades of interior architectural woodwork, construction, finishes and other requirements.
  - 1. Provide AWI Quality Certification Program CERTIFICATE indicating that the woodwork complies with requirements of the grade specified.

**1.05 SUBMITTALS**

- A. Comply with Section 01 3000, unless otherwise indicated.
- B. Product Data: Manufacturer's catalog with specifications and construction details.
- C. Shop Drawings: Indicate dimensions, description of materials and finishes, general construction, specific modifications, component connections, anchorage methods, hardware, and installation procedures, plus the following specific requirements.
  - 1. Include section drawings of typical and special casework, work surfaces and accessories.
  - 2. Indicate locations of plumbing and electrical service field connection by others.
  - 3. Provide one set of shop drawings which includes all products within this section, engineered and built by a single source manufacturer, with seamless coordination amongst all products.
- D. Casework Samples (To be available upon request):
  - 1. Base cabinet: Cabinet conforming to specifications, with drawer and door.

2. Wall cabinet: Cabinet conforming to specifications, with door.
3. Cabinet samples shall be complete with specified hardware for doors, drawers and shelves.
4. Component samples: Two sets of samples for each of the following:
  - a. Decorative laminate color charts / PVC and ABS edgings.

#### **1.06 PRODUCT HANDLING**

- A. Deliver completed laminate clad casework, countertops, and related products only after wet operations in building are completed, store in ventilated place, protected from the weather, with relative humidity range of 25 percent to 55 percent.
- B. Protect finished surfaces from soiling and damage during handling and installation with a protective covering.

#### **1.07 JOB CONDITIONS**

- A. Environmental Requirements: Do not install casework until permanent HVAC systems are operating and temperature and humidity have been stabilized for at least 1 week.
  1. Manufacturer/Supplier shall advise Contractor of temperature and humidity requirements for architectural casework installation areas.
  2. After installation, control temperature and humidity to maintain relative humidity between 25 percent and 55 percent.
- B. Conditions: Do not install casework until interior concrete work, masonry, plastering and other wet operations are complete.

#### **1.08 WARRANTY**

- A. All materials and workmanship covered by this section will carry a five (5) year warranty from date of acceptance.

### **PART 2 - PRODUCTS**

#### **2.01 ACCEPTABLE MANUFACTURERS:**

- A. Manufacturer:
  1. TMI Systems Design Corporation.
    - a. Drawings and specifications are based on manufacturer's literature from:  
TMI SYSTEMS DESIGN CORPORATION, 50 South Third Avenue West,  
Dickinson, North Dakota, 58601, Phone: 800-456-6716  
Fixed modular, flexible rail mounted, and mobile casework and accessories.
    - b. Additional manufacturers:
      - 1) Diversified Casework
      - 2) Stevens Cabinet Co. (LSI)
    - c. Other manufacturers shall comply with the minimum levels of material and detailing indicated on the drawings or as specified.

#### **2.02 MATERIALS**

- A. Core Materials:
  1. Particleboard up to 7/8 inch thick: Industrial Grade average 45-pound density particleboard, ANSI A 208.1-2009, M-2 requirements.
  2. Particleboard 1 inch thick and thicker: Industrial Grade average 45-pound density particleboard, ANSI A 208.1-2009, M-2 requirements.
  3. Medium Density Fiberboard 1/4 inch thick: Minimum average density 45-50 lbs., ANSI A208.2-2009 requirements.
  4. MR Moisture Resistant Particleboard: Average 45-pound density particleboard, ANSI A208.1 1-2009, M-2 requirements.
- B. Decorative Laminates: GREENGUARD Indoor Air Quality Certified
  1. High-pressure decorative laminate VGS (.028), NEMA Test LD 3-2005.

2. High-pressure decorative laminate HGS (.048), NEMA Test LD 3-2005.
3. High-pressure decorative laminate HGP (.039), NEMA Test LD 3-2005.
4. High-pressure cabinet liner CLS (.020), NEMA Test LD 3-2005.
5. High-pressure backer BKH (.048), (.039), (.028), NEMA Test LD3-2005.
6. Thermally fused melamine TFM laminate, NEMA Test LD 3-2005. (TFM allowed on casework interiors only, as specified below. Utilization of TFM on any exterior casework surfaces, including door and drawer faces and finished ends, will not be permitted.)

C. Laminate Color Selection: HPL-01 - Formica, Cognac Maple 7738-58.

D. Edging Materials:

1. 1mm PVC banding, machine applied.
2. 3mm PVC banding, machine applied and machine profiled to 1/8 inch radius.

### 2.03 SPECIALTY ITEMS

A. Support Members:

1. Countertop support brackets: Epoxy powder coated, 11 gauge steel with integral cleat mount opening and wire management opening.
2. Undercounter support frames: Epoxy powder coated.
3. Legs: Epoxy powder coated.
4. Inside Wall Mount EH Countertop Support Bracket; Rakks; [www.rakks.com/](http://www.rakks.com/)

### 2.04 CABINET HARDWARE

A. Hinges:

1. Concealed European Style - 120-degree swing, self-closing
  - a. Doors up to 34 inches in height have 2 hinges per door.
  - b. Doors 35 inches to 62 inches in height have 3 hinges per door.
  - c. Doors 63 inches to 80 inches in height have 4 hinges per door.
  - d. All doors have rubber bumpers.

B. Pulls:

1. Select from the TMI Vendor Stock Pull Program or other manufacturer's pre-approved equivalent program.
2. Pull program offering must include minimum of 20 metal pull design and finish option combinations including:
  - a. Bar Pull (Finish options: Chrome Matte or Brushed Nickel - to be determined).
3. All pulls with 96mm spacing on screws. Pull designs shall comply with the Americans with Disability Act (ADA).

C. Drawer Slides:

1. Regular, kneespace and pencil: 100-pound load rated epoxy coated steel, bottom corner mounted with smooth and quiet nylon rollers. Positive stop both directions with self-closing feature. Paper storage, 150-pound load rated epoxy coated steel slides.
2. File: Full extension, 150-pound load rated epoxy coated steel, bottom corner mounted with smooth and quiet nylon rollers. Positive stop both directions with self-closing feature.

D. Adjustable Shelf Supports:

1. Injection molded transparent polycarbonate friction fit into cabinet end panels and vertical dividers, adjustable on 32mm centers. Each shelf support has 2 integral support pins, 5mm diameter, to interface pre-drilled holes, and to prevent accidental rotation of support. The support automatically adapts to 3/4 inch or 1 inch thick shelving and provides non-tip feature for shelving. Supports may be field fixed if desired. Structural load to 1200 pounds (300 pounds per support) without failure.

E. Locks: Provide on all doors and drawers

1. Removable core, disc tumbler, cam style lock with strike. Lock for sliding 3/4 inch thick doors is a disc type plunger lock, sliding door type with strike. Lock for sliding glass/acrylic doors is a ratchet type sliding showcase lock.

- 2. Elbow catch or chain bolt used to secure inactive door on all locked cabinets.
- F. Sliding Door Track: Anodized aluminum double channel.
- G. Coat Rods: 1 inch diameter, 14-gauge chrome plated steel installed in captive mounting hardware.
- H. File Suspension System: Extruded molding integral with top of drawer box sides to accept standard hanging file folders.
- I. Grommets: PS-3B - 3" Flush Mount Grommet, 1 Slot in color as selected. Supplied by Doug Mockett & Company, Inc.

**2.05 FABRICATION:**

- A. Fabricate casework, countertops and related products to dimensions, profiles, and details shown.
- B. All casework panel components must go through a supplemental sizing process after cutting, producing a panel precisely finished in size and square to within 0.010 inches, ensuring strict dimensional quality and structural integrity in the final fabricated product.
- C. Cabinet Body Construction:
  - 1. Tops and bottoms are glued and doweled to cabinet sides and internal cabinet components such as fixed horizontals, rails and verticals. Minimum 6 dowels each joint for 24 inch deep cabinets and a minimum of 4 dowels each joint for 12 inch deep cabinets. (Mechanical or metal hardware fasteners joining cabinet top and bottom panels to the sides will not be accepted.)
    - a. Tops, bottoms and sides of all cabinets are particleboard core.
    - b. Tops, bottoms and sides of sink base units are moisture resistant particleboard core.
  - 2. Cabinet backs: 1/4 inch thick medium density fiberboard panel fully captured by the cabinet top, bottom and side panels. Finish to match cabinet interior. 3/4 inch x 4 inch particleboard rails will be placed behind the back panel at the top and bottom, and doweled to the sides utilizing 10mm hardwood fluted dowels. A third intermediate rail will be included on all cabinets taller than 56 inches. Utilize hot melt glue to further secure back and increase overall strength.
    - a. Exposed back on fixed or movable cabinets: 3/4 inch thick particleboard with the exterior surface finished in VGS laminate as selected.
    - b. Exposed back on fixed or movable sink base cabinets: 3/4 inch thick moisture resistant particleboard with the exterior surface finished in VGS laminate as selected.
  - 3. Fixed base and tall units have an individual factory-applied base, constructed of 3/4 inch thick plywood. Base is 102mm (nominal 4 inch) high unless otherwise indicated on the drawings.
  - 4. Base units, except sink base units: Full sub-top glued and doweled to cabinet sides. (Mechanical or metal hardware fasteners joining cabinet sub-top panel to the sides will not be accepted.)
    - a. Sink base units are provided with open top and a stretcher at the front, attached to the sides. Back to be split removable access panel.
  - 5. Side panels and vertical dividers shall receive adjustable shelf hardware at 32mm line boring centers. Mount door hinges, drawer slides and pull-out shelves in the line boring for consistent alignment.
  - 6. Exposed and semi exposed edges.
    - a. Edging: 1mm PVC machine applied.
  - 7. Adjustable Shelves in Cabinets
    - a. Core: Particleboard.
    - b. Core Thickness: 3/4 inch up to 30 inches wide, 1 inch over 30 inches wide.
    - c. Edge: 1mm PVC on Front Edge Only.
  - 8. Interior finish, units with open Interiors:

- a. Top, bottom, back, sides, horizontal and vertical members, and adjustable shelving faces with high-pressure decorative VGS laminate. Use of TFM Thermally Fused Melamine laminate on open cabinet interiors will not be permitted.
  - 9. Interior finish, units with closed Interiors:
    - a. Top, bottom, back, sides, horizontal and vertical members, and adjustable shelving faces with TFM Thermally Fused Melamine laminate.
  - 10. Exposed ends:
    - a. Faced with high-pressure decorative VGS laminate. Use of TFM on exposed ends will not be permitted.
  - 11. Wall unit bottom:
    - a. Faced with thermally fused melamine laminate.
  - 12. Balanced construction of all laminated panels is mandatory. Unfinished core stock surfaces, even on concealed surfaces (excluding edges), are not permitted.
- D. Drawers:
- 1. Sides, back and sub front: Minimum 1/2 inch thick particleboard, laminated with TFM Thermally Fused Melamine doweled and glued into sides. Top edge banded with 1mm PVC.
  - 2. Drawer bottom: Minimum 1/2 inch thick particleboard laminated with TFM Thermally Fused Melamine, screwed directly to the bottom edges of drawer box.
  - 3. Paper storage drawers: Minimum 3/4 inch thick particleboard sides, back, and sub front laminated with TFM Thermally Fused Melamine. Minimum 1/2 inch thick particleboard drawer bottoms screwed directly to the bottom edges of the drawer box. Provide PVC angle retaining bar at the rear of the drawer.
- E. Door/Drawer Fronts:
- 1. Core: 3/4 inch thick particleboard.
  - 2. High-pressure decorative VGS laminate exterior, balanced with high-pressure cabinet liner CLS. Use of TFM on exterior or interior surfaces of door/drawer fronts will not be permitted.
  - 3. Edges: 3mm PVC, machine applied, external edges and outside corners machine profiled to 1/8 inch radius.
  - 4. Provide double doors in opening in excess of 24 inches wide.
- F. Miscellaneous Shelving (not in Cabinets):
- 1. Core material: 1 inch thick particleboard.
  - 2. High-pressure decorative VGS laminate on both faces.
  - 3. Edges: 3mm PVC, external edges and outside corners machine profiled to 1/8 inch radius.
- G. Reagent and Wall Shelving:
- 1. Core material: 1 inch thick plywood.
  - 2. Chemical Resistant high-pressure decorative VGS laminate on both faces.
  - 3. Edges: 3mm PVC, external edges and outside corners machine profiled to 1/8 inch radius. Front edge reagent 'lip' to be raised above the shelf 3/8 inch.

## **2.06 QUARTZ COUNTERTOP**

- A. Color:
  - 1. QTZ-01: Snowdon White.
- B. Source: Cambria.

## **PART 3 - EXECUTION**

### **3.01 INSPECTION:**

- A. The casework contractor must examine the job site and the conditions under which the work under this section is to be performed, and notify the building owner in writing of unsatisfactory

conditions. Do not proceed with work under this Section until satisfactory conditions have been corrected in a manner acceptable to the installer.

### **3.02 PREPARATION:**

- A. Condition casework to average prevailing humidity conditions in installation areas prior to installing.

### **3.03 INSTALLATION:**

- A. Erect casework, plumb, level, true and straight with no distortions. Shim as required. Where laminate clad casework abuts other finished work, scribe and cut to accurate fit.
- B. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind.
- C. Repair minor damage per plastic laminate manufacturer's recommendations.

### **3.04 CLEANING:**

- A. Remove and dispose of all packing materials and related construction debris.
- B. Clean cabinets inside and out. Wipe off fingerprints, pencil marks, and surface soil etc., in preparation for final cleaning by the building owner.

### **3.05 COLOR SELECTION:**

- A. Hardware Color Selection:
  - 1. Hinge: Select from your choice of epoxy powder coating stock colors matched to White, Beige, Gray, Black, Slate and Chrome.
  - 2. Pulls: Select from design specific finish options available in the TMI Vendor Stock Pull Program.
  - 3. Miscellaneous Hardware (support brackets, metal components, etc.): Select from your choice of epoxy powder coating stock colors matched to White, Beige, Gray, Black, Slate and Chrome.
- B. PVC Edge Banding Color Selection:
  - 1. 3mm PVC: Select from your choice of stock colors matched to Opti Grey, Spa White, Nubian Brown. Other colors are available\*. Special order colors may impact cost and lead times.
  - 2. 1mm PVC: Select from your choice of stock colors matched to Opti Grey, Spa White, Nubian Brown. Other colors are available\*. Special order colors may impact cost and lead times.
- C. \*For complete and current Laminate and PVC color availability charts please refer to:  
[www.tmisystems.com/specifying/crossreference.asp](http://www.tmisystems.com/specifying/crossreference.asp)

**END OF SECTION**