



## PROJECT MANUAL

FOR

### **MARSHALL PUBLIC LIBRARY PHASE II RENOVATIONS**

**Marshall, Illinois**

**Project No: 0230585.00**

**Bid Set  
November 9, 2023**

**Owner:**

The City of Marshall  
Marshall Public Library  
612 Archer Avenue  
Marshall, IL 62441

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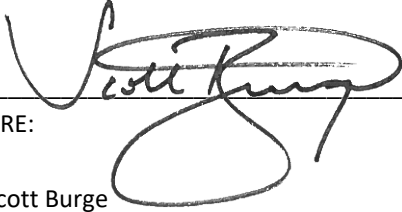
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The portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge. I am a duly licensed Architect under the laws of the State of Illinois.



SIGNATURE:

NAME: Scott Burge

DATE: November 09, 2023

LICENSE EXPIRES: Nov. 30, 2024



SEAL

**SECTION 00 0115 - LIST OF DRAWING SHEETS**

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E4.1 ONE-LINE DIAGRAM/ SCHEDULES

E5.1 SCHEDULES

E6.1 DETAILS

**END OF SECTION**

## SECTION 00 1113 – ADVERTISEMENT FOR BID

MARSHALL PUBLIC LIBRARY IS INVITING SEALED BID PROPOSALS FROM INTERESTED AND QUALIFIED PARTIES FOR PHASE II RENOVATIONS, LOCATED AT 612 ARCHER AVENUE, MARSHALL, ILLINOIS 62441.

THIS PROJECT CONSISTS OF CONSTRUCTION OF RENOVATIONS TO THE EXISTING FACILITY. RENOVATIONS AND REMODEL WORK INCLUDES BUT IS NOT LIMITED TO ELEVATOR ADDITION AND PARTIAL SECOND FLOOR INTERIOR REMODEL INCLUDING STRUCTURAL EVALUATION OF THE FLOOR SYSTEM, REPLACEMENT OF FLOOR FINISHES, INCLUDING HVAC AND ELECTRICAL UPGRADES. CONTRACTOR SHALL PROVIDE ALL LABOR, SUPERVISION, MATERIALS, SUPPLIES, TRANSPORTATION, TOOLS/EQUIPMENT, SERVICES AND ASSOCIATED WORK FOR THIS PROJECT AS SET FORTH IN THE CONTRACT DOCUMENTS.

BIDS WILL BE RECEIVED BY MARSHALL PUBLIC LIBRARY UNTIL THE DATE AND TIME LISTED BELOW, AT WHICH TIME THE BIDS WILL BE PUBLICLY OPENED AND READ ALOUD.

- 3.1. PRE-BID DATE: NOVEMBER 29, 2023
- 3.2. PRE-BID TIME: 2:00 P.M.
- 3.3. PRE-BID LOCATION: 612 ARCHER AVENUE, MARSHALL, IL 62441
- 3.4. BID DATE: DECEMBER 07, 2023
- 3.5. BID TIME: 2:00 PM
- 3.6. BID LOCATION: 612 ARCHER AVENUE, MARSHALL, IL 62441

BID SECURITY SHALL BE SUBMITTED WITH EACH BID IN THE AMOUNT OF FIVE (5) PERCENT OF THE BID AMOUNT. NO BIDS MAY BE WITH-DRAWN FOR A PERIOD OF 30 DAYS AFTER OPENING OF BIDS. OWNER RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS AND TO WAIVE INFORMALITIES AND IRREGULARITIES.

ONLINE PROCUREMENT AND CONTRACTING DOCUMENTS: DOCUMENTS WILL BE AVAILABLE ONLINE THROUGH AN ELECTRONIC BID SITE MANAGED BY FARNSWORTH GROUP, INC. OBTAIN ACCESS AFTER 8:00 AM ON NOVEMBER 13, 2023, BY VISITING [WWW.F-W.COM](http://WWW.F-W.COM) AND CLICKING ON THE PROJECT BID LIST LINK AT THE BOTTOM OF THE PAGE OR BY CONTACTING FARNSWORTH GROUP, INC. ONLINE ACCESS WILL BE PROVIDED TO ALL REGISTERED BIDDERS DURING THE BIDDING PROCESS. A SEPARATE FTP SITE WILL BE MADE AVAILABLE TO THE SUCCESSFUL BIDDER FOR THE DURATION OF CONSTRUCTION.

BIDDERS MUST BE PROPERLY LICENSED UNDER THE LAWS GOVERNING THEIR RESPECTIVE TRADES AND BE ABLE TO OBTAIN INSURANCE AND BONDS REQUIRED FOR THE WORK. A PERFORMANCE BOND, SEPARATE LABOR AND MATERIAL PAYMENT BOND, AND INSURANCE IN A FORM ACCEPTABLE TO OWNER WILL BE REQUIRED OF THE SUCCESSFUL BIDDER.

THE OWNER REQUIRES ALL CONTRACTORS AND VENDORS DOING BUSINESS WITH THE OWNER NOT TO DISCRIMINATE AGAINST ANYONE ON THE BASIS OF RACE, AGE, COLOR, RELIGION, GENDER, SEXUAL ORIENTATION, ANCESTRY, NON JOB-RELATED HANDICAPS OR NATIONAL ORIGIN.

MARSHALL PUBLIC LIBRARY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY AND ALL BIDS, AND TO WAIVE ANY AND ALL INFORMALITIES IN THE BIDDING. AFTER RECEIPT OF BIDS AND COMPLETION OF THE REVIEW PROCESS, MARSHALL PUBLIC LIBRARY MAY AWARD A CONTRACT TO THE BIDDER THAT, IN ITS OPINION, WILL PROVIDE A COMBINATION OF THE BEST SERVICES AND REASONABLE COST.

SUCCESSFUL BIDDERS SHALL BE REQUIRED TO OBSERVE THE FAIR EMPLOYMENT PRACTICES COMMISSION RULES PERTAINING TO EQUAL EMPLOYMENT OPPORTUNITY, AND COMPLY WITH THE ILLINOIS PREVAILING WAGE ACT, 820 ILCS 130/1 ET SEQ., AND USE WAGE DETERMINATION AS DETERMINED BY THE ILLINOIS DEPARTMENT OF LABOR, CONCILIATION, AND MEDIATION DIVISION DATED MOST RECENTLY. THESE WAGES WILL REMAIN IN EFFECT UNTIL SUPERSEDED BY A NEW DETERMINATION.



BIDS WILL BE HELD GOOD FOR A PERIOD OF THIRTY (30) DAYS SUBSEQUENT TO THE OPENING OF BIDS.

**END OF SECTION 001113**

**SECTION 00 2100 - INSTRUCTIONS TO BIDDERS****1.1. GENERAL**

- A. Summary of Work: Type of Bid: Bids shall be on a stipulated sum basis.
1. This project consists of work associated with the following:
    - a. Interior renovation work including all necessary labor, material and equipment.
- B. Time and Location for Opening of Bids:
1. Bid Date and Time: December 07, 2023, 2:00 pm
  2. Bid Location: 612 Archer Avenue, Marshall, IL 62441
- C. Examination and Procurement of Documents: Documents will be available online through a electronic bid site managed by Farnsworth Group, Inc. Obtain access after 8:00 am on November 13, 2023, by visiting [www.f-w.com](http://www.f-w.com) and clicking on the Project Bid List Link at the bottom of the page or by contacting Farnsworth Group, Inc. Online access will be provided to all registered bidders during the bidding process. A separate FTP site will be made available to the successful bidder for the duration of construction.
- D. Bidders will be required to provide Bid security in the form of a Bid Bond in the amount of five (5) percent of the Bid.
- E. Interpretations of Addenda
1. No oral interpretation will be made to any Bidder as to the meaning of the Bidding Documents or any part thereof.
  2. Requests for interpretations shall be made in writing to the Architect.
  3. Contact : Farnsworth Group, Inc.
    - a. Scott Burge ([sburge@F-W.com](mailto:sburge@F-W.com)), 2211 W Bradley Ave, Champaign, IL 61821
  4. Inquiries received three (3) or more business days prior to the date fixed for opening of bids will be given consideration.
  5. Changes to the Bidding Documents will be in the form of an Addendum to the Bidding Documents, and when issued, will be on file in the office of the Architect upon issuance.
  6. Addenda will be distributed to each registered plan holder holding Bidding Documents by means of the electronic bid site maintained by Farnsworth Group, Inc. It shall be the Bidders' responsibility to make inquiry as to the Addenda issued and provide distribution of Addenda to all Subcontractors and Suppliers not registered through the electronic bid site.
  7. Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.
- F. Inspection of Site and Documents
1. Bidder shall visit the site of the proposed work and fully acquaint himself/herself with the existing conditions there relating to construction and labor, and should fully inform himself/herself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract.
  2. The Bidder shall thoroughly examine and familiarize himself/herself with the Drawings, Technical Specifications and all other Bidding Documents.
  3. The Contractor by the execution of the Contract shall in no way be relieved of any obligation under it due to his/her failure to receive or examine any form or legal instrument or to visit the site and acquaint himself/herself with the existing conditions, and the Owner will be justified in rejecting any claim based on facts regarding which the contractor should have noticed as a

result thereof.

4. A Non-Mandatory Prebid Meeting is scheduled for November 29, 2023.
  - a. The Prebid meeting will be held at the 10 am at 612 Archer Avenue, Marshall, IL 62441.

G. Bids

1. Scheduled Completion Dates: Owner has provided the required Substantial Completion Date on the Bid Form. Bidder shall state a stipulated sum amount for performance of the work in accordance with these schedule dates.
  - a. Final Completion shall be by 08/30/2024.
2. Each bidder shall include in his/her bid the following information:
  - a. Principals
    - 1) Names
  - b. Firm
    - 1) Name
    - 2) Treasury Number
    - 3) Address (City, State, Zip Code and Telephone Numbers)
3. Bidder shall attach a preliminary bar chart construction schedule coordinated with time frames indicated on his/her bid form.
4. Completed form 00 4105 - Bid Form Attachment A - Non-Collusion Affidavit.
5. Completed form 00 4336 - Proposed Subcontractors Form.
6. The Owner reserves the right to require all or part of any remaining Work not completed by date designated for Substantial Completion to be performed after normal business hours or on other than normal working days at no "extra" or additional cost to Owner and with no extension of time.
7. Bids must be submitted on forms supplied by the Architect/Engineer. All shall be properly signed and seal affixed. Bids must be regular in every respect and no interlineations, excisions or special conditions shall be made or included in the Bid Form by the Bidder except as stated above. The Contractor shall submit two copies of the completed Bid Form and retain one copy for his/her records.
8. Bid Proposal Documents, including the Bid Form, shall be enclosed in envelopes (outer and inner), both of which shall be sealed and clearly labeled with words "0230585.00", name of Bidder, and date and time of Bid Opening. Faxed bid proposals will not be accepted.
9. The Owner may consider as irregular any Bid on which there is an alteration of or departure from the Bid Form provided herein, and at his/her option may reject same.
10. Corrections, erasures or other changes in the Bid Proposal Documents must be explained or noted over the signature of the Bidder.
11. Bids received prior to the advertised hour of opening will be securely kept sealed. The officer whose duty it is to open them will decide when the specified time has arrived. No Bid received thereafter will be considered, except when a Bid arrives by United States mail after the time fixed for opening, but before the reading of all other Bids is completed, and it is shown to the satisfaction of the Owner that the non-arrival on time was due solely to delay in the mails for which the Bidder was not responsible, such Bid will be received and considered.
  - a. Bidders are cautioned that, while telegraphic modifications of Bids may be received as provided above, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the Bid so modified or amended, subject to rejection.
12. Opening Of Bids

- a. At the time and place fixed for the opening of Bids, the Owner will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.
13. Withdrawal Of Bids
- a. Bids may be withdrawn on written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening; provided that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The Bid guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly
- H. Substitutions
1. Each Bidder represents that his/her Bid is based upon the materials and equipment described in the Bidding Documents.
  2. No Substitution will be considered unless request has been submitted to the Architect for approval at least seven (7) days prior to the date of receipt of Bids. Substitution requests shall be written and accompanied by adequate technical and cost data.
  3. Requests shall include a complete description of the proposed Substitution, name of the material or equipment for which it is to be substituted, drawings, cuts, performance and test data, and any other data or information necessary for a complete evaluation by the Architect.
  4. If the Architect approves any proposed Substitution, such approval will be set forth in an Addendum not less than three (3) days prior to the date for receipt of Bids.
- I. Statement Of Bidder's Qualifications
1. Each Bidder shall upon request of the Owner submit on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's qualifications, his experience record in constructing the type of improvements embraced in the contract, his organization and equipment available for the work contemplated, and, when specifically requested by the Owner, a detailed financial statement. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations under the Contract and the Bidder shall furnish the Owner all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract.
- J. Award of Contract: Rejection of Bids
1. The Contract, if awarded, will be awarded to the qualified, responsible Bidder submitting the lowest combination of "Base Bid" for the Work; plus any acceptable Alternates, complying with the conditions of the Bidding Documents, within the Owner's Budget.
  2. The Contract shall be deemed to have been awarded when notice of an award shall have been given to the Bidder by some officer or agent of the Owner. The Bidder to whom the awards are made will be notified at the earliest possible date.
  3. The Owner reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the Improvements embraced in this Contract.
  4. The Owner, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such action(s) will serve the Owner's best interest.

- K. Bids for Base Bids will be held good for a period of thirty (30) and Alternates will be held good for a period of sixty (60) days subsequent to the opening of Bids.
- L. Use and Clarification of Drawings and Specifications
1. All Drawings and Specifications for the work are the property of Owner and are intended solely for use in the work contemplated in such Drawings and Specifications.
  2. If there are any discrepancies in, or omissions from, the Drawings or Specifications, or if the Bidder is in doubt as to the true meaning of any part of the Bidding Documents, he/she shall request clarification from Architect/Engineer. Such request must be in writing and shall be made not less than three (3) working days prior to the time scheduled for the termination of Bidding. Interpretations in response to inquiries from any Bidder, or any clarification or corrections issued, will be mailed to each Bidder. If the Bidder fails to request clarification regarding methods of performing work or the material required, his/her proposal shall be deemed to include the method requiring the greater quantity of work or material or upon the material of greatest cost indicated.
- M. Execution of Agreement; Submittal of Performance and Payment Bonds and Certificate of Insurance
1. Subsequent to the award and within ten (10) days after the prescribed forms are prepared and presented for signature by the Architect/Engineer, the successful Contractor shall execute and return to the Architect, an Agreement in the form referenced in the Contract Documents in such number of copies as the Owner may require. The submittal shall include required certificates of insurance forms/insurance policies, performance and payment bonds, and data requested by Owner for Owner's insurance. These submittals shall be complete prior to initiation of on-site work.
  2. Contractor shall furnish Performance and Payment Bonds in penal sum equal to the contract. The bond premium is to be included in the Stipulated Sum Bid. Contractor represents that this Proposal does include all costs of such bonds.
  3. Bidders should note that this Project Manual consists of all pages listed in the Table of Contents. Upon notification, the Architect will furnish any pages missing from the Project Manual, or from the Drawings as printed.
  4. If the Bidder to whom the award is made shall fail to enter into a contract for the performance of the Work or furnish the Performance and Payment Bonds and the required certificates within ten (10) days, he/she shall forfeit his/her claim to the Work and the amount represented by the Bid Security accompanying his/her Proposal shall become the property of the Owner as the agreed and liquidated amount of damages caused by such failure.
- N. Pre-Construction Conference
1. A "Pre-Construction" Conference will be scheduled shortly after the issuance of the "Notice to Proceed", to establish lines of communication, review schedules, and establish guidelines for execution of the work. This meeting is to be attended by the Contractor, any Subcontractors, the Owner, and the Architect/Engineer.
- O. Bidder's Responsibility for Condition of Work
1. The Bidder shall, before submitting his/her Proposal, be held to have examined the premises, so as to compare them with the Drawings and Specifications, and to have satisfied himself/herself as to the existing conditions of the premises and limitations under which the work will have to be executed. No allowance shall subsequently be made on behalf of the Bidder by reason of any error or neglect on his/her part for having failed to follow the instruction here given.

2. The Bidder shall be held to have carefully read the Instructions to Bidders, the General Conditions, the Specifications for his/her work and other branches of the work to the end that he/she may be fully informed not only as to the work he/she is to perform, but also know about the work that will be required to be done by all Subcontractors.
- P. Contract Information:
1. Refer to Item G.1 above for completion date information.
  2. Bids for Base Bids will be held good for a period of thirty (30) days and Alternates will be held good for a period of sixty (60) days subsequent to the opening of Bids.
  3. If Contractor does not complete work by date designated Substantial Completion, Owner may require that all or part of any remaining Work to be performed after building leaser's/user's normal business hours or on other than normal working days at no "extra" or additional cost to Owner and with no extension of time.
- Q. Sales Tax
1. Owner is a tax exempt organization and Contractor will be permitted to use Owner's tax exempt number for this project.
- R. Building Permits
1. The Owner shall provide the Building Permit for the project.
  2. Contractor shall obtain and include in the Bid the cost for all notifications, permits, inspection fees, utility connections, curb opening fees and similar charges imposed by government and quasi-governmental entities with jurisdiction, as may be required for all work to be performed for this project.
- S. Payment
1. Owner will make partial payments as the work progresses, if found satisfactory by Architect/Engineer. Contractor may submit to Owner, not more than once a month, a partial payment invoice, using the form designated in Section 00 6100, setting forth the value, based on the prices in this Proposal, of labor, materials and supplies furnished and incorporated in the work to the satisfaction of Owner's Liaison and Architect/Engineer and of materials suitably stored on the site at the date of such submission.
- T. EXECUTION OF AGREEMENT: PERFORMANCE AND PAYMENT BOND
1. Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Owner an Agreement in the form included in the Contract Documents in such number of copies as the Owner may require.
  2. Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in paragraph "a" above, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him in performing the work. Such bond shall be in the same form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond. This bond shall be signed by a guaranty or surety company listed in the latest issue of the U.S. Treasury Circular 570 and the penal sum shall

- U. Wage Rates
  - 1. See Section 00 7300.
- V. Equal Employment Opportunity
  - 1. See Section 00 7300.
- W. Illinois Drug Free Work Place Act
  - 1. See Section 00 7300.
- X. Contractor/Subcontractor Employee Background Checks
  - 1. See Section 00 7300.

**END OF SECTION 002100**

**SECTION 00 3100 - AVAILABLE PROJECT INFORMATION**

**PART 1 GENERAL**

1.1. EXISTING CONDITIONS

- A. Certain information relating to existing conditions and structures is available to bidders and is included for reference. In transmitting information regarding the materials and conditions expected to be encountered, the Architect/Engineer does not guarantee the accuracy or completeness of the data given, and assumes no responsibility for the data or its subsequent use(s). The Contractor shall draw their own conclusions from whatever information is available through the report, through the Architect/Engineer or through other means.
- B. Hazardous Material Survey:
  - 1. Original copy is available for inspection at Owner's offices during normal business hours.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**



**SECTION 00 4000 - PROCUREMENT FORMS AND SUPPLEMENTS**

**PART 1 GENERAL**

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

1.2. FORMS

- A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in the procurement requirements.
- B. Instructions to Bidders: Section 00 2100 - Instructions to Bidders
- C. Substitution Request Form (During Procurement): CSI Form 1.5C - Substitution Request (During Bidding/Negotiating Stage).
- D. Bid Form: Section 00 4100 - Bid Form.
- E. Procurement Form Supplements:
  - 1. Proposed Schedule of Values Form: AIA G703.

1.3. REFERENCE STANDARDS

- A. AIA G703 - Continuation Sheet 1992.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 00 4100 - BID FORM**

**THE PROJECT AND THE PARTIES**

1.1. TO:

- A. The City of Marshall (Owner)  
 Marshall Public Library  
 612 Archer Avenue  
 Marshall, Illinois 62441

1.2. FOR:

- A. Project: Marshall Public Library Phase II Renovation
- B. Architect's Project Number: 0230585.00  
 Marshall Public Library  
 612 Archer Avenue  
 Marshall, Illinois 62441

1.3. DATE: \_\_\_\_\_ (BIDDER TO ENTER DATE)

1.4. SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)

- A. Bidder's Full Company Name \_\_\_\_\_
- 1. Address \_\_\_\_\_
- 2. City, State, Zip \_\_\_\_\_
- 3. Bidder's Main Contact \_\_\_\_\_
- 4. Main Contact Phone \_\_\_\_\_
- 5. Main Contact Email \_\_\_\_\_

1.5. OFFER

- A. Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Bid Documents prepared by Farnsworth Group, Inc. for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

- B. BASE BID: \_\_\_\_\_  
 \_\_\_\_\_ dollars  
 (\$ \_\_\_\_\_), in lawful money of the United States of America.

- C. We have included the required security Bid Bond as required by the Instruction to Bidders.

- D. We have included the required performance assurance bonds in the Bid Amount as required by the Instructions to Bidders.

- 1. The cost of the required performance assurance bonds is \_\_\_\_\_ dollars  
 (\$ \_\_\_\_\_), in lawful money of the United States of America.

- E. All Cash and Contingency Allowances described in Section 01 2100 - Allowances are included in the Bid Sum.

1.6. ACCEPTANCE

- A. This offer shall be open to acceptance and is irrevocable for thirty days from the bid closing date.

- B. If this bid is accepted by Owner within the time period stated above, we will:

- 1. Execute the Agreement within seven days of receipt of Notice of Award.
- 2. Furnish the required bonds within seven days of receipt of Notice of Award.

- C. If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to Owner by reason

of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

- D. In the event our bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

1.7. CONTRACT TIME

- A. If this Bid is accepted, we will:
- B. Reach final completion of the Work by August 30, 2024.
- C. Agree to pay liquidated damages as indicated in 00 7300 - Supplementary Conditions.

1.8. CHANGES TO THE WORK

- A. When Architect establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with General Conditions, our percentage fee will be:
  - 1. (10%) ten percent overhead and profit on the net cost of our own Work;
  - 2. (10%) ten percent on the cost of work done by any Subcontractor.
- B. On work deleted from the Contract, our credit to Owner shall be Architect-approved net cost plus (10%) ten percent of the overhead and profit percentage noted above.

1.9. ADDENDA

- A. The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.
  - 1. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.
  - 2. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.

1.10. BID FORM SIGNATURE(S)

- A. The Corporate Seal of
- B. \_\_\_\_\_
- C. (Bidder - print the full name of your firm)
- D. was hereunto affixed in the presence of:
- E. \_\_\_\_\_
- F. (Authorized signing officer, Title)
- G. (Seal)
- H. \_\_\_\_\_
- I. (Authorized signing officer, Title)

1.11. IF THE BID IS A JOINT VENTURE OR PARTNERSHIP, ADD ADDITIONAL FORMS OF EXECUTION FOR EACH MEMBER OF THE JOINT VENTURE IN THE APPROPRIATE FORM OR FORMS AS ABOVE.

**END OF SECTION**

**SECTION 00 4105 - BID FORM ATTACHMENT A - NON-COLLUSION AFFIDAVIT  
(COMPLETE AND SUBMIT WITH BID)**

STATE OF \_\_\_\_\_ )  
 ) SS  
COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_ BEING DULY SWORN, SAYS THAT  
HE/SHE IS

\_\_\_\_\_ OF \_\_\_\_\_,  
(SOLE OWNER, MEMBER OF FIRM, CORPORATE OFFICIAL) (INDIVIDUAL, FIRM OR  
CORPORATE NAME)

WHICH HAS BY THE ENACTMENT OF THIS DOCUMENT AFFIRMED THAT HE/SHE, IN THE PREPARATION OF THE BID ESTIMATES, HAS NOT ENTERED INTO ANY VERBAL AND/OR WRITTEN AGREEMENT WITH ANY OF THE OTHER BIDDERS OR THEIR AGENTS FOR THE SPECIFIC PURPOSE OF FIXING BID ESTIMATES TO BENEFIT HIM/HER-SELF OR THE FIRM HE/SHE REPRESENTS.

CERTIFICATION: THE UNDERSIGNED BIDDER CERTIFIES THAT IT HAS NOT BEEN CONVICTED OF BRIBERY OR ATTEMPTING TO BRIBE AN OFFICER OR EMPLOYEE OF THE STATE OF ILLINOIS, OR ANY UNIT OF GOVERNMENT IN THE STATE OF ILLINOIS, NOR HAS THE BIDDER MADE AN ADMISSION OF GUILT OF SUCH CONDUCT WHICH IS A MATTER OF RECORD, NOR HAS AN OFFICIAL, AGENT, OR EMPLOYEE OF THE BIDDER COMMITTED BRIBERY OR ATTEMPTED BRIBERY ON BEHALF OF THE BIDDER AND PURSUANT TO THE DIRECTION OR AUTHORIZATION OF A RESPONSIBLE OFFICIAL OF THE BIDDER. THE UNDERSIGNED BIDDER FURTHER CERTIFIES THAT IT IS NOT BARRED FROM BIDDING ON THIS CONTRACT AS A RESULT OF A CONVICTION FOR THE VIOLATION OF STATE LAWS PROHIBITING BID-RIGGING OR BID-ROTATING.

SIGNATURE \_\_\_\_\_

SUBSCRIBED AND SWORN TO ME THIS \_\_\_\_ DAY OF \_\_\_\_\_ A.D. \_\_\_\_\_.

\_\_\_\_\_ (seal)  
Notary Public

**END OF SECTION**

**SECTION 00 4336 - PROPOSED SUBCONTRACTORS FORM**

**PARTICULARS**

- 1.1. HEREWITH IS THE LIST OF SUBCONTRACTORS REFERENCED IN THE BID SUBMITTED BY:
- 1.2. (BIDDER) \_\_\_\_\_
- 1.3. TO (OWNER ): MARSHALL PUBLIC LIBRARY
- 1.4. DATED \_\_\_\_\_ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.
- 1.5. THE FOLLOWING WORK WILL BE PERFORMED (OR PROVIDED) BY SUBCONTRACTORS AND COORDINATED BY US:

**LIST OF SUBCONTRACTORS**

WORK SUBJECT SUBCONTRACTOR NAME

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_

**END OF SECTION**

**SECTION 00 5000 - CONTRACTING FORMS AND SUPPLEMENTS****PART 1 GENERAL****1.1. AGREEMENT AND CONDITIONS OF THE CONTRACT**

- A. See Section 00 7200 - General Conditions for the General Conditions.
- B. The Agreement is based on AIA A101.
- C. The General Conditions are based on AIA A201.

**1.2. FORMS**

- A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in Contract Documents.
- B. Bond Forms:
  - 1. Bid Bond Form: AIA A310.
  - 2. Performance and Payment Bond Form: AIA A312.
- C. Post-Award Certificates and Other Forms:
  - 1. Schedule of Values Form: AIA G703.
  - 2. Application for Payment Forms: AIA G702 with AIA G703 (for Contractors).
- D. Clarification and Modification Forms:
  - 1. Architect's Supplemental Instructions Form: AIA G710.
  - 2. Construction Change Directive Form: AIA G714.
  - 3. Proposal Request Form: AIA G709.
  - 4. Change Order Form: AIA G701.
- E. Closeout Forms:
  - 1. Certificate of Substantial Completion Form: AIA G704.
  - 2. Consent of Surety to Final Payment Form: AIA G707.

**1.3. REFERENCE STANDARDS**

- A. AIA A101 - Standard Form of Agreement Between Owner and Contractor where the basis of Payment is a Stipulated Sum 2017.
- B. AIA A201 - General Conditions of the Contract for Construction 2017.
- C. AIA A310 - Bid Bond 2010.
- D. AIA A312 - Performance Bond and Payment Bond 2010.
- E. AIA G701 - Change Order 2017.
- F. AIA G702 - Application and Certificate for Payment 1992.
- G. AIA G703 - Continuation Sheet 1992.
- H. AIA G704 - Certificate of Substantial Completion 2017.
- I. AIA G707 - Consent of Surety to Final Payment 1994.
- J. AIA G709 - Proposal Request 2018.
- K. AIA G710 - Architect's Supplemental Instructions 2017.
- L. AIA G714 - Construction Change Directive 2017.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION - NOT USED****END OF SECTION**

**SECTION 00 5200 - AGREEMENT FORM**

**PART 1 GENERAL**

- 1.1. FORM OF AGREEMENT
- 1.2. THE AGREEMENT TO BE EXECUTED IS ATTACHED FOLLOWING THIS PAGE.
- 1.3. RELATED REQUIREMENTS
  - A. Section 00 7200 - General Conditions.
  - B. Section 00 7300 - Supplementary Conditions.
  - C. Section 01 4216 - Definitions.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 00 7300 - SUPPLEMENTARY CONDITIONS****PART 1 GENERAL**

## 1.1. SUMMARY

- A. These Supplementary Conditions amend and supplement the General Conditions defined in Document 00 7200 - General Conditions and other provisions of Contract Documents as indicated below. Provisions that are not so amended or supplemented remain in full force and effect.
- B. The terms used in these Supplementary Conditions that are defined in the General Conditions have the meanings assigned to them in the General Conditions.

## 1.2. RELATED SECTIONS

- A. Section 00 5000 - Contracting Forms and Supplements.

## 1.3. MODIFICATIONS TO GENERAL CONDITIONS

## A. ARTICLE 2: OWNER

- 1. Delete Paragraph 2.3.5 and substitute the following:
  - 2.3.5 Owner shall furnish Contractor four (4) copies of the Contract Documents without charge. Contractor may purchase additional sets at the cost of reproduction, postage and handling."

## B. ARTICLE 3: CONTRACTOR

## 1. 3.4 Labor and Materials

- a. ADD the following to Paragraph 3.4.1:

3.4.1 "...Should the Contract Documents require work to be performed after regular working hours or should the Contractor elect to perform work after regular working hours, the additional cost of such work shall be borne by the Contractor"

- b. Add the following Subparagraph 3.4.2.1 to Paragraph 3.4.2:

"3.4.2.1 After Contract has been executed, Owner and Architect will consider formal requests for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 01 of the Specifications).

By making requests for substitutions based on Subparagraph 3.4.3 above, Contractor:

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

## 2. 3.6 Taxes

- a. Add the following Paragraph 3.6.1:

"3.6.1 Owner is a tax exempt organization and Contractor will be permitted to use Owner's tax exempt number for this project for all materials physically incorporated into the project, that become property of Owner.



Items which do not become property of Owner and are not incorporated into real estate are taxable. (Example: fuel oil for machinery, construction stakes, temporary fencing, etc.)

Refer any questions about taxability of specific items to the Illinois Department of Revenue.”

3. 3.10 Contractor’s Construction Schedules
  - a. Change Subparagraph 3.10.1 to read as follows:

“3.10.1 The Contractor, promptly after being awarded the contract, shall prepare and submit for the Owner’s and Architect’s information a contractor’s construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised only with the Owner’s approval as required by conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.”
4. 3.12 Shop Drawings, Product Data and Samples
  - a. Add Paragraph 3.12.11 to Section 3.12:

3.12.11 Architect’s review of Contractor’s submittals will be limited to examination of an initial submittal and two (2) resubmittals. Owner is entitled to obtain reimbursement from Contractor for amounts paid to Architect for evaluation of additional resubmittals.”
5. 3.13 Use of Site
  - a. Add the following Paragraph 3.13.1:

“3.13.1 The Contractor acknowledges that portions of the property on which the Project and Work are located will be occupied and in use by the Owner during the execution of the Work. The Contractor shall perform and coordinate his work in such a manner that the portions of the property occupied and in use will not be encumbered or the use interfered with or interrupted.]

C. ARTICLE 7: CHANGES IN THE WORK

1. 7.1 General
  - a. Add the following Paragraph 7.1.4 to Section 7.1:

“7.1.4 The Contractor is entitled to add a fixed percentage fee to the actual cost involved for changes in the Work. The combined overhead and profit included in the total cost to Owner for a change in the Work shall be based on the following schedule:

    - .1 For Contractor, for Work performed by Contractor’s own forces, 10 percent
    - .2 For Contractor, for Work performed by Contractor’s Subcontractors, 10 percent of the amount due the Subcontractors.
    - .3 For each Subcontractor involved, for Work performed by that Subcontractor’s own forces, 10 percent of the cost.
    - .4 For each Subcontractor involved, for Work performed by the Subcontractor’s Sub-subcontractors, 10 percent of the amount due the Sub-subcontractor.
    - .5 Cost to which overhead and profit is to be applied shall be determined in accordance with Section 7.3.4.
    - .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 cost items are Subcontracts, they shall be itemized also. In no case will a change involving over \$200.00 be approved without such itemization.

D. ARTICLE 8: TIME

1. 8.1 Definitions

- a. Delete Paragraph 8.1.4 and substitute the following:

“8.1.4 The term “day” as used in the Contract Documents shall mean working day, excluding weekends and legal holidays.”

2. 8.2 Progress and Completion

- a. Add the following Subparagraph 8.2.4:

“8.2.4 Owner reserves the right to require all or part of any remaining work not completed by date designated for Substantial Completion to be performed after normal business hours or on other than normal working days at no “extra” or additional cost to Owner and with no extension of time.”

E. ARTICLE 9: PAYMENTS AND COMPLETION

1. 9.3 Applications for Payment

- a. Add the following sentence to Paragraph 9.3.1:

“9.3.1 The form of Application for Payment, duly notarized, shall be a current authorized edition of AIA G702-1992, Application and Certificate for Payment, supported by a current authorized edition of AIA G703-1992, Continuation Sheet.”

- b. Add the following Subparagraph 9.3.1.3 and 9.3.1.4 to Paragraph 9.3.1:

9.3.1.3 Until Substantial Completion, Owner shall pay 90 percent of the amount due the Contractor on account of progress payments.

9.3.1.4 The first payment application shall be accompanied by Contractor’s partial waiver for the full amount of the payment. Each subsequent monthly payment application shall be accompanied by the Contractor’s partial waiver and the partial waivers of the Subcontractors and Suppliers who were included in the immediately preceding payment application to the extent of that payment. Application for final payment shall be accompanied by final waivers of lien from the Contractor, Subcontractor and Suppliers who have not previously furnished such final waivers.

2. 9.8 Substantial Completion

- a. Add the following Subparagraph 9.8.3.1 to Paragraph 9.8.3:

9.8.3.1 Architect will perform no more than one (1) inspection per phase to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. Owner is entitled to reimbursement from the Contractor for amounts paid to Architect for any additional inspections.”

3. 9.10 Final Completion and Final Payment

- a. Add the following Subparagraph 9.10.1.1 to Paragraph 9.10.1:

9.10.1.1 Architect will perform no more than one (1) inspections to determine whether the Work or a designated portion thereof has attained Final Completion in accordance with the Contract Documents. Owner is entitled to reimbursement from the Contractor for amounts paid to Architect for any additional inspections.”

F. ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

1. 10.1 Safety Precautions and Programs
  - a. Add the following Paragraphs 10.1.1, 10.1.2 and 10.1.3 to Section 10.1:
    - 10.1.1 The Contractor shall not use asbestos, PCB or any material which contains asbestos or PCB in his work. If requested by Architect, Contractor shall submit a signed statement insuring that no asbestos or PCB has been used on this project.”
    - 10.1.2 If reasonable precautions will be inadequate to prevent foreseeable bodily injury of death to persons resulting from a material or substance encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing. The Owner, Contractor and Architect shall then proceed in the same manner described in Subparagraph 10.1.3.
    - 10.1.3 The Owner shall be responsible for obtaining the services of a licensed laboratory to verify a presence of the material or substance reported by the Contractor and, in the event such material or substance reported by and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and the Architect the names and qualifications of persons or entities who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If Either the Contractor or the Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection.
- G. ARTICLE 11: INSURANCE AND BONDS
  1. 11.1 Contractor’s Liability Insurance
    - a. Add the following Subparagraphs 11.1.2.1 through 11.1.2.6.2 to Paragraph 11.1.2:

“11.1.2.1 The limits for Worker’s Compensation and Employers’ Liability insurance shall meet statutory limits mandated by State and Federal Laws. If (1) limits in excess of those required by statute are to be provided, (2) the employer is not statutorily bound to obtain such insurance coverage, or (3) additional coverages are required, additional coverages and limits for such insurance shall be as follows:

      - 11.1.2.2 The limits for Commercial General Liability insurance including coverage for Premises-Operations, Independent Contractors’ Protective, Products-Completed Operations, Contractual Liability, Personal Injury and Broad Form Property Damage (including coverage for Explosion, Collapse and Underground hazards) shall be as follows:
        - \$1,000,000 Each Occurrence
        - \$2,000,000 General Aggregate
        - \$1,000,000 Personal and Advertising Injury
        - \$2,000,000 Products-Completed Operations Aggregate
      - .1The policy shall be endorsed to have the General Aggregate apply to this Project only.
      - .2The Contractual Liability insurance shall include coverage sufficient to meet the obligations in O/C A201™-2007 under Section 3.18.
      - .3Products and Completed Operations insurance shall be maintained for a minimum period of at least four (4) year(s) after the expiration of the period for correction of

Work.

11.1.2.3 Automobile Liability insurance (owned, non-owned and hired vehicles) for bodily injury and property damage:

\$1,000,000 Each Accident

11.1.2.4 Umbrella or Excess Liability coverage: \$4,000,000.

- b. 11.1.2.5 Contractor shall at Contractor's own expense provide insurance coverage for materials stored off the site after written approval of Owner at the value established in the approval, and also for portions of the Work in transit until such materials are permanently attached to the Work. "

11.1.2.6 Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds may be obtained through Contractor's usual source and the cost thereof shall be included in the Contract Sum.

The amount of each bond shall be equal to 100 percent of the Contract Sum.

.1 Contractor shall deliver the required bonds to Owner not later 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, Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to Owner that such bonds will be furnished.

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

- c. Add the following sentence to Paragraph 11.1.3:

"11.1.3 ...If this insurance is written on a Commercial General Liability policy form, the certificates shall be ACORD form 25-S, completed and supplemented in accordance with AIA G715™-1991, Instruction Sheet and Supplemental Attachment for ACORD Certificate of Insurance 25-S."

2. 11.2 Owner's Insurance

- a. Add the following Subparagraph 11.2.1.1 to Paragraph 11.2.1:

11.2.1.1 The insurance required by Section 11.3 is not intended to cover machinery, tools or equipment owned or rented by Contractor that are utilized in the performance of the Work but not incorporated into the permanent improvements. Contractor shall, at Contractor's own expense, provide insurance coverage for owned or rented machinery, tools or equipment, which shall be subject to the provisions of Section 11.3.7."

H. ARTICLE 13: MISCELLANEOUS PROVISIONS

1. 13.6 Interest

- a. Delete Paragraph 13.6.  
b. Add the following Paragraphs 13.6 through 13.9 to Article 13:

13.6 Wage Rates

13.6.1 The Contractor shall comply in all respects with "An Act Regulating Wages of Laborers and Mechanics and other Workmen Employed under Contracts for Public Works" enacted by the 62nd General Assembly, approved on June 26, 1941, as amended and codified as the Illinois Prevailing Wage Act, 820 ILCS 1130/1 et seq, and use the Wage Determination as determined by the Illinois Department of Labor, Conciliation, and Mediation Division current at this project's bid opening date. These wages will

remain in effect until superseded by a new determination.

13.6.1.1 The prevailing rates of wages are indicated in the schedule following this section and at the State of Illinois' website =

<http://www.state.il.us/agency/idol/rates/rates.HTM><<http://www.state.il.us/agency/idol/rates/rates.HTM>>

13.8.1.2 In case it shall become necessary for the Contractor or any Subcontractor to employ in the Work under this Contract any person in a trade or occupation (except executive, administrative or supervisory workers) for which no wage rates are specified, except in classes of work for which the prevailing rate of wages has been found by the Owner not to be ascertainable, the Contractor shall immediately notify the Owner which will attempt to ascertain and to furnish the Contractor with the general prevailing rate for such trade or occupation. The rate thus furnished shall be applicable for such trade or occupation from the time of initial employment of persons affected and during the continuance of such employment.

13.6.1.3 Prospective Bidders should make an investigation of existing labor conditions and any negotiated labor agreements which may exist or are contemplated at this time.

"3.7 Equal Opportunity

13.7.1 The Contractor shall maintain policies of employment as follows:

13.7.1.1 The contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment notices setting forth the policies of non-discrimination.

13.7.1.2 The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

13.8 Smoking, Musical Devices, Language, Dress Code, Noise and Vibration, Employee Background Checks

13.8.1 Owner has certain policies regarding the following:

.1Smoking - The Owner prohibits smoking in building and on school property.

.2Musical Devices - The Owner has restricted the use of radios, tape players, compact disc players, etc. to the extent that sound generated is not audible in adjacent occupied areas while school/grounds are in use.

.3Dress Code - The Contractor and all employees and subcontractors shall keep shirts on at all times while school/grounds are in use.

.4Noise and Vibration Control - The Contractor shall notify Owner 48 hours in advance of construction activities which might result in excessive noise and/or vibration into the existing school/grounds while they are in use. Coordinate scheduling of such activities with the Owner to minimize impact on school activities.

13.9 Contractor/Subcontractor Employee Background Checks

13.9.1 Owner restricts convicted felons and pedophiles from accessing the site because of the large number of child users. The Project's Contractor and subcontractors

are required to perform comprehensive State and Federal background checks on all their employees who will work on the Project site. Each employee shall successfully complete a state and national criminal history background check, including the Illinois sex offender registry and the child abuse registry. Contractor and each subcontractor performing work for this Project shall submit affidavit confirming compliance with this requirement prior to start of construction.

13.9.2 Affidavit submittal is a requirement for processing of the initial pay application.

13.9.3 Affidavit form is included as Attachment A to this specification section."

I. ARTICLE 15: CLAIMS AND DISPUTES

1. 15.1.6 Claims for Additional Time

a. Add the following Subparagraphs 15.1.6.3 and 15.1.6.4 to Paragraph 15.1.6:

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

15.1.6.4 Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of Contractor."

1.4. MODIFICATIONS TO A101-2017 EXHIBIT A INSURANCE AND BONDS

A. ARTICLE A.3: CONTRACTOR'S INSURANCE AND BONDS

1. A.3.2.2.1 Revise to read as follows:

A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than one million dollars (\$1,000,000) each occurrence, two million dollars (\$2,000,000) general aggregate, one million dollars (\$1,000,000) Personal and Advertising Injury, and two million dollars (\$2,000,000) aggregate for products-completed operations hazard, providing coverage for claims including

2. A.3.2.3 Revise to read as follows:

A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than one million dollars (\$1,000,000) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

3. Add new paragraph A.3.2.5 to read as follows:

A.3.2.5 Umbrella or Excess Liability Coverage of not less than four million dollars (\$4,000,000).

4. Select existing paragraphs A.3.3.2.4 and A.3.3.2.5.

5. A.3.4 Performance Bond and Payment Bond: Bond values shall be limited to the amount of the contract.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 00 7375 - SUPPLEMENTARY CONDITIONS ATTACHMENT A - AFFIDAVIT FOR BACKGROUND CHECKS  
AFFIDAVIT OF COMPLETION OF CONTRACTOR'S / SUBCONTRACTOR'S ON-SITE EMPLOYEES  
(THIS AFFIDAVIT MUST BE EXECUTED PRIOR TO PROCESSING OF INITIAL PAY APPLICATION)**

STATE OF \_\_\_\_\_ )  
 ) SS  
COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_ BEING DULY SWORN, SAYS THAT  
HE/SHE IS

\_\_\_\_\_ OF \_\_\_\_\_,  
(SOLE OWNER, MEMBER OF FIRM, CORPORATE OFFICIAL) (INDIVIDUAL, FIRM OR  
CORPORATE NAME)

WHICH HAS BY THE ENACTMENT OF THIS DOCUMENT AFFIRMED THAT HE/SHE IS HAS COMPLETED  
EMPLOYEE BACKGROUND CHECKS FOR ALL EMPLOYEES WHO WILL BE ON THE PROJECT SITE AND IS IN  
COMPLIANCE WITH DIVISION 00 SECTION "SUPPLEMENTAL CONDITIONS", ARTICLE 13, PARAGRAPH 13.12.

CERTIFICATION: THE UNDERSIGNED CONTRACTOR / SUBCONTRACTOR CERTIFIES THAT HIS/HER  
EMPLOYEES WHO WILL BE ON THE PROJECT SITE HAVE NOT BEEN CONVICTED OF ANY FELONY, SEX  
OFFENSE OR CHILD ABUSE.

SIGNATURE \_\_\_\_\_

SUBSCRIBED AND SWORN TO ME THIS \_\_\_\_ DAY OF \_\_\_\_\_ A.D. \_\_\_\_\_.

\_\_\_\_\_ (seal)  
Notary Public

**END OF SECTION**



**SECTION 01 1000 - SUMMARY****PART 1 GENERAL****1.1. PROJECT**

- A. Project Name: Marshall Public Library - Phase II
- B. Owner's Name: Marshall Public Library.
- C. Architect/Engineer's Name: Farnsworth Group, Inc.
- D. The Project consists of the construction of renovations to the existing facility. Renovations and remodel work includes but is not limited to elevator addition and partial second floor interior remodel including structural evaluation of the floor system, replacement of floor finishes, including HVAC and electrical upgrades. Contractor shall provide all labor, supervision, materials, supplies, transportation, tools/equipment, services and associated work for this project as set forth in the Contract Documents. .

**1.2. CONTRACT DESCRIPTION**

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

**1.3. DESCRIPTION OF ALTERATIONS WORK**

- A. Scope of alterations work is indicated on drawings.
- B. Plumbing: Alter existing system and add new construction, keeping existing in operation.
- C. HVAC: Alter existing system and add new construction, keeping existing in operation.
- D. Electrical Power and Lighting: Alter existing system and add new construction, keeping existing in operation.

**1.4. OWNER OCCUPANCY**

- A. Owner intends to continue to occupy adjacent portions of the existing building during the entire construction period.
- B. Owner intends to occupy the Project upon Substantial Completion.
- C. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- D. Schedule the Work to accommodate Owner occupancy.

**1.5. 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. Use of site and premises by the public.
- C. 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.
- D. Utility Outages and Shutdown:
  - 1. Make the Owner aware of utility interruptions 7 days in advance.
  - 2. Prevent accidental disruption of utility services to other facilities.

1.6. WORK SEQUENCE

- A. Coordinate construction schedule and operations with Owner.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 2000 - PRICE AND PAYMENT PROCEDURES****PART 1 GENERAL****1.1. 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.

**1.2. SCHEDULE OF VALUES**

- A. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect/Engineer for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values electronically within 15 days after date of Owner-Contractor Agreement.
- E. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

**1.3. 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/Engineer 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. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
- H. Submit one electronic and three hard-copies of each Application for Payment.
- I. Include the following with the application:
  - 1. Transmittal letter as specified for submittals in Section 01 3000.
  - 2. Partial release of liens from major subcontractors and vendors.

3. Affidavits attesting to off-site stored products.

J. When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question.

#### 1.4. MODIFICATION PROCEDURES

- A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect/Engineer will issue instructions directly to Contractor.
- B. For other required changes, Architect/Engineer 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/Engineer 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 7 days.
- D. Contractor may propose a change by submitting a request for change to Architect/Engineer, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01 6000.
- E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
1. For change requested by Architect/Engineer for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
  2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect/Engineer.
  3. For change ordered by Architect/Engineer without a quotation from Contractor, the amount will be determined by Architect/Engineer based on the Contractor's substantiation of costs as specified for Time and Material work.
- F. Substantiation of Costs: Provide full information required for evaluation.
1. On request, 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.
  2. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- G. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- H. 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 Sum.

1.5. 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 2500 - SUBSTITUTION PROCEDURES****PART 1 GENERAL**

## 1.1. SECTION INCLUDES

- A. Procedural requirements for proposed substitutions.

## 1.2. RELATED REQUIREMENTS

- A. Section 00 2113 - Instructions to Bidders: Restrictions on timing of substitution requests.

## 1.3. DEFINITIONS

- A. 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**

## 3.1. 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.
  - 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.
- 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.
- D. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
  - 1. No specific form is required. Contractor's Substitution Request documentation must include the following:
    - a. Project Information:
      - 1) Official project name and number, and any additional required identifiers established in Contract Documents.
      - 2) Owner's, Architect/Engineer's, and Contractor's names.

- b. Substitution Request Information:
  - 1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
  - 2) Indication of whether the substitution is for cause or convenience.
  - 3) Issue date.
  - 4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
  - 5) Description of Substitution.
  - 6) Reason why the specified item cannot be provided.
  - 7) Differences between proposed substitution and specified item.
  - 8) Description of how proposed substitution affects other parts of work.
- c. Impact of Substitution:
  - 1) Savings to Owner for accepting substitution.
  - 2) Change to Contract Time due to accepting substitution.

- 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.

### 3.2. SUBSTITUTION PROCEDURES DURING PROCUREMENT

- A. Submittal Time Restrictions:
  - 1. Section 00 2113 - Instructions to Bidders specifies time restrictions and the documents required for submitting substitution requests during the bidding period.

### 3.3. SUBSTITUTION PROCEDURES DURING CONSTRUCTION

- A. Architect/Engineer will consider requests for substitutions only within 15 days after date of Agreement.
- B. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect/Engineer, in order to stay on approved project schedule.
- C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect/Engineer, in order to stay on approved project schedule.
  - 1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
  - 2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
  - 3. Bear the costs engendered by proposed substitution of:
    - a. Owner's compensation to the Architect/Engineer for any required redesign, time spent processing and evaluating the request.
- D. 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.

3.4. RESOLUTION

- A. Architect/Engineer may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

3.5. ACCEPTANCE

- A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.6. CLOSEOUT ACTIVITIES

- A. 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****1.1. SECTION INCLUDES**

- A. General administrative requirements.
- B. Electronic document submittal service.
- C. Preconstruction meeting.
- D. Progress meetings.
- E. Construction progress schedule.
- F. Submittals for review and project closeout.
- G. Number of copies of submittals.
- H. Requests for Information (RFI) procedures.
- I. Submittal procedures.

**1.2. RELATED REQUIREMENTS**

- A. Section 01 6000 - Product Requirements: General product requirements.

**1.3. GENERAL ADMINISTRATIVE REQUIREMENTS**

- A. Comply with requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.
- B. Make the following types of submittals to Architect/Engineer:
  - 1. Requests for Interpretation (RFI).
  - 2. Requests for substitution.
  - 3. Shop drawings, product data, and samples.
  - 4. Design data.
  - 5. Manufacturer's instructions and field reports.
  - 6. Applications for payment and change order requests.
  - 7. Progress schedules.
  - 8. Coordination drawings.
  - 9. Correction Punch List and Final Correction Punch List for Substantial Completion.
  - 10. Closeout submittals.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.1. ELECTRONIC DOCUMENT SUBMITTAL SERVICE**

- A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
  - 1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Information (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
  - 2. Contractor and Architect/Engineer are required to use this service.
  - 3. It is Contractor's responsibility to submit documents in allowable format.

4. Subcontractors, suppliers, and Architect/Engineer's consultants will be permitted to use the service at no extra charge.
  5. Users of the service need an email address, internet access, and 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)), unless such software capability is provided by the service provider.
  6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
  7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.
- B. Submittal Service: The selected service is:
1. Newforma ConstructEx: [www.newforma.com/products/constructex/#sle](http://www.newforma.com/products/constructex/#sle).
- C. Project Closeout: Architect/Engineer will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

### 3.2. PRECONSTRUCTION MEETING

- A. Schedule meeting after Notice of Award.
- B. Attendance Required:
1. Owner.
  2. Architect/Engineer.
  3. Contractor.
- C. Agenda:
1. Execution of Owner-Contractor Agreement.
  2. Submission of executed bonds and insurance certificates.
  3. Distribution of Contract Documents.
  4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
  5. Designation of personnel representing the parties to Contract and Architect/Engineer.
  6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  7. Scheduling.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

### 3.3. PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the work at maximum weekly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required:
1. Contractor.
  2. Owner.
  3. Architect/Engineer.
  4. Contractor's superintendent.
  5. Major subcontractors.
- D. Agenda:
1. Review of work progress.

2. Field observations, problems, and decisions.
  3. Identification of problems that impede, or will impede, planned progress.
  4. Review of submittals schedule and status of submittals.
  5. Review of RFIs log and status of responses.
  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 copies to Architect/Engineer, Owner, participants, and those affected by decisions made.
- 3.4. 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.
- 3.5. REQUESTS FOR INFORMATION (RFI)
- A. Definition: A request seeking one of the following:
    1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
    2. A resolution to an issue which has arisen due to field conditions and affects design intent.
  - B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.
  - C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
    1. Prepare a separate RFI for each specific item.
      - a. Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
      - b. Do not forward requests which solely require internal coordination between subcontractors.
    2. Prepare using software provided by the Electronic Document Submittal Service.
    3. Combine RFI and its attachments into a single electronic file. PDF format is preferred.

- D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.
  2. Unacceptable Uses for RFIs: Do not use RFIs to request the following:
    - a. Approval of submittals (use procedures specified elsewhere in this section).
    - b. Approval of substitutions (see Section - 01 6000 - Product Requirements)
    - c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
    - d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
  3. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
  4. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
- E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
1. Official Project name and number, and any additional required identifiers established in Contract Documents.
  2. Owner's, Architect/Engineer's, and Contractor's names.
  3. Discrete and consecutive RFI number, and descriptive subject/title.
  4. Issue date, and requested reply date.
  5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
  6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
  7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.
- F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.
- G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Indicate current status of every RFI. Update log promptly and on a regular basis.
  2. Note dates of when each request is made, and when a response is received.
  3. Highlight items requiring priority or expedited response.
  4. Highlight items for which a timely response has not been received to date.
- H. Review Time: Architect/Engineer will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.

1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.
- I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
    1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
    2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
    3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
    4. Notify Architect/Engineer within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.
- 3.6. 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.
  - B. Submit to Architect/Engineer for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.
  - C. Samples will be reviewed 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.
- 3.7. SUBMITTALS FOR PROJECT CLOSEOUT
- A. Submit Correction Punch List for Substantial Completion.
  - B. Submit Final Correction Punch List for Substantial Completion.
  - C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:
    1. Project record documents.
    2. Operation and maintenance data.
    3. Warranties.
    4. Bonds.
    5. Other types as indicated.
  - D. Submit for Owner's benefit during and after project completion.
- 3.8. NUMBER OF COPIES OF SUBMITTALS
- A. Electronic 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. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect/Engineer.
    1. After review, produce duplicates.

2. Retained samples will not be returned to Contractor unless specifically so stated.

### 3.9. SUBMITTAL PROCEDURES

#### A. General Requirements:

1. Use a single transmittal for related items.
2. Transmit using approved form.
  - a. Use form generated by Electronic Document Submittal Service software.
3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
5. 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.
6. Schedule submittals to expedite the Project, and coordinate submission of related items.
  - a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
  - b. For sequential reviews involving Architect/Engineer's consultants, Owner, or another affected party, allow an additional 7 days.
  - c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect/Engineer's approval, allow an additional 30 days.
7. When revised for resubmission, identify all changes made since previous submission.
8. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
9. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
10. Submittals not requested will be recognized, and will be returned "Not Reviewed",

#### B. Product Data Procedures:

1. Submit only information required by individual specification sections.
2. Collect required information into a single submittal.
3. Submit concurrently with related shop drawing submittal.
4. Do not submit (Material) Safety Data Sheets for materials or products.

#### C. Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
2. Do not reproduce Contract Documents to create shop drawings.
3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

#### D. Samples Procedures:

1. Transmit related items together as single package.
2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

### 3.10. SUBMITTAL REVIEW

- A. Submittals for Review: Architect/Engineer will review each submittal, and approve, or take other appropriate action.

- B. Submittals for Information: Architect/Engineer will acknowledge receipt and review. See below for actions to be taken.
- C. Architect/Engineer's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
  - 1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.
- D. Architect/Engineer's actions on items submitted for review:
  - 1. Authorizing purchasing, fabrication, delivery, and installation:
    - a. "Approved", or language with same legal meaning.
    - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
      - 1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
    - c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
  - 2. Not Authorizing fabrication, delivery, and installation:
    - a. "Revise and Resubmit".
      - 1) Resubmit revised item, with review notations acknowledged and incorporated.
    - b. "Rejected".
      - 1) Submit item complying with requirements of Contract Documents.
- E. Architect/Engineer's actions on items submitted for information:
  - 1. Items for which no action was taken:
    - a. "Received" - to notify the Contractor that the submittal has been received for record only.
  - 2. Items for which action was taken:
    - a. "Reviewed" - no further action is required from Contractor.

**END OF SECTION**

**SECTION 01 3310 - CADD FILE REQUESTS****RELATED DOCUMENTS**

- 1.1. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND OTHER DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- 1.2. SUMMARY
  - A. Architect/Engineer's AutoCAD (.DWG) and Revit (.RVT) electronic files may be made available to facilitate Contractor's understanding of the Project.
  - B. The agreement form can be found in Section 01 3311 - Electronic Files Transfer to Contractor Agreement
  - C. To request AutoCAD or Revit files, Contractor shall fill out the agreement and email it the Design Professional email  
Fill in the date, and Contractor's Company and address.
    1. In the blank line after "Project Files:" Include the specific drawing sheet number(s) requested.
    2. Indicate which type of file requested as well as the drawing format version. ie: "DWG Version 2018"
    3. Sign the agreement, and indicate Contractor's Company, Name, Title, and Date.
    4. Incomplete agreements will be returned to the Contractor with no further action.
  - D. Related Requirements:
    1. Division 01 Section "Submittal Procedures" for submittal requirements and procedures.
    2. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
- 1.3. SUBMITTAL ADMINISTRATIVE REQUIREMENTS
  - A. Architect/Engineers' Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect/Engineer for Contractor's use in preparing submittals. Refer to Section 013300 - Submittal Procedures for specific information.

**PART 2 - PRODUCTS (NOT USED)****PART 3 - EXECUTION (NOT USED)**

**NOTE: SEE SECTION 01 3311 - ELECTRONIC FILES TRANSFER TO CONTRACTOR AGREEMENT FOR FOR ARCHITECT/ENGINEER'S ELECTRONIC MEDIA/CADD AGREEMENT FORM.**

**END OF SECTION 01 3310**



**SECTION 01 3311 - ELECTRONIC FILES TRANSFER TO CONTRACTOR AGREEMENT**

**ELECTRONIC FILES TRANSFER TO CONTRACTOR AGREEMENT**

THIS AGREEMENT, MADE AND ENTERED INTO THIS \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_, BY AND BETWEEN FARNSWORTH GROUP, INC., HEREINAFTER REFERRED TO AS FARNSWORTH GROUP, 200 WEST COLLEGE AVENUE, SUITE 301, NORMAL, ILLINOIS 61761, WITH REFERENCE TO ITS AGREEMENT WITH MARSHALL PUBLIC LIBRARY, HEREINAFTER REFERRED TO AS OWNER, FOR PROJECT OFFICIAL NAME, HEREINAFTER REFERRED TO AS PROJECT, AND \_\_\_\_\_, HEREINAFTER REFERRED TO AS CONTRACTOR.

WHEREAS, FARNSWORTH GROUP HAS PREPARED ELECTRONIC FILES WHICH CONTAIN MACHINE-READABLE INFORMATION OR CERTAIN INFORMATION FOR THE PROJECT REFERENCED HEREIN (HEREINAFTER REFERRED TO AS "PROJECT FILES"), AND;

WHEREAS, FARNSWORTH GROUP PROJECT FILES INCLUDE 2-DIMENSIONAL INFORMATION, 3-DIMENSIONAL INFORMATION, AND TEXT-BASED INFORMATION, AND;

WHEREAS, FARNSWORTH GROUP HAS PREPARED PROJECT FILES TO PRODUCE SPECIFIC HARD COPY CONTRACT DRAWINGS AND SPECIFICATIONS AND NOT FOR THE PURPOSES OF CONSTRUCTION OR COORDINATION OF ASPECTS OF CONSTRUCTION, AND;

WHEREAS, CONTRACTOR HAS REQUESTED FARNSWORTH GROUP'S PROJECT FILES TO FACILITATE CONTRACTOR'S UNDERSTANDING OF THE PROJECT, BUT NOT TO BE USED IN LIEU OF CONTRACT DOCUMENTS OR FOR THE PURPOSE OF DETERMINING CONTRACTOR'S MEANS AND METHODS OF CONSTRUCTION, AND;

WHEREAS, FARNSWORTH GROUP AND CONTRACTOR RECOGNIZE THAT THE PROJECT FILES ARE SUBJECT TO ALTERATION, EITHER INTENTIONALLY OR UNINTENTIONALLY, DUE TO, AMONG OTHER CAUSES, TRANSMISSION, CONVERSION, MEDIA DEGRADATION, SOFTWARE ERROR OR HUMAN ALTERATION, AND;

WHEREAS, FARNSWORTH GROUP AND CONTRACTOR UNDERSTAND THAT THE TRANSFER OF PROJECT FILES FROM THE SYSTEM AND FORMAT USED BY FARNSWORTH GROUP TO AN ALTERNATE SYSTEM OR FORMAT CANNOT BE ACCOMPLISHED WITHOUT THE INTRODUCTION OF ANOMALIES AND/OR ERRORS, AND;

WHEREAS, FARNSWORTH GROUP AND CONTRACTOR ACKNOWLEDGE THAT PROJECT FILES ARE NOT THE CONTRACT DOCUMENTS, AND;

WHEREAS, FARNSWORTH GROUP WILL SUPPLY ITS PROJECT FILES TO CONTRACTOR, BUT ONLY BASED UPON THE EXPRESS TERMS AND CONDITIONS SET FORTH HEREIN;

THEREFOR, IN CONSIDERATION OF THE RECITALS ABOVE, IN CONSIDERATION OF FARNSWORTH GROUP SUPPLYING ITS PROJECT FILES TO CONTRACTOR AND IN CONSIDERATION OF THE COVENANTS AND CONDITIONS AGREED TO BY CONTRACTOR AS SET FORTH HEREIN, ALL OF WHICH SHALL BE DEEMED TO BE SUFFICIENT CONSIDERATION TO SUPPORT THIS AGREEMENT, FARNSWORTH GROUP AND CONTRACTOR AGREE AS FOLLOWS:

- A. This Agreement between Farnsworth Group and Contractor applies to the transfer from Farnsworth Group to Contractor of the following electronic information:  
     Project: Project Official Name  
     Project Files: \_\_\_\_\_
- B. With regard to the transfer of any Project Files, the Parties hereto agree as follows:

1. These Project Files may not be used for any purpose not related specifically to the Project. Use of these files for development of other Projects; additions to the Project; or duplication of the Project at any location is expressly prohibited.
  2. Farnsworth Group reserves the right to retain hardcopy originals of the Project Files delivered to Contractor and all such originals shall be controlling in the event of any inconsistency between the hardcopies and the Project Files.
  3. Farnsworth Group will transfer to Contractor its Project Files, as of the date of this Agreement, for the exclusive use of Contractor.
  4. The Project Files and documents are not contract documents as defined in the construction agreement entered into by Contractor, and Contractor expressly agrees that it is not relieved from any of its duties or obligations under the construction agreement. The Project Files are provided for information purposes only and are not intended as an end product. The Project Files may be a work in process, and Farnsworth Group is under no obligation to provide Contractor with any updated version(s) of the Project Files.
  5. Contractor acknowledges and understands that the Project Files may not reflect all data contained in the contract documents, addenda, or other pertinent contract-related documents. Contractor acknowledges and understands that the Project Files may contain data which is not included in the contract documents.
  6. Contractor expressly agrees that the Project Files are not being furnished for the purposes of determining Contractor's means and methods of construction, which remains the sole prerogative of Contractor, or for Contractor's coordination of building systems required by Contractor's agreement with Owner.
  7. Contractor hereby waives any and all claims, known and unknown, now or in the future, against Farnsworth Group and its consultants, including its employees and representatives, and the Owner which in any way relate to Contractor's use of Farnsworth Group's Project Files. Contractor further agrees that the Project Files shall not be used by Contractor in any manner to support a change order request, nor shall they be used as evidence in support of any such request or in support of any alleged error or omission on the part of Farnsworth Group or Owner. The Owner is hereby deemed to be an intended beneficiary of this provision.
  8. In the event Contractor breached any provision contained herein, then Farnsworth Group, at its sole discretion, in addition to all remedies provided by law, shall be entitled to the return of all Farnsworth Group Project Files. Contractor shall promptly comply with any request by Farnsworth Group for the return of Farnsworth Group's Project Files. This provision shall be specifically enforceable in the District Courts of Illinois.
- C. With regard to the transfer of Building Information Model (BIM) digital files, both Farnsworth Group and Contractor agree as follows:
1. Farnsworth Group will provide only those BIM files created for this Project. There is no representation the BIM files are comprehensive or comprise a complete model of the building.
  2. The level of development of the model, as defined in AIA Document AIA G202-2013, is understood to be level LOD 100, containing generalized systems or assemblies and some non-geometric information. After reviewing and verifying the accuracy of the information contained within Farnsworth Group's BIM files, Contractor is authorized to develop its own model to a higher level of development for its own uses, but, in doing so, expressly agrees to assume all risks associated therewith.

- D. Contractor acknowledges that digital Project Files constitute Intellectual Property: their use is the exclusive right of Farnsworth Group, and they shall not be shared with others without Farnsworth Group’s express written permission.
- E. Contractor shall indemnify and hold harmless Farnsworth Group and its consultants, employees, directors, agents and representatives from any and all claims, including any such claim which may be filed by Owner, which in any way relates, whether in whole or in part, to Contractor’s use of or utilization of Farnsworth Group’s Project Files.
- F. All claims, disputes or other matters in question between Farnsworth Group and Contractor arising out of or relating to this Agreement may, at Farnsworth Group’s sole option, and only upon the exercise of that sole option by Farnsworth Group, be submitted to mediation prior to submittal for resolution in a court of competent jurisdiction. In the event Farnsworth Group prevails at all in any such action, it shall recover all of its reasonable costs, expert witness fees and attorneys’ fees from Contractor.
- G. The transfer of the Project Files shall not be deemed a sale. To the extent this transfer is construed otherwise, then ALL WARRANTIES, INCLUDING ANY EXPRESS WARRANTY OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT AS OF THE DATES SET FORTH BELOW.

FARNSWORTH GROUP, INC.

CONTRACTOR:

BY: \_\_\_\_\_

BY: \_\_\_\_\_

NAME: \_\_\_\_\_

NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

TITLE: \_\_\_\_\_

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

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

**END OF SECTION**

**SECTION 01 4000 - QUALITY REQUIREMENTS****PART 1 GENERAL****1.1. SECTION INCLUDES**

- A. Submittals.
- B. References and standards.
- C. Testing and inspection agencies and services.
- D. Control of installation.
- E. Tolerances.
- F. Manufacturers' field services.
- G. Defect Assessment.

**1.2. SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Design Data: Submit for Architect/Engineer'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.
  - 1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
  - 2. Include required product data and shop drawings.
  - 3. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.

**1.3. 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.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference otherwise in any reference document.

**1.4. TESTING AND INSPECTION AGENCIES AND SERVICES**

- A. Owner will employ and pay for services of an independent testing agency to perform specified testing and inspection.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.1. 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/Engineer 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.

**3.2. 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/Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

**3.3. TESTING AND INSPECTION**

- A. Testing Agency Duties:
  - 1. Provide qualified personnel at site. Cooperate with Architect/Engineer and Contractor in performance of services.
  - 2. Perform specified sampling and testing of products in accordance with specified standards.
  - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
  - 4. Promptly notify Architect/Engineer and Contractor of observed irregularities or non-compliance of Work or products.
  - 5. Perform additional tests and inspections required by Architect/Engineer.
  - 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
  - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
  - 2. Agency may not approve or accept any portion of the Work.
  - 3. Agency may not assume any duties of Contractor.
  - 4. Agency has no authority to stop the Work.
- C. 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.
  - 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/Engineer 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.
- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect/Engineer.
  - E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

#### 3.4. MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment, and \_\_\_\_\_ as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

#### 3.5. DEFECT ASSESSMENT

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

**END OF SECTION**

**SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS****PART 1 GENERAL****1.1. SECTION INCLUDES**

- A. Temporary utilities.
- B. Temporary sanitary facilities.
- C. Temporary Controls: Barriers, enclosures, and fencing.
- D. Vehicular access and parking.
- E. Waste removal facilities and services.

**1.2. TEMPORARY UTILITIES**

- A. Owner will provide the following:
  - 1. Electrical power and metering, consisting of connection to existing facilities.
  - 2. Water supply, consisting of connection to existing facilities.
  - 3. Contractor shall include in their Bid costs to connect to existing facilities.
- B. Use trigger-operated nozzles for water hoses, to avoid waste of water.

**1.3. 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.

**1.4. 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.

**1.5. EXTERIOR ENCLOSURES**

- A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

**1.6. INTERIOR ENCLOSURES**

- A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.
- B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

**1.7. 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. Existing parking areas may be used for construction parking.

**1.8. 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.

**1.9. REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION - NOT USED****END OF SECTION**



**SECTION 01 6000 - PRODUCT REQUIREMENTS****PART 1 GENERAL**

## 1.1. 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. Maintenance materials, including extra materials, spare parts, tools, and software.

## 1.2. REFERENCE STANDARDS

## 1.3. SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. 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.
- C. 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**

## 2.1. EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.
- B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.
- C. 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.

## 2.2. 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 using or containing CFC's or HCFC's.
  - 2. Containing lead, cadmium, or asbestos.

## 2.3. 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.

#### 2.4. 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.

### **PART 3 EXECUTION**

#### 3.1. SUBSTITUTION LIMITATIONS

- A. See Section 01 2500 - Substitution Procedures.

#### 3.2. 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.

#### 3.3. STORAGE AND PROTECTION

- A. Provide protection of stored materials and products against theft, casualty, or deterioration.
- B. 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.
- C. Store and protect products in accordance with manufacturers' instructions.
- D. Store with seals and labels intact and legible.
- E. Arrange storage of materials and products to allow for visual inspection for the purpose of determination of quantities, amounts, and unit counts.
- F. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- G. For exterior storage of fabricated products, place on sloped supports above ground.
- H. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- I. Comply with manufacturer's warranty conditions, if any.

- J. Do not store products directly on the ground.
- K. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- L. Prevent contact with material that may cause corrosion, discoloration, or staining.
- M. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- N. 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****1.1. SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, including selective demolition.
- C. Cutting and patching.
- D. Cleaning and protection.
- E. Demonstration and instruction of Owner personnel.
- F. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
- G. General requirements for maintenance service.

**1.2. SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
  - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences. Include design drawings and calculations for bracing and shoring.
  - 2. Identify demolition firm and submit qualifications.
  - 3. Include a summary of safety procedures.
- 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.
  - 6. Include in request:
    - a. Identification of Project.
    - b. Location and description of affected work.
    - c. Necessity for cutting or alteration.
    - d. Description of proposed work and products to be used.
    - e. Effect on work of Owner or separate Contractor.
    - f. Written permission of affected separate Contractor.
    - g. Date and time work will be executed.

**1.3. PROJECT CONDITIONS**

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
  - 1. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.

#### 1.4. 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**

#### 2.1. 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**

#### 3.1. 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.

#### 3.2. 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.

### 3.3. 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.

### 3.4. 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/Engineer before disturbing existing installation.
  - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
  - 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
  - 1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
  - 2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.
- D. 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.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, Telecommunications, and Security): 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.
- F. 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.
- G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect/Engineer.
  2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
  3. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect/Engineer review and request instructions.
- H. 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.
- I. 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.
- J. Clean existing systems and equipment.
- K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- L. Do not begin new construction in alterations areas before demolition is complete.
- M. Comply with all other applicable requirements of this section.
- 3.5. 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.

### 3.6. 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.

### 3.7. 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.

### 3.8. DEMONSTRATION AND INSTRUCTION

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of final inspection.
- B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.

### 3.9. ADJUSTING

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

### 3.10. 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, 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.

### 3.11. CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
  - 1. Provide copies to Architect/Engineer and Owner.
- B. Accompany Architect 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/Engineer when work is considered ready for Architect/Engineer'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/Engineer's Substantial Completion inspection.
- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect/Engineer's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect/Engineer.

- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- G. Notify Architect/Engineer when work is considered finally complete and ready for Architect/Engineer's Substantial Completion final inspection.
- H. Complete items of work determined by Architect/Engineer listed in executed Certificate of Substantial Completion.

#### 3.12. 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 7419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL****PART 1 GENERAL****1.1. 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. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.
- E. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.
- F. 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.
  - 5. Incineration, either on- or off-site.
- G. 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.

**1.2. 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.

### 1.3. SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Waste Management Plan: Include the following information:
  - 1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
  - 2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
  - 3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
    - a. List each material proposed to be salvaged, reused, or recycled.
  - 4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.
  - 5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
  - 6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.
- C. Recycling Incentive Programs:
  - 1. Where revenue accrues to Contractor, submit copies of documentation required to qualify for incentive.
  - 2. Where revenue accrues to Owner, submit any additional documentation required by Owner in addition to information provided in periodic Waste Disposal Report.

## PART 3 EXECUTION

### 2.1. 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/Engineer.
- 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. Preconstruction meeting.
  - 2. 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**

## 1.1. SECTION INCLUDES

- A. Project record documents.
- B. Operation and maintenance data.
- C. Warranties and bonds.

## 1.2. RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Individual Product Sections: Specific requirements for operation and maintenance data.
- C. Individual Product Sections: Warranties required for specific products or Work.

## 1.3. SUBMITTALS

- A. Project Record Documents: Submit documents to Architect/Engineer with claim for final Application for Payment.
- B. Operation and Maintenance Data:
  - 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
  - 2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of all document sets as required prior to final submission.
  - 3. Submit electronic sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
  - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
  - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
  - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION**

## 3.1. PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 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.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.

- D. Record information concurrent with construction progress.
  - E. 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 and modifications.
  - F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
    - 1. Field changes of dimension and detail.
    - 2. Details not on original Contract drawings.
- 3.2. OPERATION AND MAINTENANCE DATA
- A. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
  - B. 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.
  - C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- 3.3. OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS
- A. 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.
  - B. 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.
  - C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
  - D. Provide control diagrams by controls manufacturer as installed.
  - E. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.
  - F. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
  - G. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
  - H. Include test and balancing reports.
- 3.4. ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS
- A. Where systems involve more than one specification section, provide separate divider for each system.
  - B. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect/Engineer, Consultants, Contractor and subcontractors, with names of responsible parties.

- C. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
- D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- E. Arrangement of Contents: Organize each volume in parts as follows:
  - 1. Project Directory.
  - 2. Table of Contents, of all volumes, and of this volume.
  - 3. Operation and Maintenance Data: Arranged by system, then by product category.
    - a. Source data.
    - b. Operation and maintenance data.
    - c. Field quality control data.
    - d. Photocopies of warranties and bonds.

### 3.5. WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.

### END OF SECTION



**SECTION 01 7900 - DEMONSTRATION AND TRAINING****PART 1 GENERAL****1.1. SUMMARY**

- A. Demonstration of products and systems where indicated in specific specification sections.
- B. Training of Owner personnel in operation and maintenance is required for:
  - 1. All software-operated systems.
  - 2. HVAC systems and equipment.
  - 3. Plumbing equipment.
  - 4. Electrical systems and equipment.
  - 5. Electric Traction Elevators.
- C. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
  - 1. Finishes, including flooring, wall finishes, ceiling finishes.

**1.2. SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Training Plan: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
  - 1. Submit to Architect/Engineer for transmittal to Owner.
  - 2. Submit not less than two weeks prior to start of training.
  - 3. Revise and resubmit until acceptable.
  - 4. Provide an overall schedule showing all training sessions.
  - 5. Include at least the following for each training session:
    - a. Identification, date, time, and duration.
    - b. Description of products and/or systems to be covered.
    - c. Name of firm and person conducting training; include qualifications.
    - d. Intended audience, such as job description.
    - e. Objectives of training and suggested methods of ensuring adequate training.
    - f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
    - g. Media to be used, such as slides, hand-outs, etc.
    - h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.
- C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.
  - 1. Include applicable portion of O&M manuals.
  - 2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
  - 3. Provide one extra copy of each training manual to be included with operation and maintenance data.
- D. Training Reports:
  - 1. Identification of each training session, date, time, and duration.
  - 2. Sign-in sheet showing names and job titles of attendees.
  - 3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.1. DEMONSTRATION - GENERAL**

- A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.
- B. Demonstration may be combined with Owner personnel training if applicable.
- C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
  - 1. Perform demonstrations not less than two weeks prior to Substantial Completion.
  - 2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- D. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
  - 1. Perform demonstrations not less than two weeks prior to Substantial Completion.

**3.2. TRAINING - GENERAL**

- A. Conduct training on-site unless otherwise indicated.
- B. Provide training in minimum two hour segments.
- C. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.
- D. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
  - 1. The location of the O&M manuals and procedures for use and preservation; backup copies.
  - 2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
  - 3. Typical uses of the O&M manuals.
- E. Product- and System-Specific Training:
  - 1. Review the applicable O&M manuals.
  - 2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
  - 3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
  - 4. Provide hands-on training on all operational modes possible and preventive maintenance.
  - 5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
  - 6. Discuss common troubleshooting problems and solutions.
  - 7. Discuss any peculiarities of equipment installation or operation.
  - 8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
  - 9. Review recommended tools and spare parts inventory suggestions of manufacturers.
  - 10. Review spare parts and tools required to be furnished by Contractor.
  - 11. Review spare parts suppliers and sources and procurement procedures.

- F. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

**END OF SECTION**

**SECTION 02 41 19 - SELECTIVE DEMOLITION****PART 1 GENERAL**

## 2.1. RELATED DOCUMENTS

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

## 2.2. SUMMARY

- A. Section Includes:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Salvage of existing items to be reused or recycled.

## 2.3. DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

## 2.4. MATERIALS OWNERSHIP

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

## 2.5. INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Engineering Survey: Submit engineering survey of condition of building.
- C. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- D. 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. Use of elevator and stairs.
  - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

- E. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations.
- F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- G. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

#### 2.6. CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.

#### 2.7. QUALITY ASSURANCE

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

#### 2.8. FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. Hazardous materials will be removed by Owner before start of the Work.
  - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
  - 3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.
- F. Storage or sale of removed items or materials on-site is not permitted.
- G. 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.

#### 2.9. WARRANTY

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

- B. Notify warrantor on completion of selective demolition and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

#### 2.10. COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

### **PART 2 PRODUCTS**

#### 3.1. PERFORMANCE REQUIREMENTS

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

### **PART 3 EXECUTION**

#### 4.1. EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Perform an engineering survey of 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 building demolition operations.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.
- E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs or video.
  - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
  - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

#### 4.2. PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

#### 4.3. UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
  - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
  - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
  - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
  - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
  - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
  - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
  - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

#### 4.4. PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  1. Strengthen or add new supports when required during progress of selective demolition.
- C. Remove temporary barricades and protections where hazards no longer exist.

#### 4.5. 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. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members

- on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  5. Maintain fire watch during and after flame-cutting operations.
  6. Maintain adequate ventilation when using cutting torches.
  7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  10. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Work in Historic Areas: Selective demolition may be performed only in areas of Project that are not designated as historic.
- D. Removed and Salvaged Items:
1. Clean salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers.
  3. Store items in a secure area until delivery to Owner.
  4. Transport items to Owner's storage area designated by Owner.
  5. Protect items from damage during transport and storage.
- E. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
  2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.



#### 4.6. SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.
- E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings."
- F. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.
  - 1. Remove existing roof membrane, flashings, copings, and roof accessories.
  - 2. Remove existing roofing system down to substrate.

#### 4.7. DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction. Recycle or dispose of them according to Section 01 7419 "Construction Waste Management and Disposal."
  - 1. Do not allow demolished materials to accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
  - 4. Comply with requirements specified in Section 01 7419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.

#### 4.8. 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 07 2100 - THERMAL INSULATION****PART 1 GENERAL**

## 1.1. SUMMARY

- A. Section Includes:
  - 1. Extruded polystyrene foam-plastic board.
  - 2. Glass-fiber blanket.

## 1.2. ACTION SUBMITTALS

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

## 1.3. INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Research reports.

**PART 2 PRODUCTS**

## 2.1. EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD

- A. Manufacturers:
  - 1. Diversifoam Products.
  - 2. Dow Chemical.
  - 3. Plymouth Foam.
- B. Extruded polystyrene boards in this article are also called "XPS boards."
- C. Extruded Polystyrene Board, Type VI: ASTM C 578, Type VI, 40-psi minimum compressive strength; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.

## 2.2. GLASS-FIBER BLANKET

- A. Manufacturers:
  - 1. Certain Teed Corp.
  - 2. Johns Manville.
  - 3. Owens Corning.
- B. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics; UL Classification BKNV or BZJZ for fire-resistance rated assemblies.

## 2.3. ACCESSORIES

- A. Insulation for Miscellaneous Voids:
  - 1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.
  - 2. Spray Polyurethane Foam Insulation: ASTM C 1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
- B. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.
- C. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

**PART 3 EXECUTION**

## 3.1. INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.

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

### 3.2. INSTALLATION OF SLAB INSULATION

- A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.
  - 1. If not otherwise indicated, extend insulation a minimum of 36 inches below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
  - 1. If not otherwise indicated, extend insulation a minimum of 36 inches in from exterior walls.

### 3.3. INSTALLATION OF FOUNDATION WALL INSULATION

- A. Butt panels together for tight fit.
- B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
  - 1. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application.
  - 2. Apply insulation standoffs to each spindle to create cavity width indicated on Drawings between concrete substrate and insulation.
  - 3. After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation.
  - 4. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.
- C. Adhesive Installation: Install with adhesive or press into tacky waterproofing or dampproofing according to manufacturer's written instructions.

### 3.4. INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
  - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
  - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
  - 4. Attics: Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.

5. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
  6. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
    - a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.
  2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.
- 3.5. INSTALLATION OF SPRAY FOAM INSULATION
- A. Verify surfaces are acceptable prior to beginning.
  - B. Protect areas not receiving spray insulation.
  - C. Apply in uniform monolithic density without voids, fills spaces solid.
  - D. Protect from damage during construction.
- 3.6. INSULATION SCHEDULE
- A. Extruded Polystyrene – Perimeter foundation walls, interior side of furred-out exterior wall construction, and under slab.
  - B. Glass Fiber Blanket – Filling miscellaneous voids and cavities and as otherwise shown on drawings and acoustic sound batt insulation in interior wall construction.

**END OF SECTION**

**SECTION 07 2600 - VAPOR RETARDERS****PART 1 GENERAL**

## 1.1. RELATED DOCUMENTS

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

## 1.2. SUMMARY

- A. Section Includes:
  - 1. Polyethylene vapor retarders.
- B. Related Requirements:
  - 1. Section 03 30 00 "Cast-in-Place Concrete" for under-slab vapor retarders.
  - 2. Section 07 21 00 "Thermal Insulation" for vapor retarders integral with insulation products.

## 1.3. ACTION SUBMITTALS

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

## 1.4. INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each product, for tests performed by a qualified testing agency.

**PART 2 PRODUCTS**

## 2.1. POLYETHYLENE VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D 4397, 6-mil-thick sheet, with maximum permeance rating of 0.1 perm.

## 2.2. ACCESSORIES

- A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
- B. Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and has demonstrated capability to bond vapor retarders securely to substrates indicated.
- C. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

**PART 3 EXECUTION**

## 3.1. PREPARATION

- A. Clean substrates of substances that are harmful to vapor retarders, including removing projections capable of puncturing vapor retarders.

## 3.2. INSTALLATION OF VAPOR RETARDERS ON FRAMING

- A. Place vapor retarders on side of construction indicated on Drawings.
- B. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives, vapor retarder fasteners, or other anchorage system as recommended by manufacturer. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.
- C. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs and sealing with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Locate all joints over framing members or other solid substrates.
- D. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.

- E. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

3.3. PROTECTION

- A. Protect vapor retarders from damage until concealed by permanent construction.

**END OF SECTION**

**SECTION 07 8413 - FIRESTOPPING****PART 1 - GENERAL****1.1. WORK INCLUDES**

- A. Base Bid:
  - 1. General Contractor is to provide:
    - a. All firestopping as required by the Contract Documents for the following locations, whether or not specifically detailed on the drawings:
      - 1) Penetrations through fire-rated walls and partitions.
      - 2) Openings between tops of walls and floor or roof construction.
      - 3) Expansion joints in fire-rated construction.
        - (a) Openings and penetrations through smoke barriers or special compartmentalized areas.

**RELATED WORK****SPECIFIED ELSEWHERE:**

- 3.1. 07 21 00 – THERMAL INSULATION.
- 3.2. 07 92 00 – JOINT SEALANTS.
  - A. 09 29 00 – Gypsum Board System.

**REFERENCES****ASTM E814 - METHODS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS.****ASTM E84 - (UL 723)****UL 1479 - FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS.****QUALITY ASSURANCE:****SINGLE-SOURCE RESPONSIBILITY FOR FIRESTOPPING MATERIALS: OBTAIN EACH TYPE OF FIRESTOPPING PRODUCT FROM A SINGLE SOURCE FOR THE ENTIRE PROJECT, TO THE GREATEST EXTENT POSSIBLE.****INSTALLER QUALIFICATIONS: TWO YEARS EXPERIENCE INSTALLING UL CLASSIFIED FIRESTOPPING SYSTEMS OF THE TYPES SPECIFIED. ATTEST THAT THE INSTALLER HAS BEEN TRAINED BY THE MANUFACTURER OF THE FIRESTOPPING MATERIALS.****FIRE-RESISTANCE RATINGS: PROVIDE FIRESTOPPING SYSTEMS DESIGNED TO PROVIDE SAME HOURLY FIRE-RESISTANCE RATING AS THAT REQUIRED FOR CONSTRUCTION BEING FIRESTOPPED. FIRE RESISTANCE RATINGS SHALL BE STATED IN F RATING AND T RATINGS.****11.1. PROVIDE SYSTEMS LISTED IN UL BUILDING MATERIALS DIRECTORY FOR "FILL, VOID, OR CAVITY MATERIALS" AND "THROUGH-PENETRATION FIRESTOP SYSTEMS" FOR APPLICABLE CONSTRUCTION TYPE AND PENETRATING ITEMS TYPE.**

- A. For construction according to the most current applicable International Building Code required to have a temperature rise rating, provide penetration firestops with a T Rating equal to the construction penetrated.

11.2. PROVIDE SYSTEMS THAT HAVE BEEN TESTED IN ACCORDANCE WITH ASTM E814 "METHODS FOR FIRE TESTS OF THROUGH-PENETRATION FIRE STOPS" AND UL 1479 "FIRE TESTS OF THROUGH- PENETRATION FIRESTOPS".

**MATERIALS: WHERE FIRESTOPPING MATERIALS WILL BE EXPOSED TO VIEW, TO TRAFFIC, TO MOISTURE, TO PHYSICAL ABUSE, OR SIMILAR EXPOSURES, SELECT MATERIALS SUITABLE FOR EACH EXPOSURES.**

12.1. IN PLUMBING CHASES AND FIRESTOPPING OF WET-PIPE SPRINKLER PENETRATIONS, PROVIDE MOISTURE-RESISTANT SYSTEM.

12.2. IN FLOORS HAVING VOIDS OF 4" OR MORE AND SUBJECT TO POSSIBLE LOADING OR TRAFFIC, PROVIDE SYSTEM THAT SUPPORTS THE FLOOR LOAD REQUIREMENTS.

12.3. ON INSULATED PIPE, FIRE RATING CLASSIFICATION SHALL NOT REQUIRE REMOVAL OF THE INSULATION.

12.4. MATERIALS SHALL BE FREE OF ASBESTOS.

**ELECTRICAL PENETRATIONS: COMPLY WITH NEC 300-21.**

**PRE-INSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE. ALL TRADES WHOSE WORK PENETRATES OR IS PENETRATED SHALL BE PRESENT ALONG WITH THE FIRESTOPPING SYSTEM MANUFACTURER'S REPRESENTATIVE.**

#### **SYSTEM REQUIREMENTS**

**PERFORMANCE REQUIREMENTS: PROVIDE ONLY FIRESTOPPING ELEMENTS THAT ARE IN ACCORDANCE WITH ASTM E814 AND/OR UL 1479, UL 263. INSTALL MATERIALS THAT HAVE BEEN TESTED TO PROVIDE FIRE RATING EQUAL TO, OR SURPASSING THOSE REQUIRED BY THE CONTRACT DOCUMENTS.**

**FIRE PERFORMANCE CHARACTERISTICS: PROVIDE FIRESTOPPING PRODUCTS WITH SURFACE BURNING CHARACTERISTICS INDICATED BELOW, AS DETERMINED BY TESTING ASSEMBLED MATERIALS COMPOSED OF FACINGS AND BACKINGS IDENTICAL TO THOSE REQUIRED IN THIS SECTION, PER ASTM E84 (UL 723), BY A TESTING ORGANIZATION ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.**

17.1. FLAME SPREAD: 25 OR LESS.

17.2. SMOKE DEVELOPED: 50 OR LESS.

#### **SUBMITTALS**

**SUBMIT PRODUCT DATA UNDER PROVISIONS OF SECTION 01 34 00.**

#### **LEED SUBMITTALS:**

20.1. PRODUCT DATA FOR CREDIT IEQ 4.1: FOR PENETRATION FIRESTOPPING SEALANTS AND SEALANT PRIMERS, DOCUMENTATION INCLUDING PRINTED STATEMENT OF VOC CONTENT.

**SHOP DRAWINGS: SUBMIT SHOP DRAWINGS, OR MANUFACTURER'S DETAIL SHEETS SHOWING EACH CONDITION THAT REQUIRES A PENETRATION SEAL. DETAILS MUST INCLUDE MATERIALS TO BE USED, ANCHORAGE, METHODS OF INSTALLATION, AND RELATIONSHIP TO ALL ADJACENT CONSTRUCTION. ALSO SUBMIT UL SYSTEM NUMBER FOR EACH SYSTEM.**

21.1. SUBMIT THE U.L. "SYSTEM DESIGN" DOCUMENTATION APPLICABLE TO EACH SPECIFIC PIPE, DUCT OR CONDUIT PENETRATION CONDITION APPLICABLE. IF U.L. ILLUSTRATION NEEDS TO BE MODIFIED TO SUIT THE PARTICULAR CONDITION, SUBMIT ILLUSTRATION APPROVED BY MANUFACTURER'S FIRE PROTECTION ENGINEER WITH MODIFICATIONS MARKED.



**FIRESTOPPING FOAM AND SEALANT CERTIFICATION: SUBMIT DETAILED DESIGN CERTIFICATES FROM MANUFACTURERS OF FIRESTOPPING FOAMS AND SEALANTS ATTESTING THAT THEIR SPECIFIC SYSTEMS CONFORM TO THE SPECIFICATION REQUIREMENTS AND WILL RESTORE FLOOR AND WALL PENETRATIONS TO THEIR ORIGINAL FIRE-RATED DESIGNS.**

**MANUFACTURER'S PRODUCT DATA: SUBMIT COPIES OF ALL MANUFACTURER'S SPECIFICATION DATA, RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS FOR EACH TYPE OF MATERIAL REQUIRED.**

**TEST REPORTS: SUBMIT REPORTS FROM INDEPENDENT CERTIFIED LABORATORY INDICATING FLAME SPREAD AND SMOKE CONTRIBUTION TESTED TO ASTM E84 (UL 723).**

**DELIVERY, STORAGE AND HANDLING**

**DELIVER MATERIALS TO PROJECT SITE IN ORIGINAL UNOPENED CONTAINERS OR BUNDLES WITH LABELS, INCLUDING NAME OF MANUFACTURER, PRODUCT NAME, AND DESIGNATION, UL LABEL, COLOR, LOT NUMBER, POT LIFE, CURING TIME AND MIXING INSTRUCTIONS FOR MULTI-COMPONENT MATERIALS.**

**STORE AND HANDLE MATERIALS TO PREVENT THEIR DETERIORATION OR DAMAGE DUE TO MOISTURE, TEMPERATURE CHANGES, CONTAMINANTS, OR OTHER CAUSES.**

**PART 2 - PRODUCTS**

**28.1. ACCEPTABLE MANUFACTURER**

**PROVIDE SYSTEMS FROM ONE OF THE FOLLOWING:**

29.1. DOW CORNING.

29.2. GENERAL ELECTRIC.

29.3. RECTORSEAL CORPORATION.

29.4. TREMCO, INC.

- A. 3M Contract Products Department.
- B. Insta-Foam Products, Inc.
- C. Grace Construction Products.
- D. Albi Manufacturing, Division of Stan Chem, Inc.
- E. A/D Fire Protection Systems, Inc.

**FIRESTOP MATERIAL**

**GENERAL: PROVIDE U.L. SYSTEMS FOR PENETRATIONS, JOINTS OR SUBSTRATE REQUIRED, BASED ON THE FOLLOWING GUIDE. PROVIDE SYSTEMS FOR BOTH SIDES OF WALLS, UNLESS U.L. TEST SUBSTANTIATES USE ON ONE SIDE OF WALL ONLY.**

- 31.1. FOR SIMPLE PENETRATIONS: ONE-PART FIRE STOP SEALANT AND FORMING MATERIAL AS RECOMMENDED BY U.L. SYSTEM DESIGN.
- 31.2. FOR MULTI-CABLE PENETRATIONS THROUGH WALL: WALL BOX FRAME WITH ELASTOMER MODULES FOR CABLES.
- 31.3. FOR COMPLEX PENETRATIONS OTHER THAN ABOVE: FOAMED-IN-PLACE FIRE STOP SEALANT.
- 31.4. FOR PLASTIC PIPE OR CONDUIT: INTUMESCENT WRAP STRIP AND ONE-PART FIRE STOP SEALANT.
- 31.5. FOR INSULATED METAL PIPE: INTUMESCENT WRAP STRIP AND ONE-PART FIRE STOP SEALANT.
- 31.6. WHERE FLOOR CONSTRUCTION ABUTS PERIMETER ENCLOSURES: FOIL-FACED SAFING INSULATION AND SMOKE BARRIER AS IF ASTM E814 SYSTEM IS REQUIRED, SEALANT/FOAM AND MINERAL WOOL.
- 31.7. IRREGULAR AND OVERSIZED HOLES THROUGH FLOOR, WALL AND ROOF CONSTRUCTION: PATCH TO MATCH ORIGINAL CONSTRUCTION, UNLESS OTHERWISE ACCEPTED IN WRITING BY ARCHITECT.
  - A. Openings Between Tops of Walls and Floor or Roof Construction: One-part fire stop sealant or foamed-in-place firestop sealant or safing insulation and mastic (depending on configuration). Materials must be able to withstand deflection of floor or roof structure and remain in place.
  - B. Expansion Joints in Fire-Rated Construction: Fire-resistant mineral wool (4-lb. density) and fire-resistant elastomeric sealant.
- 31.8. OPENINGS AND PENETRATIONS THROUGH SMOKE BARRIERS OR SPECIAL COMPARTMENTALIZED AREAS: AS NECESSARY TO RESTORE PENETRATED ITEM TO THE REQUIRED RATING.

**WHERE ABOVE SYSTEMS ARE NOT SUITABLE, AND FOR LOCATIONS NOT DESCRIBED ABOVE, IF ANY, CONTRACTOR SHALL SELECT A SUITABLE SYSTEM COMPLYING WITH SPECIFIED REQUIREMENTS BASED ON MANUFACTURER'S FIRE ENGINEER RECOMMENDATIONS. SELECT AND SUBMIT PROPOSED SYSTEM TO ARCHITECT TO REVIEW.**

**VOC CONTENT: PENETRATION FIRESTOPPING SEALANTS AND SEALANT PRIMERS SHALL COMPLY WITH THE FOLLOWING LIMITS FOR VOC CONTENT WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24):**

**SEALANTS: 250 G/L.**

**SEALANT PRIMERS FOR NONPOROUS SUBSTRATES: 250 G/L.**

**SEALANT PRIMERS FOR POROUS SUBSTRATES: 775 G/L.**

**GENERAL: PROVIDE MANUFACTURER'S STANDARD FIRESTOPPING SEALANT WITH ACCESSORY MATERIALS, HAVING FIRE-RESISTANCE RATINGS INDICATED AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES PER ASTM E814 BY UL OR OTHER TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.**

**FOAMED-IN-PLACE FIRESTOPPING SEALANT: TWO-PART, FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN A THROUGH-PENETRATION FIRESTOP SYSTEM FOR FILLING OPENINGS AROUND CABLES, CONDUIT, PIPES AND SIMILAR PENETRATIONS THROUGH WALLS AND FLOORS.**

- 38.1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
  - A. Dow Corning Fire Stop Foam 2001; Dow Corning Corp.

- B. Insta-Fireseal Silicone RTV Foam; Insta-Foam Products, Inc.
- C. Pensil 200; General Electric.

**ONE-PART FIRE-STOPPING SEALANT: ONE-PART SILICONE ELASTOMERIC SEALANT FORMULATED FOR USE IN A THROUGH-PENETRATION FIRESTOP SYSTEM FOR SEALING OPENINGS AROUND CABLE, CONDUIT, PIPES AND SIMILAR PENETRATIONS THROUGH WALLS AND FLOORS. PROVIDE MOISTURE-CURING, SINGLE-COMPONENT, SILICONE-BASED, NEUTRAL-CURING ELASTOMERIC SEALANT OF GRADE INDICATED BELOW:**

- 39.1. GRADE: POURABLE (SELF-LEVELING) FORMULATION FOR OPENINGS IN FLOORS AND OTHER HORIZONTAL SURFACES AND NONSAG FORMULATION FOR OPENINGS IN VERTICAL AND OTHER SURFACES REQUIRING A NONSLUMPING/GUNNABLE SEALANT, UNLESS INDICATED FIRESTOP SYSTEM LIMITS USE TO NONSAG GRADE FOR BOTH OPENING CONDITIONS.
- 39.2. GRADE FOR HORIZONTAL SURFACES: POURABLE (SELF-LEVELING) GRADE FOR OPENINGS IN FLOORS AND OTHER HORIZONTAL SURFACES.
- 39.3. GRADE FOR VERTICAL SURFACES: NONSAG GRADE FOR OPENINGS IN VERTICAL AND OTHER SURFACES.
- 39.4. ADDITIONAL MOVEMENT CAPABILITY: PROVIDE SEALANT WITH THE CAPABILITY TO WITHSTAND THE FOLLOWING PERCENTAGE CHANGES IN JOINT WIDTH EXISTING AT TIME OF INSTALLATION, WHEN TESTED FOR ADHESION AND COHESION UNDER MAXIMUM CYCLIC MOVEMENT PER ASTM C719, AND REMAIN IN COMPLIANCE WITH OTHER REQUIREMENTS OF ASTM C920 FOR USES INDICATED:
  - A. 50% movement in both extension and compression for a total of 100% movement.
- 39.5. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
  - A. Dow Corning Firestop Sealant 2000, Dow Corning Corp.
  - B. Dow Corning Firestop Sealant SL 2003, Dow Corning Corp.
  - C. Pensil 100 Firestop Sealant, General Electric Co.
  - D. Metacaulk 835, The RectorSeal Corporation.
  - E. Metacaulk 880, The RectorSeal Corporation.
  - F. Fyre-Sil, Tremco Inc.

**FYRE-SIL S/L TREMCO INC.**

**INTUMESCENT WRAP STRIPS:**

- 41.1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
  - A. Dow Corning Fire Stop Intumescent Wrap Strip 2002; Dow Corning Corp.
    - 1. 3M Wrap/Strip FS 195, 3M Contract Products Dept.
    - 2. Metacaulk Wrap Strip, The Rector Seal Corporation.

**NON-COMBUSTIBLE CERAMIC OR MINERAL WOOL FORMING MATERIALS: USE FORMING MATERIALS IN CONJUNCTION WITH FIRESTOPPING FOAMS OR SEALANTS.**

- 42.1. PRODUCTS: USE THE SYSTEM MANUFACTURER'S STANDARD, OR ONE OF THE FOLLOWING:
  - A. Therma/Ceramics, Carborundum Co.
  - B. Cerablanket-FS; Tremco.
  - C. Thermafiber Fire safety FS-15 or Thermafiber Safing Insulation, USG.
  - D. Fire Master Blanket or Board; Morgan Thermal Ceramics.
  - E. Ceramic Fiber or Mineral Wool; Nelson Electric, a Unit of General Signal.

**ACCESSORY MATERIALS FOR FIRE-STOPPING SEALANTS OR COMPOUNDS: PROVIDE FORMING, JOINT FILL MATERIALS, SMOKE BARRIER SEALANTS/CAULKING MATERIALS, METAL CLIPS FOR SAFING MATERIALS, PACKING AND OTHER ACCESSORY MATERIALS REQUIRED FOR INSTALLATION OF FIRESTOPPING MATERIALS AS APPLICABLE FOR INSTALLATION CONDITIONS. ALL ACCESSORY MATERIALS SHALL BE UL APPROVED WITH THE SYSTEM TESTED. COMBINED FOAM, SEALANT OR COMPOUND AND FILLER SHALL RESTORE WALL, PARTITION, OR FLOOR TO ORIGINAL DESIGN FIRE RATING AND PREVENT THE PASSAGE OF SMOKE.**

### **PART 3 - EXECUTION**

#### **44.1. INSPECTION**

**EXAMINE LOCATIONS INDICATED TO RECEIVE FIRESTOPPING, WITH INSTALLER, FOR COMPLIANCE WITH REQUIREMENTS FOR JOINT CONFIGURATION, INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING FIRESTOPPING PERFORMANCE.**

**VERIFY EXISTING CONDITIONS AND SUBSTRATES BEFORE STARTING WORK.**

**DO NOT PROCEED WITH INSTALLATION OF FIRESTOPPING WHEN AMBIENT AND SUBSTRATE TEMPERATURE CONDITIONS ARE OUTSIDE LIMITS PERMITTED BY FIRESTOPPING MANUFACTURERS OR WHEN JOINT SUBSTRATES ARE WET DUE TO RAIN, FROST, CONDENSATION OR OTHER CAUSES.**

**PROVIDE VENTILATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.**

**DO NOT PROCEED WITH INSTALLATION OF FIRESTOPPING WHEN ANNULAR SPACE/OPENING SIZES ARE LESS OR GREATER THAN ALLOWED BY FIRESTOPPING MANUFACTURER OF UL FIRE RESISTANCE DIRECTORY FOR APPLICATION INDICATED.**

#### **PREPARATION**

**SURFACE CLEANING OF JOINTS: CLEAN OUT JOINTS IMMEDIATELY BEFORE INSTALLING FIRESTOPPING TO COMPLY WITH RECOMMENDATIONS OF FIRESTOPPING MANUFACTURERS AND THE FOLLOWING REQUIREMENTS:**

- 51.1. REMOVE ALL FOREIGN MATERIALS FROM JOINT SUBSTRATES WHICH COULD INTERFERE WITH ADHESION OF FIRESTOPPING.**
- 51.2. CLEAN JOINT SUBSTRATE SURFACES TO PRODUCE A CLEAN, SOUND SUBSTRATE CAPABLE OF DEVELOPING OPTIMUM BOND WITH JOINT SEALERS. REMOVE LOOSE PARTICLES REMAINING FROM ABOVE CLEANING OPERATIONS.**
- 51.3. REMOVE LAITANCE AND FORM RELEASE AGENTS FROM CONCRETE.**

**PRIMING: PRIME SUBSTRATES WHERE RECOMMENDED BY FIRESTOPPING MANUFACTURER TO COMPLY WITH MANUFACTURER'S RECOMMENDATIONS. CONFINE PRIMERS TO AREAS OF BOND; DO NOT ALLOW SPILLAGE OR MIGRATION ONTO EXPOSED SURFACES.**

**MASKING TAPE: USE MASKING TAPE WHERE REQUIRED TO PREVENT CONTACT OF FIRESTOPPING WITH ADJOINING SURFACES WHICH OTHERWISE WOULD BE PERMANENTLY STAINED OR DAMAGED BY SUCH CONTACT OR BY CLEANING METHODS REQUIRED TO REMOVE SEALANT SMEARS. REMOVE TAPE IMMEDIATELY AFTER TOOLING WITHOUT DISTURBING JOINT SEAL.**

**INSTALL FORMING/DAMMING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE THE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE FIRE RATINGS OF DESIGNATED THROUGH-PENETRATION FIRESTOP SYSTEMS. AFTER INSTALLING FILL MATERIALS, REMOVE COMBUSTIBLE FORMING MATERIALS AND OTHER ACCESSORIES NOT INDICATED AS PERMANENT COMPONENTS OF FIRESTOP SYSTEM.**

**INSTALLING THROUGH-PENETRATION FIRESTOPS**

**GENERAL: COMPLY WITH THE "SYSTEM PERFORMANCE REQUIREMENTS" ARTICLE IN PART 1 AND THE THROUGH-PENETRATION FIRESTOP MANUFACTURER'S INSTALLATION INSTRUCTIONS AND DRAWINGS PERTAINING TO PRODUCTS AND APPLICATIONS INDICATED.**

**INSTALL FORMING/DAMMING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE THE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE FIRE RATINGS OF DESIGNATED THROUGH-PENETRATION FIRESTOP SYSTEMS. AFTER INSTALLING FILL MATERIALS, REMOVE COMBUSTIBLE FORMING MATERIALS AND OTHER ACCESSORIES NOT INDICATED AS PERMANENT COMPONENTS OF FIRESTOP SYSTEMS.**

**INSTALL FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS BY PROVEN TECHNIQUES TO PRODUCE THE FOLLOWING RESULTS:**

- 58.1. COMPLETELY FILL VOIDS AND CAVITIES FORMED BY OPENINGS, FORMING MATERIALS, ACCESSORIES, AND PENETRATING ITEMS.
  - A. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

58.2. FOR FILL MATERIALS THAT WILL REMAIN EXPOSED AFTER COMPLETING WORK, FINISH TO PRODUCE SMOOTH, UNIFORM SURFACES THAT ARE FLUSH WITH ADJOINING FINISHES.

#### **INSTALLING FIRE-RESISTIVE JOINT SEALANTS**

**GENERAL: COMPLY WITH THE "SYSTEM PERFORMANCE REQUIREMENTS" ARTICLE IN PART 1, WITH ASTM C1193, AND WITH THE SEALANT MANUFACTURER'S INSTALLATION INSTRUCTIONS AND DRAWINGS PERTAINING TO PRODUCTS AND APPLICATIONS INDICATED.**

**INSTALL JOINT FILLERS TO PROVIDE SUPPORT OF SEALANTS DURING APPLICATION AND AT POSITION REQUIRED TO PRODUCE THE CROSS-SECTIONAL SHAPES AND DEPTHS OF INSTALLED SEALANTS RELATIVE TO JOINT WIDTHS THAT ALLOW OPTIMUM SEALANT MOVEMENT CAPABILITY AND DEVELOP FIRE-RESISTANCE RATING REQUIRED.**

**INSTALL SEALANTS BY PROVEN TECHNIQUES THAT RESULT IN SEALANTS DIRECTLY CONTACTING AND FULLY WETTING JOINT SUBSTRATES, COMPLETELY FILLING RECESSES PROVIDED FOR EACH JOINT CONFIGURATION, AND PROVIDING UNIFORM, CROSS-SECTIONAL SHAPES AND DEPTHS RELATIVE TO JOINT WIDTH THAT OPTIMUM SEALANT MOVEMENT CAPABILITY. INSTALL SEALANTS AT THE SAME TIME JOINT FILLERS ARE INSTALLED.**

**TOOL NONSAG SEALANTS IMMEDIATELY AFTER SEALANT APPLICATION AND PRIOR TO THE TIME SKINNING OR CURING BEGINS. FORM SMOOTH, UNIFORM BEADS OF CONFIGURATION INDICATED OR REQUIRED TO PRODUCE FIRE-RESISTANCE RATING, AS WELL AS TO ELIMINATE AIR POCKETS, AND TO ENSURE CONTACT AND ADHESION OF SEALANTS WITH SIDES OF JOINT. REMOVE EXCESS SEALANT FROM SURFACES ADJACENT TO JOINT. DO NOT USE TOOLING AGENTS THAT DISCOLOR SEALANTS OR ADJACENT SURFACES OR ARE NOT APPROVED BY SEALANT MANUFACTURER.**

#### **FIELD QUALITY CONTROL**

**INDEPENDENT TESTING: INSPECT SEALANTS AFTER 48 HOURS FOR COMPLETE ADHESION AND SEAL, AND INSPECT FOAM COLOR, CELL STRUCTURE, SNAP TIME AND FREE FOAM DENSITY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. ALL FIRESTOPPED AREAS SHALL BE EXAMINED BY THE AUTHORITY HAVING JURISDICTION AND THE TESTING LABORATORY TO ENSURE PROPER INSTALLATION. ALL SEALED AREAS SHOULD REMAIN ACCESSIBLE UNTIL INSPECTION BY APPLICABLE AUTHORITIES HAS BEEN COMPLETED. IF NECESSARY, FIRE-RESISTANT COVER BOARDS SHALL BE REMOVED.**

**CORRECT DEFICIENCIES. DEFICIENT AREAS MUST BE REINSPECTED.**

#### **CLEANING AND PROTECTION**

**CLEAN OFF EXCESS SEALANTS AND SEALANT SMEARS AS WORK PROGRESSES BY METHODS AND WITH CLEANING MATERIALS APPROVED BY MANUFACTURERS OF JOINT SEALERS AND OF PRODUCTS IN WHICH JOINTS OCCUR.**

**PROTECT FIRESTOPPING DURING AND AFTER CURING PERIOD FROM CONTACT WITH CONTAMINATING SUBSTANCES OR FROM DAMAGE RESULTING FROM CONSTRUCTION OPERATIONS OR OTHER CAUSES SO THAT THEY AREA WITHOUT DETERIORATION OR DAMAGE AT TIME OF SUBSTANTIAL COMPLETION. IF, DESPITE SUCH PROTECTION, DAMAGE OR DETERIORATION OCCURS, CUT OUT AND REMOVE DAMAGED OR DETERIORATED FIRESTOPPING IMMEDIATELY AND RESEAL JOINTS WITH NEW MATERIALS TO PRODUCE FIRESTOPPING INSTALLATIONS COMPLYING WITH SPECIFIED REQUIREMENTS.**

**END OF SECTION**

**SECTION 07 9200 - JOINT SEALANTS****PART 1 GENERAL**

## 1.1. SUMMARY

- A. Section Includes:
  - 1. Urethane joint sealants at traffic and non-traffic areas.
  - 2. Butyl joint sealants.
  - 3. Latex joint sealants.

## 1.2. PREINSTALLATION MEETINGS

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

## 1.3. ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product.
- B. Samples: For each kind and color of joint sealant required.
- C. Joint-Sealant Schedule: Include the following information:
  - 1. Joint-sealant application, joint location, and designation.
  - 2. Joint-sealant manufacturer and product name.
  - 3. Joint-sealant formulation.
  - 4. Joint-sealant color.

## 1.4. INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Sample warranties.

## 1.5. QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

## 1.6. WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Five years from date of Substantial Completion.

**PART 2 PRODUCTS**

## 2.1. JOINT SEALANTS, GENERAL

- A. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the requirements of the authorities having jurisdiction.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

## 2.2. URETHANE JOINT SEALANTS

- A. Urethane, S, NS, 25, NT: Single-component, nonsag, nontraffic-use, plus 25 percent and minus 25 percent movement capability, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
  - 1. Acceptable products:
    - a. Sika Corporation, Inc.: Sikaflex 1a

- b. Sonneborn: Sonolastic NP-1
        - c. Tremco: Vulkem 116
      - 2. Applications: Exterior, non-traffic joints including but not limited to joints in siding, trim, penetrations and openings.
    - B. Urethane, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T and NT.
      - 1. Acceptable Products include:
        - a. Sonneborn: Sonolastic SL-1 or equal.
      - 2. Applications: Exterior, traffic joints at concrete patio.
- 2.3. BUTYL – CONCEALED LOCATIONS
  - A. Butyl, S, NS, 12 ½, M: Single Component, non-sag, Plus 12 ½ percent and minus 12 ½ percent movement capability, butyl sealant, ASTM C 920, Type S, Grade NS, Class 12 ½, Use M, non-skinning.
    - 1. For use at concealed locations at concrete slab such as thresholds and under sill plates of exterior wall infill.
- 2.4. LATEX JOINT SEALANTS
  - A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
    - 1. Acceptable Products:
      - a. Bostik Findley: Chem-Calk 600
      - b. Pecora Corporation: AC-20+
      - c. Schnee-Morehead, Inc: SM 8200
      - d. Sonneborn: Sonlac
      - e. Tremco: Tremflex 834
    - 2. Application: Interior, non-traffic joints.
- 2.5. JOINT-SEALANT BACKING
  - A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
  - B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.
- 2.6. MISCELLANEOUS MATERIALS
  - A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates.
  - B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
  - C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

### **PART 3 EXECUTION**

#### **3.1. PREPARATION**

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:



1. Remove laitance and form-release agents from concrete.
  2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by prior experience.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

### 3.2. INSTALLATION OF JOINT SEALANTS

- A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
  2. Completely fill recesses in each joint configuration.
  3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

**END OF SECTION**

**SECTION 08 1113 - HOLLOW METAL DOORS & FRAMES****PART 1 GENERAL**

## 1.1. RELATED DOCUMENTS

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

## 1.2. SUMMARY

- A. Section includes:
  - 1. Interior standard steel frames.

## 1.3. ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, core descriptions, and finishes.
- B. Shop Drawings: Include the following:
  - 1. Elevations of each door type.
  - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
  - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
  - 4. Locations of reinforcement and preparations for hardware.
  - 5. Details of each different wall opening condition.
  - 6. Details of anchorages, joints, field splices, and connections.
  - 7. Details of accessories.
  - 8. Details of moldings, removable stops, and glazing.
  - 9. Details of conduit and preparations for power, signal, and control systems.
- C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

## 1.4. DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
  - 1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- (102-mm-) high wood blocking. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

## 1.5. INFORMATIONAL SUBMITTALS

- A. Product test reports.

**PART 2 PRODUCTS**

## 2.1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING

- 1. Ceco Door Products; an Assa Abloy Group company.
- 2. Curries Company; an Assa Abloy Group company.
- 3. Republic Doors and Frames.
- 4. Steelcraft; an Ingersoll-Rand company.

## 2.2. PERFORMANCE REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
  - 1. Smoke- and Draft-Control Assemblies: Provide assemblies with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

## 2.3. INTERIOR STANDARD STEEL FRAMES

- A. Construct hollow-metal frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Frames: SDI A250.8, Level 2.
  - 1. Frames:
    - a. Materials: Steel sheet, minimum thickness of 0.0625 inch.
    - b. Construction: Full profile welded.

## 2.4. FRAME ANCHORS

- A. Jamb Anchors:
  - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (51 mm) wide by 10 inches (254 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.
  - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.

## 2.5. MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot Dipped Galvanized steel sheets: Zinc coated carbon steel sheets for commercial quality, complying with ASTM A525, G60 zinc; 0.60 oz. per square foot hot dipped galvanized coating; mill phosphatized..
- C. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.
  - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- E. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.
- F. Glazing: Comply with requirements in Section 08 80 00 "Glazing."

## 2.6. FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as

- frames.
- a. Sidelight Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
  2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
  4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
  5. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Masonry Type: Locate anchors not more than 16 inches (406 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c., to match coursing, and as follows:
      - 1) Two anchors per jamb up to 60 inches (1524 mm) high.
      - 2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
      - 3) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
      - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 120 inches (3048 mm) high.
    - b. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:
      - 1) Three anchors per jamb up to 60 inches (1524 mm) high.
      - 2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
      - 3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
      - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
  6. Head Anchors: Two anchors per head for frames more than 42 inches (1067 mm) wide and mounted in metal-stud partitions.
  7. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
    - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
  - C. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
  - D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
    1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
    2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
  - E. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
    1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.

2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow-metal work.
5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

#### 2.7. STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
  1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

### PART 3 EXECUTION

#### 3.1. EXAMINATION

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

#### 3.2. PREPARATION

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

#### 3.3. INSTALLATION

- A. Hollow-Metal Frames: Comply with SDI A250.11 and NAAMM-HMMA 840.
  1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
    - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
    - b. Install frames with removable stops located on secure side of opening.
    - c. Install door silencers in frames before grouting.
    - d. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - e. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    - f. Field-apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Fire-Rated Openings: Install frames according to NFPA 80.
3. Floor Anchors: Secure with postinstalled expansion anchors.
  - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
4. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
5. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout or mortar.
6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
8. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
  - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
  - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

#### 3.4. ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Factory-Finish Touchup: Clean abraded areas and repair with same material used for factory finish according to manufacturer's written instructions.
- F. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

#### END OF SECTION

**SECTION 08 1416 - FLUSH WOOD DOORS****PART 1 GENERAL**

## 1.1. SUMMARY

- A. Section Includes:
  - 1. Solid-core doors with wood-veneer faces, fire rated and non-rated.
  - 2. Factory finishing flush wood doors.
  - 3. Factory fitting flush wood doors to frames and factory machining for hardware.

## 1.2. ACTION SUBMITTALS

- A. Manufacturer's Data:
  - 1. Submit copies of door manufacturer's specifications and installation instructions for each type of wood door required, including other data as may be required to show compliance with the specified requirements.
  - 2. Include details of core and edge construction, trim for openings and louvers and similar components.
  - 3. Include certifications as may be required to show compliance with the specifications.
  - 4. Submit manufacturer's standard pre-finished samples for Architect's selection.
- B. Specific Product Warranty:
  - 1. Submit written agreement on door manufacturer's standard form signed by manufacturer, installer and contractor, agreeing to repair or replace defective doors which have warped (bow, cup or twist) or which show telegraphing of core construction below in face veneers, or do not conform to tolerance limitations of NWMA and AWI. Warranty to include rehanging and refinishing.
    - a. Warranty shall be in effect during following period of time after date of substantial completion.
      - 1) Solid Core (fire rated and non-fire rated) Flush Interior Doors.
        - (a) Life of installation.
- C. Manufacturer's prefinished samples.

## 1.3. INFORMATIONAL SUBMITTALS

- A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

## 1.4. REFERENCES

- A. ANSI A135.4 Basic Hardboard.
- B. ASTM E90 Measurement of Airborne Sound Transmission Loss of Building Partitions.
- C. ASTM E152 Methods of Fire Tests of Door Assemblies.
- D. AWI Quality Standards of the Architectural Woodwork Institute.
- E. DHI Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- F. NFPA 80 Fire Doors and Windows.
- G. NFPA 252 Standard Method of Fire Tests for Door Assemblies.
- H. UL 10B Fire Tests of Door Assemblies.

## 1.5. QUALITY ASSURANCE

- A. Standards: Comply with the requirements of the following standards unless otherwise indicated.

1. Non Fire Rated Wood Doors: NWMA Industry Standard I.S. 1: "Wood Flush Doors" of the National Woodwork Manufacturer's Association.
2. Factory mark each door with the NWMA "Quality Certified" seal of approval for conformance with NWMA I.S.1.
3. AWI "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute (AWI).

## **PART 2 PRODUCTS**

### **2.1. MANUFACTURERS**

- A. Provide flush wood veneer door from one of the following:
  1. Eggers; Two Rivers, Wisconsin.
  2. Marshfield Door Systems, Inc.; Marshfield, Wisconsin.
  3. Algoma Hardwoods Inc.; Algoma, Wisconsin.
  4. VT Industries, Holstein, Iowa.
  5. Oshkosh Door Company; Oshkosh Wisconsin.

### **2.2. FLUSH WOOD DOORS, GENERAL**

- A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
  1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.
- B. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
  1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
  2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
  3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
- C. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

### **2.3. VENEER-FACED DOORS FOR TRANSPARENT FINISH**

- A. Interior Solid-Core Doors:
  1. Grade: Premium, with grade A faces.
  2. Species: Sliced Red Oak.
  3. Cut: Plain sliced.
  4. Match between Veneer Leaves: Book match.
  5. Core: Particleboard. Non-rated doors; non-combustible mineral core-rated doors.
  6. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.

### **2.4. FABRICATION**

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.



1. Comply with NFPA 80 requirements for fire-rated doors.
  - B. Factory machine doors for hardware that is not surface applied.
- 2.5. FACTORY FINISHING
- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
    1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
  - B. Factory finish doors that are indicated to receive transparent finish.
  - C. Transparent Finish:
    1. Grade: Premium.
    2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" Section 1500.
    3. Door finish shall match door finish on existing wood doors from Phase 1 work – Verify specified information (Wood species and factory finish) will match existing doors.

### **PART 3 EXECUTION**

#### **3.1. INSTALLATION**

- A. Hardware: For installation, see Section 08 71 00 "Door Hardware."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
  1. Install fire-rated doors according to NFPA 80.
  2. Install smoke- and draft-control doors according to NFPA 105.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
  1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated, 1/2 inch from bottom of door to top of decorative floor finish or covering if threshold is not used.
    - a. Comply with NFPA 80 for fire-rated doors.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

#### **END OF SECTION**

**SECTION 08 4113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS****PART 1 GENERAL**

## 1.1. SUMMARY

- A. Section Includes:
  - 1. Storefront framing.
  - 2. Manual-swing entrance doors.

## 1.2. PREINSTALLATION MEETINGS

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

## 1.3. ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
  - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
  - 2. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
    - a. Joinery, including concealed welds.
    - b. Anchorage.
    - c. Expansion provisions.
    - d. Glazing.
    - e. Flashing and drainage.
  - 3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- D. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- E. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

## 1.4. INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Energy Performance Certificates: For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.
  - 1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and storefront.
- C. Product Test Reports: For aluminum-framed entrances and storefronts, for tests performed by manufacturer and witnessed by a qualified testing agency or a qualified testing agency.
- D. Source quality-control reports.
- E. Sample Warranties: For special warranties.

### 1.5. CLOSEOUT SUBMITTALS

- A. Maintenance data.

### 1.6. QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
  - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

### 1.7. WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.
  - 2. Failures include, but are not limited to, the following:
    - a. Structural failures including, but not limited to, excessive deflection.
    - b. Noise or vibration created by wind and thermal and structural movements.
    - c. Deterioration of metals and other materials beyond normal weathering.
    - d. Water penetration through fixed glazing and framing areas.
    - e. Failure of operating components.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Warranty Period: 20 years from date of Substantial Completion.

## **PART 2 PRODUCTS**

### 2.1. PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design aluminum-framed entrances and storefronts.
- B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
  - 1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure, including, but not limited to, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
  - 2. Failure also includes the following:
    - a. Thermal stresses transferring to building structure.
    - b. Glass breakage.
    - c. Noise or vibration created by wind and thermal and structural movements.
    - d. Loosening or weakening of fasteners, attachments, and other components.
    - e. Failure of operating units.

- C. Structural Loads:
  - 1. Wind Loads: As indicated on Drawings.
  - 2. Other Design Loads: As indicated on Drawings.
- D. Deflection of Framing Members: At design wind pressure, as follows:
  - 1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane not exceeding 1/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
  - 2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch, whichever is smaller.
    - a. Operable Units: Provide a minimum 1/16-inch clearance between framing members and operable units.
  - 3. Cantilever Deflection: Where framing members overhang an anchor point, as follows:
    - a. Perpendicular to Plane of Wall: No greater than 1/240 of clear span plus 1/4 inch for spans greater than 11 feet 8-1/4 inches or 1/175 times span, for spans of less than 11 feet 8-1/4 inches.
- E. Structural: Test according to ASTM E 330/E 330M as follows:
  - 1. When tested at positive and negative wind-load design pressures, storefront assemblies, including entrance doors, do not evidence deflection exceeding specified limits.
  - 2. When tested at 150 percent of positive and negative wind-load design pressures, storefront assemblies, including entrance doors and anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
  - 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
  - 1. Fixed Framing and Glass Area:
    - a. Maximum air leakage of 0.06 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft. or 6.24 lbf/sq. ft.
  - 2. Entrance Doors:
    - a. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
- G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
  - 1. No evidence of water penetration through fixed glazing and framing areas, including entrance doors, when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft.
- H. Energy Performance: Certify and label energy performance according to NFRC as follows:
  - 1. Thermal Transmittance (U-factor): Fixed glazing and framing areas as a system shall have U-factor of not more than 0.45 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
  - 2. Solar Heat Gain Coefficient (SHGC): Fixed glazing and framing areas as a system shall have SHGC of no greater than 0.35 as determined according to NFRC 200.
  - 3. Condensation Resistance: Fixed glazing and framing areas as a system shall have an NFRC-certified condensation resistance rating of no less than 15 as determined according to NFRC 500.
- I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

## 2.2. STOREFRONT SYSTEMS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Kawneer's Trifab 451T thermal storefront system (operable vents where shown on drawings, including insect screens) or comparable thermally broken aluminum storefront product of same dimensions by one of the following:
  1. Oldcastle Building Envelope.
  2. Tubelite Inc.
- B. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
  1. Exterior Framing Construction: Thermally broken.
  2. Interior Vestibule Framing Construction: Nonthermal.
  3. Glazing System: Retained mechanically with gaskets on four sides.
  4. Finish: Clear anodic finish.
  5. Fabrication Method: Field-fabricated stick system.
  6. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  7. Steel Reinforcement: As required by manufacturer.
- C. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- E. Materials:
  1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
    - a. Sheet and Plate: ASTM B 209 (ASTM B 209M).
    - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
    - c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
    - d. Structural Profiles: ASTM B 308/B 308M.
  2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.
    - a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
    - b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
    - c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

## 2.3. ENTRANCE DOOR SYSTEMS

- A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing or automatic operation.
  1. Door Construction: 1-3/4-inch overall thickness, with minimum 0.125-inch-thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
  2. Door Design: Medium stile; 3-1/2-inch nominal width with 10" wide bottom rail.
  3. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.

- a. Provide nonremovable glazing stops on outside door.

#### 2.4. ENTRANCE DOOR HARDWARE

- A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 087100 "Door Hardware."

#### 2.5. GLAZING

- A. Glazing: Comply with Section 08 80 00 "Glazing."
- B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.
- C. Glazing Sealants: As recommended by manufacturer.

#### 2.6. ACCESSORIES

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

#### 2.7. FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
  1. Profiles that are sharp, straight, and free of defects or deformations.
  2. Accurately fitted joints with ends coped or mitered.
  3. Physical and thermal isolation of glazing from framing members.
  4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  5. Provisions for field replacement of glazing from exterior.
  6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.

- F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
- G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- H. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

## 2.8. ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

## **PART 3 EXECUTION**

### 3.1. EXAMINATION

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

### 3.2. INSTALLATION

- A. General:
  - 1. Comply with manufacturer's written instructions.
  - 2. Do not install damaged components.
  - 3. Fit joints to produce hairline joints free of burrs and distortion.
  - 4. Rigidly secure nonmovement joints.
  - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
  - 6. Seal perimeter and other joints watertight unless otherwise indicated.
- B. Metal Protection:
  - 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
  - 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Set continuous sill members and flashing in full sealant bed, as specified in Section 07 92 00 "Joint Sealants," to produce weathertight installation.
- D. Install components plumb and true in alignment with established lines and grades.
- E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weatherstripping contact and hardware movement to produce proper operation.
- F. Install glazing as specified in Section 08 80 00 "Glazing."
- G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
  - 1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
  - 2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

### 3.3. ERECTION TOLERANCES

- A. Erection Tolerances: Install glazed aluminum curtain walls to comply with the following maximum tolerances:
  - 1. Plumb: 1/8 inch in 10 feet (3.2 mm in 3 m); 1/4 inch in 40 feet (6.35 mm in 12.2 m).

2. Level: 1/8 inch in 20 feet (3.2 mm in 6 m); 1/4 inch in 40 feet (6.35 mm in 12.2 m).
3. Alignment:
  - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch (12.7 mm) wide, limit offset from true alignment to 1/16 inch (1.6 mm).
  - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch (12.7 to 25.4 mm) wide, limit offset from true alignment to 1/8 inch (3.2 mm).
  - c. Where surfaces are separated by reveal or protruding element of 1 inch (25.4 mm) wide or more, limit offset from true alignment to 1/4 inch (6 mm).
4. Location: Limit variation from plane to 1/8 inch in 12 feet (3.2 mm in 3.6 m); 1/2 inch (12.7 mm) over total length.

**END OF SECTION**



**SECTION 08 7100 - DOOR HARDWARE****PART 1 GENERAL****1.1. SUMMARY**

- A. Section Includes:
  - 1. Mechanical door hardware for the following:
    - a. Swinging doors.
  - 2. Electrified door hardware.

**1.2. PREINSTALLATION MEETINGS**

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

**1.3. ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Details of electrified door hardware, indicating the following:
  - 1. Wiring Diagrams: For power, signal, and control wiring and including the following:
    - a. Details of interface of electrified door hardware and building safety and security systems.
  - 2. Operation Narrative: Describe the operation of doors controlled by electrified door hardware.
- C. Other Action Submittals:
  - 1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
    - a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
    - b. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
    - c. Content: Include the following information:
      - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
      - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
      - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
      - 4) Description of electrified door hardware sequences of operation and interfaces with other building control systems.
      - 5) Fastenings and other pertinent information.
      - 6) Explanation of abbreviations, symbols, and codes contained in schedule.
      - 7) Mounting locations for door hardware.
      - 8) List of related door devices specified in other Sections for each door and frame.
  - 2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to

unique door designations that are coordinated with the Contract Documents.

#### 1.4. INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer
- B. Product Certificates: For electrified door hardware, from the manufacturer.
  - 1. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
- C. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.
- D. Warranty: Special warranty specified in this Section.

#### 1.5. CLOSEOUT SUBMITTALS

- A. Maintenance data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

#### 1.6. QUALITY ASSURANCE

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
  - 1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
  - 2. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Source Limitations: Obtain each type of door hardware from a single manufacturer.
  - 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
- C. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- D. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. ADA-ABA Accessibility Guidelines
  - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22.2 N).
  - 2. Comply with the following maximum opening-force requirements:
    - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
    - b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
  - 3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm)
  - 4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.
- E. Keying Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." In addition to Owner, Contractor, and Architect, conference participants shall also include Installer's Architectural Hardware Consultant and Owner's

security consultant. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:

1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
2. Preliminary key system schematic diagram.
3. Requirements for key control system.
4. Requirements for access control.
5. Address for delivery of keys.

F. Preinstallation Conference: Conduct conference at Project site

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Inspect and discuss preparatory work performed by other trades.
3. Inspect and discuss electrical roughing-in for electrified door hardware.
4. Review sequence of operation for each type of electrified door hardware.
5. Review required testing, inspecting, and certifying procedures.

1.7. WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
  - a. Structural failures including excessive deflection, cracking, or breakage.
  - b. Faulty operation of doors and door hardware.
  - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
2. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.
  - a. Exit Devices, electric strikes, electric hinges: Five years from date of Substantial Completion.
  - b. Manual Closers: 10 years from date of Substantial Completion.

1.8. MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

**PART 2 PRODUCTS**

2.1. PERFORMANCE REQUIREMENTS

- A. Fire-Rated Door Assemblies: Where fire-rated doors are indicated, provide door hardware complying with NFPA 80 that is listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
- B. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that complies with requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
  1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch wg of water.
- C. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

- D. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

## 2.2. SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products
  - 2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.

## 2.3. HINGES

- A. Hinges:
  - 1. Interior: PBB Inc. - full mortise template ball bearing hinges, 652 finish or equal from manufacturer listed below.
  - 2. Interior: National Guard Products - continuous, geared aluminum, heavy duty hinges or equal from manufacturer listed below.
  - 3. Exterior: National Guard Products - continuous, geared aluminum, heavy duty hinges or equal from manufacturer listed below.
  - 4. Manufacturers:
    - a. Hager Companies.
    - b. IVES Hardware; an Ingersoll-Rand company.
    - c. Stanley Commercial Hardware; Div. of The Stanley Works.

## 2.4. MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Bored Locks: Minimum 1/2-inch (13-mm) latchbolt throw.
- C. Lock Backset: 2-3/4 inches (70 mm), unless otherwise indicated.
- D. Lock Trim:
  - 1. Levers:
    - a. Falcon B Series cylindrical locks, Quantum lever design, 626 finish
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
- F. Electric Strikes:
  - 1. See schedule
  - 2. Power supply: See schedule

## 2.5. EXIT DEVICES AND AUXILIARY ITEMS

- A. Exit Devices
  - 1. Von Duprin Rim Exit Device.
  - 2. Similar devices by Dorma.

## 2.6. LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
  - 1. Manufacturer: Same manufacturer as for locking devices.
- B. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

## 2.7. KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
  - 1. Master Key System: Change keys and a master key operate cylinders.
  - 2. Keyed Alike: Key all cylinders to same change key.
- B. Keys: Nickel silver
  - 1. Quantity: In addition to one extra key blank for each lock, provide the following:
    - a. Cylinder Change Keys: Three.
    - b. Master Keys: Five.

## 2.8. SURFACE CLOSERS

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
  - 1. Basis-of-Design Product: LCN 4050 or comparable product by one of the following:
    - a. Corbin Russwin Architectural Hardware; an ASSA ABLOY Group company.
    - b. LCN Closers; an Ingersoll-Rand company.
    - c. Norton Door Controls; an ASSA ABLOY Group company.
    - d. SARGENT Manufacturing Company; an ASSA ABLOY Group company.
    - e. DORMA Architectural Hardware; Reamstown, PA.

## 2.9. MECHANICAL STOPS AND HOLDERS

- A. Wall Mounted Stops: BHMA A156.16;US26D
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Hager Companies.
    - b. IVES Hardware; an Ingersoll-Rand company.
    - c. Rockwood Manufacturing Company.

## 2.10. OVERHEAD STOPS AND HOLDERS

- A. Overhead Stops and Holders: BHMA A156.8.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Glynn-Johnson; an Ingersoll-Rand company.
    - b. Rockwood Manufacturing Company.

- c. SARGENT Manufacturing Company; an ASSA ABLOY Group company.

#### 2.11. DOOR GASKETING

- A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot (0.000774 cu. m/s per m) of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Hager Companies.
    - b. M-D Building Products, Inc.
    - c. National Guard Products.
    - d. Pemko Manufacturing Co.; an ASSA ABLOY Group company.
    - e. Reese Enterprises, Inc.

#### 2.12. THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Hager Companies.
    - b. National Guard Products.
    - c. Pemko Manufacturing Co.; an ASSA ABLOY Group company.
    - d. Reese Enterprises, Inc.

#### 2.13. METAL PROTECTIVE TRIM UNITS

- A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch- (1.3-mm-) thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Baldwin Hardware Corporation.
    - b. IPC Door and Wall Protection Systems, Inc.; Div. of InPro Corporation.
    - c. IVES Hardware; an Ingersoll-Rand company.
    - d. Rockwood Manufacturing Company.
    - e. Burns Manufacturing; Erie PA.

#### 2.14. FABRICATION

- A. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- B. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely

attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.

2. Fire-Rated Applications:
  - a. Wood or Machine Screws: For the following:
    - 1) Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors and frames.
    - 2) Strike plates to frames.
    - 3) Closers to doors and frames.
  - b. Steel Through Bolts: For the following unless door blocking is provided:
    - 1) Surface hinges to doors.
    - 2) Closers to doors and frames.
    - 3) Surface-mounted exit devices.
3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
5. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

#### 2.15. FINISHES

- A. All finishes are US26D unless otherwise indicated. Hardware finish shall match finish on existing hardware from Phase 1 work – Verify specified information will match existing hardware.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

### **PART 3 EXECUTION**

#### 3.1. EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2. PREPARATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

#### 3.3. INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  1. Standard Steel Doors and Frames: ANSI/SDI A250.8.

2. Custom Steel Doors and Frames: HMMA 831.
  3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.
1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches (750 mm) of door height greater than 90 inches (2286 mm).
- E. Lock Cylinders: Install construction cores to secure building and areas during construction period.
1. Replace construction cores with permanent cores as indicated in keying schedule.
- F. Boxed Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings.
1. Configuration: Provide one power supply for each door opening with electrified door hardware.
- G. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."
- H. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- I. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- J. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.
- 3.4. ADJUSTING
- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
  2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
  3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.



3.5. CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.6. DOOR HARDWARE SCHEDULE

- A. A. See drawings for hardware sets.

**END OF SECTION**

**SECTION 08 8000 - GLAZING****PART 1 GENERAL**

## 1.1. SUMMARY

- A. Section includes:
  - 1. Glass for storefront and rated and non-rated doors.
  - 2. Glazing sealants and accessories.

## 1.2. COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

## 1.3. ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.
  - 1. Glazing Accessory Samples: For Gaskets – 12 inch lengths.
- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- D. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

## 1.4. INFORMATIONAL SUBMITTALS

- A. Qualification Data: For installers, manufacturers of insulating-glass units with sputter-coated, low-e coatings, glass testing agency and sealant testing agency.
- B. Product Certificates: For glass and glazing products, from manufacturer.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for insulating glass, glazing sealants and glazing gaskets.
  - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- D. Preconstruction adhesion and compatibility test report.
- E. Warranties: Sample of special warranties.

## 1.5. QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.
- B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- C. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
- D. Source Limitations for Glass: Obtain insulating glass from single source from single manufacturer for each glass type.
- E. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

- F. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
1. GANA Publications: GANA's "Glazing Manual."
  2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- G. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

#### 1.6. WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
1. Warranty Period: 10 years from date of Substantial Completion.

### PART 2 PRODUCTS

#### 2.1. GLASS PRODUCTS, GENERAL

- A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
- B. Strength: Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
- C. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites of thickness indicated.
  2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
  3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
  4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
  5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

#### 2.2. GLASS PRODUCTS

- A. Basis-of-design Product: Subject to compliance with requirements, provide Guardian Industries, Corp. product or comparable product of same properties by one of the following:
1. Pilkington LOF
  2. Vitro Industries

3. Viracon
- B. Heat-Treated (Tempered) Float Glass: ASTM C 1036, Type I, Quality-Q3, Transparent Flat; minimum thickness 1/4 inch.
  1. GL- 1: ¼-inch Clear Heat-Treated.
  2. GL- 2: ¼-inch Clear SN68 Heat-Absorbing and Light Reducing (#2 surface) Heat-Treated.
- C. Fire-Protection-Rated Glass (FRG-C): Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire protection ratings indicated, based on testing according to NFPA 252 for door assemblies and NFPA 257 for window assemblies.
  1. Fire-Protection-Rated Tempered Glass: Basis of Design SuperClear 45-HS, 3/4-inch thick, non-tinted complying with testing requirements in 16 CFR 1201 for Category II materials.
  2. Fire-Resistive-Rated Tempered Glass: Basis of Design SuperLite II\_XL, for specified rating, Non-tinted and complying with ASTM E119 and testing requirements in 16 CFR 1201 for Category II materials.
- D. IG-1: Insulated Glass Unit (Tempered): ASTM E774 Class A and E773; Low-E Coated, total unit thickness 1 inch, double pane insulated glass unit.
  1. Outer Pane: GL-2
  2. Inner Pane: GL-1
- E. Basis of Design for Insulated Glass Units:
  1. Interspace Content: Argon.
  2. Low-E coating: Second glass surface – SN68 coating by Guardian Industries.
  3. Visible Light Transmittance: 68 Percent.
  4. Winter Nighttime U-Factor: 0.25 maximum.
  5. Solar Heat Gain Coefficient: 0.38 maximum.
  6. Provide safety glazing labeling.

### 2.3. GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
  1. EPDM complying with ASTM C 864.
  2. Silicone complying with ASTM C 1115.
  3. Thermoplastic polyolefin rubber complying with ASTM C 1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned EPDM, silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
  1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.
- C. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock-strips, complying with ASTM C 542, black.

### 2.4. GLAZING SEALANTS

- A. General:
  1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
  3. Colors of Exposed Glazing Sealants As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Dow Corning Corporation; 790.
    - b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
    - c. May National Associates, Inc.; Bondaflex Sil 290.
    - d. Pecora Corporation; 890.
    - e. Sika Corporation, Construction Products Division; SikaSil-C990.
    - f. Tremco Incorporated; Spectrem 1.
- C. Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.

## 2.5. GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
  2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.6. MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

## 2.7. FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance

requirements.

- B. Grind smooth and polish exposed glass edges and corners.

### **PART 3 EXECUTION**

#### **3.1. PREPARATION**

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

#### **3.2. GLAZING, GENERAL**

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where length plus width is larger than 50 inches.
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  - 2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

### 3.3. TAPE GLAZING

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

### 3.4. GASKET GLAZING (DRY)

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

### 3.5. SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

### 3.6. CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.

- B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
  - 1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.
- D. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- E. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- F. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

### 3.7. GLASS PRODUCTS SCHEDULE:

- A. Interior Glazing Applications
  - 1. Clear Heat-Treated (Tempered) Float Glass (GL-1)
  - 2. Fire-Protection-Rated Glass – clear tempered, rating as shown on drawings (FRG-C)
- B. Exterior Glazing Application.
  - 1. Insulated Glass Unit (Tempered).
    - a. IG 1: Glass Types (GL-2) & (GL-1)

**END OF SECTION**



**SECTION 09 2216 - NON-STRUCTURAL METAL FRAMING****PART 1 GENERAL**

## 1.1. SUMMARY

- A. Section Includes:
  - 1. Non-load-bearing steel framing systems for interior partitions.
  - 2. Suspension systems for interior ceilings and soffits.

## 1.2. ACTION SUBMITTALS

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

## 1.3. INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of code-compliance certification for studs and tracks.

**PART 2 PRODUCTS**

## 2.1. PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

## 2.2. FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
  - 2. Protective Coating: ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.
- B. Studs and Tracks: ASTM C 645.
  - 1. Steel Studs and Tracks:
    - a. Minimum Base-Metal Thickness: 0.0269 inch.
    - b. Minimum Base-Metal Thickness (UL# U423): 0.0329 inch, bare metal thickness (No. 20 MSG)
    - c. Depth: As indicated on Drawings.
- C. Slip-Type Head Joints: Where indicated, provide the following:
  - 1. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (51-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
  - 2. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Dietrich Metal Framing; SLP-TRK Slotted Deflection Track.
      - 2) MBA Building Supplies; FlatSteel Deflection Track or Deflecto Track.
      - 3) Steel Network Inc. (The); VertiClip SLD or VertiTrack VTD Series.
      - 4) Superior Metal Trim; Superior Flex Track System (SFT).
      - 5) Telling Industries; Vertical Slip Track II.

- D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
  - 1. Minimum Base-Metal Thickness: 0.0329 inch unless indicated otherwise on drawings.
- E. Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.
  - 1. Depth: As indicated on Drawings.
  - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.
- F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base-Metal Thickness: 0.0329 inch unless indicated otherwise on drawings.
  - 2. Depth: As indicated on Drawings.
- G. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges.
  - 1. Depth: As indicated on Drawings.
  - 2. Furring Brackets: Adjustable, corrugated-edge-type steel sheet with minimum uncoated-steel thickness of 0.0329 inch.
  - 3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.
- H. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.

### 2.3. SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.
- B. Hanger Attachments to Concrete:
  - 1. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction.
    - a. Uses: Securing hangers to structure.
    - b. Type: Torque-controlled, expansion anchor.
    - c. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- D. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch and minimum 1/2-inch-wide flanges.
  - 1. Depth: 2-1/2 inches unless indicated otherwise on drawings.
- E. Furring Channels (Furring Members):
  - 1. Cold-Rolled Channels: 0.0538-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
  - 2. Steel Studs and Tracks: ASTM C 645.
    - a. Minimum Base-Metal Thickness: 0.0329 inch.
    - b. Depth: As indicated on Drawings.
  - 3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
    - a. Minimum Base-Metal Thickness: 0.0329 inch.
- F. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Products: Subject to compliance with requirements, provide one of the following:
  - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
  - b. Chicago Metallic Corporation; Drywall Grid System.
  - c. USG Corporation; Drywall Suspension System.

#### 2.4. AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
  1. Asphalt-Saturated Organic Felt: ASTM D 226/D 226M, Type I (No. 15 asphalt felt), nonperforated.
  2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

### PART 3 EXECUTION

#### 3.1. EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2. INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
  2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
  3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
  4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

#### 3.3. INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.

- D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb unless otherwise indicated.
    - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
    - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
  3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
  4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
  5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- E. Direct Furring:
1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Z-Shaped Furring Members:
1. Erect insulation, specified in Section 07 21 00 "Thermal Insulation," vertically and hold in place with Z-shaped furring members spaced 24 inches o.c.
  2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
  3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
- G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

### 3.4. INSTALLING CEILING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
1. Hangers: 48 inches o.c.
  2. Carrying Channels (Main Runners): 48 inches o.c.
  3. Furring Channels (Furring Members): 16 inches o.c.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

- C. Suspend hangers from building structure as follows:
1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
    - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
    - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
  3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
  4. Do not attach hangers to steel roof deck.
  5. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  6. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
  7. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- F. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

**END OF SECTION**

**SECTION 09 2900 - GYPSUM BOARD****PART 1 GENERAL**

## 1.1. SUMMARY

- A. Section Includes:
  - 1. Interior gypsum board.

## 1.2. ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each texture finish indicated on same backing indicated for Work.

## 1.3. QUALITY ASSURANCE

- A. Applicator: Company specializing in gypsum board systems work with three years experience.

## 1.4. DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

## 1.5. FIELD CONDITIONS

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

**PART 2 PRODUCTS**

## 2.1. PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

## 2.2. GYPSUM BOARD, GENERAL

- A. Manufacturers: Subject to compliance with requirements:
  - 1. American Gypsum.
  - 2. CertainTeed Corp.
  - 3. Georgia-Pacific Gypsum LLC.
  - 4. Lafarge North America Inc.
  - 5. National Gypsum Company.
  - 6. PABCO Gypsum.
  - 7. Temple-Inland.
  - 8. USG Corporation.

9. Louisiana-Pacific Corporation.

B. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

### 2.3. INTERIOR GYPSUM BOARD

A. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

B. Gypsum Ceiling Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

C. Mold-Resistant Gypsum Board, Type X: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.

1. Core: 5/8 inch.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

### 2.4. SPECIALTY GYPSUM BOARD

A. Gypsum Board, Type C, SCX, SHX, WRX: ASTM C 1396/C. Manufactured to have increased fire-resistive capability; UL classified for fire resistance.

1. Products: Subject to compliance with requirements:
  - a. National Gypsum Company.
  - b. USG Corporation.
2. Thickness: 5/8 inch.
3. Long Edges: Tapered.
4. See specific UL Design Nos., as indicated on Drawings, for additional requirements.

### 2.5. TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
2. Shapes:
  - a. Cornerbead.
  - b. Bullnose bead.
  - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
  - d. L-Bead: L-shaped; exposed long flange receives joint compound.
  - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
  - f. Expansion (control) joint.
  - g. Curved-Edge Cornerbead: With notched or flexible flanges.

B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Manufacturers: Subject to compliance with requirements:
  - a. Fry Reglet Corp.
  - b. Gordon, Inc.
  - c. Pittcon Industries.

### 2.6. JOINT TREATMENT MATERIALS

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

- B. Joint Tape:
  - 1. Interior Gypsum Board: Paper.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping, all-purpose compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use setting-type, all-purpose compound.
  - 4. Finish Coat: For third coat, use setting-type, all-purpose compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use setting-type, all-purpose compound.

## 2.7. AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- C. Sound-Attenuation Blankets: ASTM C 665, Type I – as specified in Section 07 21 00 "Thermal Insulation".
  - 1. Fire-Resistance-Rated Assemblies: Comply with requirements of assembly.
- D. Acoustical Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- E. Thermal Insulation: As specified in Section 07 21 00 "Thermal Insulation."
- F. Vapor Retarder: As specified in Section 07 26 00 "Vapor Retarders."

## PART 3 EXECUTION

### 3.1. EXAMINATION

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

### 3.2. APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.



- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- J. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- K. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

### 3.3. APPLYING INTERIOR GYPSUM BOARD

- A. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
  4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- B. Multilayer Application:
1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches (400 mm) minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
  2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
  3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
  4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.
- C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.
- D. Curved Surfaces:
1. Install panels horizontally (perpendicular to supports) and unbroken, to extent possible, across curved surface plus 12-inch-long straight sections at ends of curves and tangent to them.
  2. For double-layer construction, fasten base layer to studs with screws 16 inches o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 12 inches o.c.

### 3.4. GYPSUM SHEATHING INSTALLATION

- A. General:
1. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
  2. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
  3. Securely attach to substrate by fastening as indicated, complying with the following:
  4. NES NER-272 for power-driven fasteners.
  5. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
  6. Coordinate wall sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
  7. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
  8. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is

forecast.

- B. Comply with GA-253 and with manufacturer's written instructions.
  - 1. Fasten gypsum sheathing to cold-formed metal framing with screws.
  - 2. Install boards with a 3/8-inch (9.5-mm) gap where non-load-bearing construction abuts structural elements.
  - 3. Install boards with a 1/4-inch (6.4-mm) gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- C. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- D. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent boards without forcing. Abut ends of boards over centers of studs, and stagger end joints of adjacent boards not less than one stud spacing. Attach boards at perimeter and within field of board to each steel stud.
  - 1. Space fasteners approximately 8 inches (200 mm) o.c. and set back a minimum of 3/8 inch (9.5 mm) from edges and ends of boards.
- E. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.
  - 1. Space fasteners approximately 8 inches (200 mm) o.c. and set back a minimum of 3/8 inch (9.5 mm) from edges and ends of boards.
- F. Seal sheathing joints according to sheathing manufacturer's written instructions.
  - 1. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel silicone emulsion sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

### 3.5. INSTALLING TRIM ACCESSORIES

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

### 3.6. FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  - 1. Level 1: Above finished ceilings concealed from view.
  - 2. Level 4: Walls and ceilings exposed to view.

### 3.7. PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

### END OF SECTION

**SECTION 09 5100 - ACOUSTICAL CEILINGS****PART 1 GENERAL****1.1. SECTION INCLUDES**

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

**1.2. RELATED REQUIREMENTS**

- A. Section 23 3700 – Air Outlets and Inlets: Air diffusion devices in ceiling.
- B. Section 26 5100 – Interior Lighting: Light fixtures in ceiling system.
- C. Section 28 4600 – Fire Detection and Alarm: Fire alarm components in ceiling system.

**1.3. REFERENCE STANDARDS**

- 1.4. ASCE 7 – MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES; MOST RECENT EDITION CITED BY REFERRING CODE OR REFERENCE STANDARD.
- 1.5. ASTM C635/C635M – STANDARD SPECIFICATION FOR THE MANUFACTURE, PERFORMANCE, AND TESTING OF METAL SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANEL CEILINGS; 2017.
- 1.6. ASTM C636/C636M – STANDARD PRACTICE FOR INSTALLATION OF METAL CEILING SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANELS; 2013.
- 1.7. ASTM E580/E580M – STANDARD CLASSIFICATION FOR ACOUSTICAL CEILING PRODUCT; 2014.

**1.8. ADMINISTRATIVE REQUIREMENTS**

- 1.9. 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.

- 1.10. DO NOT INSTALL ACOUSTICAL UNITS UNTIL AFTER INTERIOR WET WORK IS DRY.

**1.11. SUBMITALS**

- 1.12. SEE SECTION 01 3000 – ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

- 1.13. SHOP DRAWINGS: INDICATED GRID LAYOUT AND RELATED DIMENSIONING, JUNCTIONS WITH OTHER CEILING FINISHES, MECHANICAL AND ELECTRICAL ITEMS INSTALLED IN THE CEILING, AND SPRINKLERS INSTALLED IN THE CEILING.

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, and coordinated with each other, using input from installers of the items involved.
- B. Product Data: Provide data on suspension system components and acoustical units.
- C. Evaluation Service Reports: Show compliance with specified requirements.

- 1.14. SAMPLES: SUBMIT TWO SAMPLES 6X6 INCH (152 X 152 MM) IN SIZE ILLUSTRATING MATERIAL AND FINISH OF ACOUSTICAL UNITS
- 1.15. SAMPLES: SUBMIT TWO SAMPLES OF EACH, 6 INCHES (152 MM) LONG, OF SUSPENSION SYSTEM MAIN RUNNER.
- 1.16. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES AND PERIMETER CONDITIONS REQUIRING SPECIAL ATTENTION.
- 1.17. MAINTENANCE MATERIALS: FURNISH THE FOLLOWING FOR OWNER'S USE IN MAINTENANCE OF PROJECT.
- 1.18. SEE SECTION 01 6000 – PRODUCT REQUIREMENTS, FOR ADDITIONAL PROVISIONS.
- 1.19. EXTRA ACOUSTICAL UNITS: QUANTITY EQUAL TO 5 PERCENT OF TOTAL INSTALLED.
- 1.20. QUALITY ASSURANCE
- 1.21. DESIGNER QUALIFICATIONS FOR SEISMIC DESIGN: PERFORM UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCE IN DESIGN OF THIS WORK AND LICENSED AT THE STATE IN WHICH THE PROJECT IS LOCATED.
- 1.22. SUSPENSION SYSTEM MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.
- 1.23. ACOUSTICAL UNIT MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.
- 1.24. FIELD CONDITIONS
- 1.25. MAINTAIN UNIFORM TEMPERATURE OF MINIMUM 60 DEGREES F (16 DEGREES C), AND MAXIMUM HUMIDITY OF 40 PERCENT PRIOR TO, DURING, AND AFTER ACOUSTICAL UNIT INSTALLATION.

## **PART 2 PRODUCTS**

- 2.1. MANUFACTURERS
- 2.2. ACOUSTIC TILES/PANELS:
- 2.3. ARMSTRONG WORLD INDUSTRIES, INC: WWW.ARMSTRONG.COM.
- 2.4. SUBSTITUTIONS: SEE SECTION 01 6000 – PRODUCT REQUIREMENTS.
- 2.5. PERFORMANCE REQUIREMENTS
- 2.6. SEISMIC PERFORMANCE: CEILING SYSTEMS DESIGNED TO WITHSTAND THE EFFECTS OF EARTHQUAKE MOTIONS DETERMINED ACCORDING TO ASCE 7 FOR SEISMIC DESIGN CATEGORY D, E, OR F AND COMPLYING WITH THE FOLLOWING:
- 2.7. LOCAL AUTHORITIES HAVING JURISDICTION.
- 2.8. ACOUSTICAL UNITS
- 2.9. ACOUSTICAL UNITS – GENERAL: ASTM E1264, CLASS A.
- 2.10. SOURCE LIMITATIONS: OBTAIN EACH TYPE OF ACOUSTICAL CEILING PANEL AND SUPPORTING SUSPENSION SYSTEM FROM SINGLE SOURCE FROM SINGLE MANUFACTURER.
- 2.11. ACOUSTICAL PANELS, TYPE ACT-1: PAINTED MINERAL FIBER, WITH THE FOLLOWING CHARACTERISTICS:
- 2.12. BASIS OF DESIGN: ARMSTRONG CIRRUS #539.
- 2.13. CLASSIFICATION: ASTM E1264 TYPE XII.
- 2.14. FORM: 1, NODULAR.
- 2.15. PATTERN: "E" – LIGHTLY TEXTURED.

- 2.16. SIZE: AS INDICATED ON DRAWINGS.
- 2.17. THICKNESS: 3/4 INCHES (19.05 MM).
- 2.18. LIGHT REFLECTANCE: 0.85 PERCENT, DETERMINED IN ACCORDANCE WITH ASTM E1264.
- 2.19. SOUND ABSORPTION (NRC): 0.70, DETERMINED IN ACCORDANCE WITH ASTM E1264.
- 2.20. SOUND BLOCKING (CAC): 35, DETERMINED IN ACCORDANCE WITH ASTM E1264.
- 2.21. COLOR: AS INDICATED ON DRAWINGS.
- 2.22. SUSPENSION SYSTEM: EXPOSED GRID.
- 2.23. SUSPENSION SYSTEM(S)
- 2.24. METAL SUSPENSION SYSTEMS – GENERAL: COMPLY WITH ASTM C635/C635M; DIE CUT AND INTERLOCKING COMPONENTS, WITH PERIMETER MOLDINGS, HOLD DOWN CLIPS, STABILIZER BARS, CLIPS AND SPLICES AS REQUIRED.
- 2.25. EXPOSED SUSPENSION SYSTEM: HOT-DIPPED GALVANIZED STEEL GRID WITH ALUMINUM CAP.
- 2.26. APPLICATION(S): SEISMIC.
- 2.27. STRUCTURAL CLASSIFICATION: HEAVY-DUTY, WHEN TESTED IN ACCORDANCE WITH ASTM C635/C635M.
- 2.28. PROFILE: TEE; 9/16 INCH (15 MM) FACE WIDTH.
- 2.29. FINISH: BAKED ENAMEL.
- 2.30. COLOR: AS INDICATED ON DRAWINGS.
- 2.31. PRODUCTS:
- 2.32. ARMSTRONG WORLD INDUSTRIES, INC; SUPRAFINE XL EXPOSED TEE.
- 2.33. ACCESSORIES
- 2.34. SUPPORT CHANNELS AND HANGERS: GALVANIZED STEEL; SIZE AND TYPE TO SUIT APPLICATION, SEISMIC REQUIREMENTS, AND CEILING SYSTEM FLATNESS REQUIREMENT SPECIFIED.
- 2.35. HANGER WIRE: 12 GAUGE, 12 INCH GALVANIZED STEEL WIRE.
- 2.36. HOLD-DOWN CLIPS: MANUFACTURER'S STANDARD CLIPS TO SUIT APPLICATION.
- 2.37. SEISMIC CLIPS: MANUFACTURER'S STANDARD CLIPS FOR SEISMIC CONDITIONS AND TO SUIT APPLICATION.
- 2.38. PERIMETER MOLDINGS: SAME METAL AND FINISH AS GRID.
- 2.39. TOUCH-UP PAINT: TYPE AND COLOR TO MATCH ACOUSTICAL AND GRID UNITS.

### **PART 3 EXECUTION**

- 3.1. EXAMINATION
  - A. Verify existing conditions before starting work.
  - B. Verify that layout of hangers will not interfere with other work.

- 3.2. PREPARATION
- 3.3. INSTALL AFTER MAJOR ABOVE-CEILING WORK IS COMPLETE.
- 3.4. COORDINATE THE LOCATION OF HANGERS WITH OTHER WORK.
- 3.5. MEASURE EACH CEILING AREA AND ESTABLISH LAYOUT OF ACOUSTICAL PANELS TO BALANCE BORDER WIDTHS AT OPPOSITE EDGES OF EACH CEILING. AVOID USING LESS-THAN-HALF-WIDTH PANELS AT BORDERS.
- 3.6. INSTALLATION – SUSPENSION SYSTEM
- 3.7. INSTALL SUSPENSION SYSTEM IN ACCORDANCE WITH ASTM C636/C636M, ASTM E580/E580M, AND MANUFACTURER'S INSTRUCTIONS AND AS SUPPLEMENTED IN THIS SECTION.
- 3.8. COMPLY WITH ASTM C636 AND SEISMIC DESIGN REQUIREMENTS INDICATED, PER MANUFACTURER'S WRITTEN INSTRUCTIONS AND CISCA'S "CEILING SYSTEMS HANDBOOK". IBC CATEGORY D INSTALLATION REQUIREMENTS.
- 3.9. RIGIDLY SECURE SYSTEM, INCLUDING INTEGRAL MECHANICAL AND ELECTRICAL COMPONENTS, FOR MAXIMUM DEFLECTION OF 1:360.
- 3.10. LOCATE SYSTEM ON ROOM AXIS ACCORDING TO REFLECTED PLAN.
- 3.11. PERIMETER MOLDING: INSTALL AT INTERSECTION OF CEILING AND VERTICAL SURFACES AND AT JUNCTIONS WITH OTHER INTERRUPTIONS.
- 3.12. USE LONGEST PRACTICAL LENGTHS.
- 3.13. INSTALL AFTER MAJOR ABOVE-CEILING WORK IS COMPLETE: COORDINATE THE LOCATION OF HANGERS WITH OTHER WORK.
- 3.14. SUSPENSION SYSTEM, NON-SEISMIC: HANG SUSPENSION SYSTEM INDEPENDENT OF WALLS, COLUMNS, DUCTS, PIPES AND CONDUIT. WHERE CARRYING MEMBER ARE SPLICED, AVOID DISPLACEMENT OF FACE PLAN OF ADJACENT MEMBERS.
- 3.15. WHERE DUCTS OR OTHER EQUIPMENT PREVENT THE REGULAR SPACING OF HANGERS, REINFORCE THE NEAREST AFFECT HANGERS AND RELATED CARRYING CHANNELS TO SPAN THE EXTRA DISTANCE.
- 3.16. DO NOT SUPPORT COMPONENTS ON MAIN RUNNERS OR CROSS RUNNERS IF WEIGHT CAUSES TOTAL DEAD LOAD TO EXCEED DEFLECTION CAPABILITY.
- 3.17. SUPPORT FIXTURE LOADS USING SUPPLEMENTARY HANGERS LOCATED WITHIN 6 INCHES (152 MM) OF EACH CORNER, OR SUPPORT COMPONENTS INDEPENDENTLY.
- 3.18. DO NOT ECCENTRICALLY LOAD SYSTEM OR INDUCE ROTATION OF RUNNERS.
- 3.19. PERIMETER MOLDING: INSTALL AT INTERSECTION OF CEILING AND VERTICAL SURFACES AND AT JUNCTIONS WITH OTHER INTERRUPTIONS.
- 3.20. USE LONGEST PRACTICAL LENGTHS.
- 3.21. OVERLAP AND RIVET CORNERS.
- 3.22. 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 units after above-ceiling work is complete.



- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- F. Cutting Acoustical Units:
- G. Make field cut edges of same profile as factory edges.
- H. Install hold-down clips on each panel to retain panels tight to grid system; comply with fire rating requirements.

3.23. TOLERANCES

3.24. MAXIMUM VARIATION FROM FLAT AND LEVEL SURFACE: 1/8 INCH IN 10 FEET (3 MM IN 3M).

3.25. MAXIMUM VARIATION FROM PLUMB OF GRID MEMBERS CAUSED BY ECCENTRIC LOADS: 2 DEGREES.

**END OF SECTION**

**SECTION 09 6513 - RESILIENT FLOORING****PART 1 GENERAL****1.1. SECTION INCLUDES**

- A. Resilient tile flooring.
- B. Resilient base.
- C. Rubber stair treads, risers, and landing tiles.
- D. Installation accessories.
- E. Preparation of substrate surfaces, including patching and leveling of existing surfaces.

**1.2. RELATED REQUIREMENTS**

- A. Section 09 0561 – Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.
  - 1. coverings, cleaning, and preparation.

**1.3. REFERENCE STANDARDS**

- A. ASTM F1066 – Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2018).
- B. ASTM F1700 – Standard Specification for Rubber Floor Tile; 2015.
- C. ASTM F1861 – Standard Specification for Resilient Wall Base; 2016.

**1.4. 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. Verification Samples: Submit two samples, 12 by 12 inch (305 by 305 mm) in size illustrating color and pattern for each resilient flooring product specified.
- D. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.
- E. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
- G. See Section 01 6000v- Product Requirements, for additional provisions.
- H. Extra Flooring Material: 10 square feet of each type and color.
- I. Extra Wall Base: 20 linear feet of each type and color.

**QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in installing specified flooring with minimum three years documented experience.

**DELIVERY, STORAGE, AND HANDLING**

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimated, weather-tight space.
- C. Maintain temperature in storage area between 55 degrees F (13 degrees C) and 90 degrees F (72 degrees C).
- D. Do not double stack pallets.

**PART 2 PRODUCTS****4.1. TILE FLOORING**

- A. Luxury Vinyl Tile – Type LVT-1: Commercial Luxury Vinyl Plank with Fiberglass.
  - 1. Manufacturers.
    - a. Patcraft, Crossover, Crossover LL 1439V: [www.patcraft.com](http://www.patcraft.com).
  - 2. Minimum Requirements: Comply with ASTM F1700, Class III, Type B.
  - 3. Plank Size: As indicated on drawings.
  - 4. Wear Layer Thickness: 20 mil (0.508 mm)
  - 5. Total Thickness: 0.197 inches (5 mm)
  - 6. Tile Edge: Square Edge.
  - 7. Pattern: As indicated on drawings.
  - 8. Color: As indicated on drawings.
- B. Luxury Vinyl Tile – Type LVT-2: High Performance Luxury Vinyl Tile.
  - 1. Manufacturers.
    - a. Interface, Brushed Lines A016: [www.interface.com/US/en-US.html](http://www.interface.com/US/en-US.html)
  - 2. Minimum Requirements: Comply with ASTM F1700, Class III.
  - 3. Plank Size: As indicated on drawings.
  - 4. Wear Layer Thickness: 22 mil.
  - 5. Total Thickness: 4.5 mm.
  - 6. Pattern: As indicated on drawings.
  - 7. Color: As indicated on drawings.
- C. Rubber Tile – Type RUB-2: Homogeneous, color and pattern throughout thickness.
- D. Manufacturers:
- E. Tarkett; Johnsonite Solid Color Rubber: [www.commercial.tarkett.ca/en\\_CA/](http://www.commercial.tarkett.ca/en_CA/)
- F. Minimum Requirements: Comply with ASTM F1344, of Class corresponding to type specified.

**SIZE: AS INDICATED ON DRAWINGS.**

**TOTAL THICKNESS: 1/8 INCH (3.18 MM).**

**TEXTURE: AS INDICATED ON DRAWINGS.**

**COLOR: AS INDICATED ON DRAWINGS.**

**STAIR COVERING**

- A. Stair Treads: Homogeneous composition of 100% synthetic rubber.
  - 1. Manufacturers:
    - a. Johnsonite, a Tarkett Company; Angle Fit Rubber Stair Treads: [www.johnsonite.com/#sle](http://www.johnsonite.com/#sle)
  - 2. Nosing: Square.
  - 3. Texture: As indicated on drawings.
  - 4. Color: As indicated on drawings.
  - 5. Grit Tape: As indicated on drawings.
    - a. Stair Risers: Full height and width of tread in one piece, matching treads in material and color.

**MANUFACTURERS:****JOHNSONITE, A TARKETT COMPANY; RUBBER STRINGERS & RISERS: WWW.JOHNSONITE.COM/#SLE.****SIZE: AS INDICATED ON DRAWINGS.****TOTAL THICKNESS: 1/8 INCH (3.18 MM).****COLOR: AS INDICATED ON DRAWINGS.**

14.1. RESILIENT BASE

14.2. RESILIENT BASE – TYPE RB-1:P RUBBER; STYLE AS SCHEDULED.

14.3. MANUFACTURERS:

14.4. JOHNSONITE, A TARKETT COMPANY; TRADITIONAL RUBBER BASE: WWW.JOHNSONITE.COM/#SLE 2.  
HEIGHT: AS INDICATED ON DRAWINGS.

14.5. THICKNESS: 0.125 INCH (3.2 MM).

14.6. LENGTH: ROLL.

14.7. COLOR: AS INDICATED ON DRAWINGS.

7. TOE: PROVIDE WALL BASE WITH TOE.

14.8. ACCESSORIES: PRE-MOLDED EXTERNAL CORNERS AND INTERNAL CORNERS.

14.9. ACCESSORIES

14.10. SUBFLOOR FILLER: TYPE RECOMMENDED BY FLOORING MANUFACTURER.

14.11. 1. ARDEX, FEATHER FINISH.

14.12. 2. MAPEI, PLANIPATCH.

14.13. 3. MAPEI, MAPECEM.

14.14. 4. MAPEI, ULTRAPLAN EASY.

14.15. PRIMERS AND ADHESIVES: TYPES RECOMMENDED BY FLOORING MANUFACTURER FOR SPECIFIC MATERIAL.

14.16. TRANSITION STRIP: AS INDICATED ON MATERIALS SCHEDULE (SEE DRAWINGS).

**PART 3 EXECUTION**

15.1. 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.
  - 1. 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.
  - 2. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
    - a. Obtain instructions if tests results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
    - b. Follow moisture and alkalinity remediation procedures in Section 09 0561.

**VERIFY THAT REQUIRED FLOOR-MOUNTED UTILITIES ARE IN CORRECT LOCATION.****PREPARATION****17.1. PREPARE FLOOR SUBSTRATES AS RECOMMENDED BY FLOORING AND ADHESIVE MANUFACTURERS.**

1. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.
- B. Prohibit traffic until filler is fully cured.
- C. Clean substrate.
  1. Apply primer as required to prevent “bleed-through” or interference with adhesion by substances that cannot be removed. Apply primer to surfaces.

**17.2. INSTALLATION – GENERAL****17.3. STARTING INSTALLATION CONSTITUTES ACCEPTANCE OF SUBFLOOR CONDITIONS.****17.4. INSTALL IN ACCORDANCE WITH MANUFACTURER’S WRITTEN INSTRUCTIONS.****17.5. ADHESIVE-APPLIED INSTALLATION:****17.6. SPREAD ONLY ENOUGH ADHESIVE PERMIT INSTALLATION OF MATERIALS BEFORE INITIAL SET.**

- A. Fit joints and butt seams tightly.
- B. Set flooring in place, press with heavy roller to attain full adhesion.
  1. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
  2. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
    - a. Resilient Strips: Attach to substrate using adhesive.
  3. Scribe flooring to walls, columns, floor outlets, and other appurtenances to produce tight joints.
  4. At moveable partitions, install flooring under partitions without interrupting floor pattern

**INSTALLATION – TILE FLOORING**

**MIX TILE FROM CONTAINER TO ENSURE SHADE VARIATIONS ARE CONSISTENT WHEN TILE IS PLACED, UNLESS OTHERWISE INDICATED IN MANUFACTURER’S INSTALLATION INSTRUCTIONS.**

**LAY FLOORING WITH JOINTS AND SEAMS PARALLEL TO BUILDING LINES TO PRODUCE SYMMETRICAL PATTERN.**

**20.1. INSTALLATION – RESILIENT BASE**

- A. Fit joints tightly and make vertical. Maintain minimum measurement of 18 inches (457 mm) between joints.
- B. Install base on solid backing. Bond tightly to wall and floor surfaces.
- C. Scribe and fit to door frames and other interruptions.

**20.2. CLEANING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's written instructions.

**20.3. PROTECTION**

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

**END OF SECTION**

**SECTION 09 6813 - CARPET TILE****PART 1 GENERAL**

## 1.1. SECTION INCLUDES

- A. Carpet tile, fully adhered.
- B. Removal of existing carpet tile.
- C. Preparation of subfloors, including priming of floor as required for high moisture content.
- D. Preparation of substrate surfaces, including patching and leveling of existing surfaces.
- E. Clean up.

## 1.2. RELATED REQUIREMENTS

- A. Section 09 0561 – Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

## 1.3. REFERENCE STANDARDS

- A. ASTM D2859 – Standard Test Method for Ignition Characteristics for Finished Textile Floor Covering Materials; 2016.
- B. ASTM F710 – Standard Practice for Preparing Concrete Floors to receive Resilient Flooring; 2017.
- C. CRI 104 – Standard for Installation of Commercial Carpet; 2015.

**SUBMITTALS**

- A. See Section 01 3000 – Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- C. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- E. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.
- F. Manufacturer's Qualification Statement.
- G. Installer's Qualification Statement.
- H. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
- J. See Section 01 6000 – Product Requirements, for additional provisions.
- K. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed but not less than 10 square feet of each type.
  - 1. Shop drawings: Minimum scale 1/8"=1'0". Indicate:
    - a. All carpeted areas by shading.
    - b. Show all edge conditions where carpet tile joins or abuts dissimilar materials and treatment thereof.
    - c. Note location and type of all reducer strips, metal edgings and nosing.
  - 2. Product data:
    - a. Carpet tile.
    - b. Adhesives.

- c. Protection.
3. Samples: three of each carpet tile modules stated on drawings to determine acceptability. Samples shall have manufacturers label affixed to the back of the carpet tile.
4. Carpet tile manufacturer's:
  - a. Certification, signed by officer of company, that all carpet tile meets or exceeds each minimum project specifications requirement.
  - b. Complete current printed installation instructions for project carpet tile.
  - c. Complete maintenance and care instructions for project carpet tile.
  - d. Approval of contractor.

## 2.2. QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet tiles with minimum three years documented experience and approved by carpet tile manufacturer.

## 2.3. FIELD CONDITIONS

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.

## **PART 2 PRODUCTS**

### 3.1. MANUFACTURERS

### 3.2. TILE CARPETING:

### 3.3. PATCRAFT; WWW.PATCRAFT.COM

## **MATERIALS**

### **TILE CARPETING, TYPE CPT-1 & CPT-2: MULTI-LEVEL PATTERN LOOP, MANUFACTURED IN ONE COLOR DYE LOT.**

- 5.1. PRODUCT: MID CENTURY POP, COLOR BLOCK I0382; MANUFACTURED BY PATCRAFT.
- 5.2. TILE SIZE: AS INDICATED ON DRAWINGS.
- 5.3. COLOR: AS INDICATED ON DRAWINGS.

- 5.4. INSTALLATION PATTERN: AS INDICATED ON DRAWINGS.
- 5.5. SURFACE FLAMMABILITY IGNITION: PASS ASTM D2859 (THE "PILL TEST").
- 5.6. FIBER: ECOSOLUTION Q100 NYLON.
- 5.7. DYE METHOD: 100% SOLUTION DYED
- 5.8. GAUGE: 1/10 INCHES (39.37 PER 10 CM).
- 5.9. STITCHES: 10 STITCHES/INCHES (40.68 PER 10 CM).
- 5.10. AVERAGE DENSITY: 5818 OZ/YD<sup>3</sup> (0.22 G/CM<sup>3</sup>).
- 5.11. TUFTED YARN WEIGHT: 16 OZ/YD<sup>2</sup> (542.49 G/M<sup>2</sup>).
- 5.12. PRIMARY BACKING MATERIAL: NON-WOVEN SYNTHETIC.

**TILE CARPETING: TYPE, WO-1: MULTI-LEVEL PATTERN LOOP, MANUFACTURED IN ONE COLOR DYE LOT.**

- 6.1. PRODUCT: BEYOND THE DOOR, PASEO I0316; MANUFACTURED BY PATCRAFT.
- 6.2. TILE SIZE: AS INDICATED ON DRAWINGS.
- 6.3. COLOR: AS INDICATED ON DRAWINGS.
- 6.4. INSTALLATION PATTERN: AS INDICATED ON DRAWINGS.
- 6.5. SURFACE FLAMMABILITY IGNITION: PASS ASTM D2859 (THE "PILL TEST").
- 6.6. FIBER: ECOSOLUTION Q100 NYLON.
- 6.7. GAUGE: 1/12 INCHES (47.24 PER 10CM).
- 6.8. STITCHES: 11 PER INCHES (41.99 PER 10 CM).
- 6.9. AVERAGE DENSITY: 8597 OZ/YD<sup>3</sup> (0.32 G/CM<sup>3</sup>).
- 6.10. TUFTED YARN WEIGHT: 32 OZ/YD<sup>2</sup> (1084.98 G/M<sup>2</sup>).
- 6.11. PRIMARY BACKING MATERIAL: NON-WOVEN SYNTHETIC.

**ACCESSORIES**

- 7.1. SUBFLOOR FILLER: TYPE RECOMMENDED BY FLOORING MANUFACTURER.
- 7.2. 1. ARDEX, FEATHER FINISH.
- 7.3. 2. MAPEI, PLANIPATCH.
- 7.4. 3. MAPEI, MAPECEM.
- 7.5. 4. MAPEI, ULTRAPLAN EASY.
- 7.6. PRIMERS AND ADHESIVES: TYPES RECOMMENDED BY FLOORING MANUFACTURER FOR SPECIFIC MATERIAL.
- 7.7. TRANSITION STRIP: AS INDICATED ON MATERIALS SCHEDULE (SEE DRAWINGS).

**PART 3 EXECUTION**

- 8.1. EXAMINATION
  - A. Verify that subfloor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
  - B. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to subfloor surfaces.
  - C. Cementitious Subfloor Surfaces: Verify that substrates are ready for flooring installation by testing for moisture and alkalinity (pH).



D. Test in accordance with Section 09 0561.

1. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.
2. Follow moisture and alkalinity remediation procedures in Section 09 0561.
3. Verify that required floor-mounted utilities are in correct location.

8.2. PREPARATION

8.3. PREPARE FLOOR SUBSTRATES AS RECOMMENDED BY FLOORING AND ADHESIVE MANUFACTURERS.

8.4. REMOVE SUBFLOOR SUBSTRATES AS RECOMMENDED BY FLOORING AND ADHESIVE MANUFACTURERS.

8.5. APPLY, TROWEL, AND FLOAT FILLER TO ACHIEVE SMOOTH, FLAT, HARD SURFACE. PROHIBIT TRAFFIC UNTIL FILLER IS CURED.

8.6. VACUUM CLEAN SUBSTRATE.

8.7. INSTALLATION

8.8. STARTING INSTALLATION CONSTITUTES ACCEPTANCE OF SUBFLOOR CONDITIONS.

8.9. INSTALL CARPET TILE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS IN PATTERN AS INDICATED ON DRAWINGS.

8.10. BLEND CARPET FROM DIFFERENT CARTONS TO ENSURE MINIMAL VARIATION IN COLOR MATCH.

8.11. CUT CARPET TILE CLEAN. FIT CARPET TIGHT TO INTERSECTION WITH VERTICAL SURFACES WITHOUT GAPS

8.12. LOCATE CHANGE OF COLOR OR PATTERN BETWEEN ROOMS UNDER DOOR CENTERLINE.

8.13. TRIM CARPET TILE NEATLY AT WALLS AND AROUND INTERRUPTIONS.

8.14. COMPLETE INSTALLATION OF EDGE STRIPS, CONCEALING EXPOSED EDGES.

**CLEANING**

**REMOVE EXCESS ADHESIVE WITHOUT DAMAGE, FROM FLOOR, BASE, AND WALL SURFACES.**

**CLEAN AND VACUUM CARPET SURFACES.**

**END OF SECTION**

**SECTION 09 9123 - INTERIOR PAINTING****PART 1 GENERAL**

## 1.1. SECTION INCLUDES

- A. Surface preparation.
  - 1. Field application of paints.
  - 2. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
  - 3. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
  - 4. 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. Do not paint or finish the following items:
  - 5. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory-finished.
  - 6. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
    - a. Items indicated to receive other finishes.
    - b. Items indicated to remain unfinished.
  - 7. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
  - 8. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, and lead items.
  - 9. Floors, unless specifically indicated.
  - 10. Ceramic and other tiles.
  - 11. Glass.
  - 12. Concrete masonry units in utility, mechanical, and electrical spaces.
  - 13. Acoustical materials, unless specifically indicated.
  - 14. Concealed pipes, ducts, and conduits.

- 1.2. REFERENCE STANDARDS
- 1.3. 40 CFR 59, SUBPART D – NATIONAL VOLATILE ORGANIC COMPOUND EMISSION STANDARDS FOR ARCHITECTURAL COATINGS; U.S. ENVIRONMENTAL PROTECTION AGENCY; CURRENT EDITION.
- 1.4. ASTM D4442 – STANDARD TEST METHODS FOR DIRECT MOISTURE CONTENT MEASUREMENT OF WOOD AND WOOD-BASED MATERIALS; 2020.
- 1.5. MPI (APL) – MASTER PAINTERS INSTITUTE APPROVED PRODUCTS LIST; MASTER PAINTERS AND DECORATORS ASSOCIATION; CURRENT EDITION.
- 1.6. MPI (APSM) – MASTER PAINTERS INSTITUTE ARCHITECTURAL PAINTING SPECIFICATION MANUAL; CURRENT EDITION.
- 1.7. SSPC V1 (PM1) – GOOD PAINTING PRACTICE: PAINTING MANUAL, VOLUME 1; 2016.
- 1.8. SSPC V2 (PM2) – SYSTEMS AND SPECIFICATIONS: STEEL STRUCTURES PAINTING SPECIFICATION MANUAL; CURRENT EDITION.
- 1.9. SSPC-SP 1 – SOLVENT CLEANING; 2015, WITH EDITORIAL REVISION (2016).
- 1.10. SSPC-SP 2 – HAND TOOL CLEANING; 1982 (ED. 2004).
- 1.11. SSPC-SP 3 – POWER TOOL CLEANING; 1982 (ED. 2004).
- 1.12. SSPC-SP 6 – COMMERCIAL BLAST CLEANING; 2007.
- 1.13. SSPC-SP 13 – SURFACE PREPARATION OF CONCRETE; 1997 (REAFFIRMED 2003).
- 1.14. SUBMITTALS
- 1.15. SEE SECTION 01 3000 – ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.
- 1.16. 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.
- 1.17. SAMPLES: SUBMIT THREE PAPER “DRAW DOWN” SAMPLES, 8-1/2 BY 11 INCHES (216 BY 279 MM) IN SIZE, ILLUSTRATING RANGE OF COLORS AVAILABLE FOR EACH FINISHING PRODUCT SPECIFIED.
  1. Where sheen is specified, submit samples in only that sheen.
  2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.
  3. Allow 30 days for approval process, after receipt of complete samples by Architect.
  4. Paint color submittals will not be considered until color submittals for major materials not to be painted, such as masonry, have been approved.
  5. Manufacturer’s Instructions: Indicate special surface preparation procedures.
- 1.18. MAINTENANCE DATA: SUBMIT DATA INCLUDING PRODUCT TECHNICAL DATA SHEETS, MATERIAL SAFETY DATA SHEETS (MSDS), CARE AND CLEANING INSTRUCTIONS, TOUCH-UP PROCEDURES, REPAIR OF PAINTED AND FINISHED SURFACES, AND COLOR SAMPLES OF EACH COLOR AND FINISH USED.
- 1.19. MAINTENANCE MATERIALS: FURNISH THE FOLLOWING FOR OWNER’S USE IN MAINTENANCE OF PROJECT.
- 1.20. SEE SECTION 01 6000 – PRODUCT REQUIREMENTS , FOR ADDITIONAL PROVISIONS.
  1. Extra Paint and Finish Materials: Furnish and additional 5 percent, but not less than 1 gallon (4 L) of each color; from the same product rub, store where directed.

2. Label each container with color in addition to the manufacturer's label.
3. QUALITY ASSURANCE

- 1.21. PREPARATION AND WORKMANSHIP: COMPLY WITH REQUIREMENTS IN "MPI ARCHITECTURAL PAINTING SPECIFICATION MANUAL" FOR PRODUCTS AND PAINT SYSTEMS INDICATED.
- 1.22. DELIVERY, STORAGE AND HANDLING
- 1.23. DELIVER PRODUCTS TO SITE IN SEALED AND LABELED CONTAINERS; INSPECT TO VERIFY ACCEPTANCE.
- 1.24. 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.
- 1.25. PAINT MATERIALS: STORE AT MINIMUM AMBIENT TEMPERATURE OF 45 DEGREES F (7 DEGREES C) AND A MAXIMUM OF 90 DEGREES F (32 DEGREES C), IN WELL VENTILATED AREA AS REQUIRED OTHERWISE BY MANUFACTURER'S INSTRUCTIONS.
- 1.26. TAKE PRECAUTIONARY MEASURES TO PREVENT FIRE HAZARDS AND SPONTANEOUS COMBUSTION.

#### **FIELD CONDITIONS**

- 2.1. DO NOT APPLY MATERIALS WHEN SURFACE AND AMBIENT TEMPERATURE ARE OUTSIDE THE TEMPERATURE RANGES REQUIRED BY THE PAINT PRODUCT MANUFACTURER.
- 2.2. FOLLOW MANUFACTURER'S RECOMMENDED PROCEDURES FOR PRODUCING BEST RESULTS, INCLUDING TESTING OF SUBSTRATES, MOISTURE IN SUBSTRATES, AND HUMIDITY AND TEMPERATURE LIMITATIONS.
- 2.3. DO NOT APPLY MATERIALS WHEN RELATIVE HUMIDITY EXCEEDS 85 PERCENT; AT TEMPERATURES LESS THAN 5 DEGREES F (3 DEGREES C) ABOVE THE DEW POINT; OR TO DAMP OR WET SURFACES.
- 2.4. MINIMUM APPLICATION TEMPERATURES FOR PAINTS: 50 DEGREES F (10 DEGREES C) FOR INTERIORS UNLESS REQUIRED OTHERWISE BY MANUFACTURER'S INSTRUCTIONS.
- 2.5. PROVIDE LIGHTING LEVEL OF 80 FT CANDLES (860 LX) MEASURED MID-HEIGHT AT SUBSTRATE SURFACE.

#### **PART 2 PRODUCTS**

- 3.1. MANUFACTURERS

**PROVIDE PAINTS AND FINISHES FROM THE SAME MANUFACTURER TO THE GREATEST EXTENT POSSIBLE.**

#### **PAINTS:**

1. Basis of Design Manufacturer: Sherwin Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com) or system matching performance and product information for the basis of design product identified below.
2. Primer Sealers: Same manufacturer as top coats.

- 5.2. PAINTS AND FINISHES – GENERAL

- 5.3. PAINTS AND FINISHES: READY MIXED, UNLESS INTENDED TO BE A FIELD-CATALYZED PAINT.

1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at [www.paintinfo.com](http://www.paintinfo.com), for specified MPI categories, except as otherwise indicated.
2. 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.
3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

4. Supply each paint material in quantity required to completed entire project's work from a single production run.
  5. Do no reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
  6. Volatile Organic Compound (VOC) Content:
  7. Provide paints and finishes that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D – National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Architectural coatings VOC limits of Illinois.
  8. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site, or other method acceptable to authorities having jurisdiction.
  9. Flammability: Comply with applicable code for surface burning characteristics.
- 5.4. SHEENS: PROVIDE THE SHEENS SPECIFIED; WHERE SHEEN IS NOT SPECIFIED, SHEEN WILL BE SELECTED LATER BY ARCHITECT FROM THE MANUFACTURER'S FULL LINE.
- 5.5. COLORS: AS INDICATED ON DRAWINGS.
- 5.6. EXTEND COLORS TO SURFACE EDGES; COLORS MAY CHANGE AT ANY EDGE AS DIRECTED BY ARCHITECT.
1. In finishes areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
  2. In utility areas, finish equipment, piping, conduit, and exposed duct work in colors according to the color coding scheme indicated.
- 5.7. PAINT SYSTEMS – INTERIOR
- 5.8. INTERIOR SURFACES TO BE PAINTED, UNLESS OTHERWISE INDICATED: INCLUDING GYPSUM BOARD, WOOD, UNCOATED STEEL, SHOP PRIMED STEEL, AND GALVANIZED STEEL.
- 5.9. TWO TOP COATS AND ONE COAT PRIMER.

- 5.10. TOP COAT(S): INTERIOR LATEX; MPI #43, 44, 52, 53, 54, OR 114.
- 5.11. PRODUCTS:
- 5.12. SHERWIN-WILLIAMS PROMAR 200 ZERO VOC INTERIOR LATEX, FLAT.
- 5.13. SHERWIN-WILLIAMS PROMAR 200 ZERO VOC INTERIOR LATEX, EG-SHEL. (MPI #52)
- 5.14. TOP COAT SHEEN:
- 5.15. FLAT: MPI GLOSS LEVEL 1; USE THIS SHEEN FOR CEILINGS AND OTHER OVERHEAD SURFACES.
- 5.16. EGGSHELL: MPI GLOSS LEVEL 3: USE THIS SHEEN AT ALL LOCATIONS.
- 5.17. PRIMER: AS RECOMMENDED BY TOP COAT MANUFACTURER FOR SPECIFIC SUBSTRATE.
- 5.18. PAINT I-OP-MD-DT – MEDIUM DUTY DOOR/TRIM: FOR SURFACES SUBJECT TO FREQUENT CONTACT BY OCCUPANTS, INCLUDING METALS AND WOOD:
- 5.19. TWO TOP COATS AND ONE COAT PRIMER.
- 5.20. TOP COAT(S): INTERIOR ALKYD, WATER BASED; MPI #157, 167, 168, OR 169.
- 5.21. PRODUCTS:
- 5.22. SHERWIN-WILLIAMS PRO INDUSTRIAL WATERBASED ALKYD URETHANE, SEMI-GLOSS).
- 5.23. TOP COAT SHEEN:
- 5.24. SEMI-GLOSS: MPI GLOSS LEVEL 5; USE THIS SHEEN AT ALL LOCATIONS.
- 5.25. PRIMER: AS RECOMMENDED BY TOP COAT MANUFACTURER FOR SPECIFIC SUBSTRATE.
- A. Sherwin Williams: Industrial Enamel HS.
  - B. Paint WI-OP-3L – Wood, Opaque, Latex, 3 Coats:
  - C. One coat of latex primer sealer.
  - D. Semi-Gloss: Two coats of latex enamel.
  - E. Concrete Masonry Units, Opaque, Lastex, 3 Coat:
    - 1. One coat of latex primer; LX02W0050 Loxon Concrete and Masonry Primer/Sealer – Interior/Exterior Latex.
    - 2. Semi-Gloss: Two coats of latex enamel.
- 5.26. PAINT I-OP-DF – DRY FALL: METALS; EXPOSED STRUCTURE AND OVERHEAD-MOUNTED SERVICES, INCLUDING SHOP PRIMED STEEL DECK, STRUCTURAL STEEL, METAL FABRICATIONS, GALVANIZED DUCTS, GALVANIZED CONDUIT, AND GALVANIZED PIPING.
- 5.27. SHOP PRIMER BY OTHERS.
- 5.28. TOP COAT(S): LATEX DRY FALL; MPI #118, 155, OR 226.
- 5.29. PRODUCTS:
- 5.30. SHERWIN-WILLIAMS WATERBORNE ACRYLIC DRYFALL, FLAT. (MPI #118)
- TOP COAT SHEEN:**
- FLAT: MPI GLOSS LEVEL 1; USE THIS SHEEN AT ALL LOCATIONS.**
- A. PRIMERS
- 7.2. PRIMERS: PROVIDE THE FOLLOWING UNLESS OTHER PRIMER IS REQUIRED OR RECOMMENDED BY MANUFACTURER OF TOP COATS.
- A. ACCESSORY MATERIALS

7.3. ACCESSORY MATERIALS: PROVIDE PRIMERS, SEALERS, CLEANING AGENTS, CLEANING CLOTHS, SANDING MATERIALS, AND CLEAN-UP MATERIALS AS REQUIRED FOR FINAL COMPLETION OF PAINTED SURFACES.

7.4. PATCHING MATERIAL: LATEX FILLER.

7.5. FASTENER HEAD COVER MATERIALS: LATEX FILLER.

### **PART 3 EXECUTION**

8.1. EXAMINATION

8.2. DO NOT BEGIN APPLICATION OF PAINTS AND FINISHES UNTIL SUBSTRATES HAVE BEEN PROPERLY PREPARED.

8.3. VERIFY THAT SURFACES ARE READY TO RECEIVE WORK AS INSTRUCTED BY THE PRODUCT MANUFACTURER.

8.4. EXAMINE SURFACES SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.

8.5. TEST SHOP-APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.

8.6. MEASURE MOISTURE CONTENT OF SURFACES USING AN ELECTRONIC MOISTURE METER. DO NOT APPLY FINISHES UNLESS MOISTURE CONTENT OF SURFACES ARE BELOW THE FOLLOWING MAXIMUMS:

8.7. GYPSUM WALLBOARD: 12 PERCENT.

1. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
2. Concrete Floors and Traffic Surfaces: 8 percent.

8.8. PREPARATION

8.9. CLEAN SURFACES THOROUGHLY AND CORRECT DEFECTS PRIOR TO APPLICATION.

8.10. PREPARE SURFACES USING THE METHODS RECOMMENDED BY THE MANUFACTURER FOR ACHIEVING THE BEST RESULT FOR THE SUBSTRATE UNDER THE PROJECT CONDITIONS.

8.11. REMOVE OR REPAIR EXISTING PAINTS OR FINISHES THAT EXHIBIT SURFACE DEFECTS.

8.12. REMOVE OR MASK SURFACE APPURTENANCE, INCLUDING ELECTRICAL PLATES, HARDWARE, LIGHT FIXTURE TRIM, ESCUTCHEONS, AND FITTINGS, PRIOR TO PREPARING SURFACE OR FINISHING.

8.13. SEAL SURFACES THAT MIGHT CAUSE BLEED THROUGH OR STAINING OF TOPCOAT.

8.14. REMOVE MILDEW FROM IMPERVIOUS SURFACES BY SCRUBBING WITH SOLUTION OF TETRA-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.

8.15. COORDINATION OF WORK: REVIEW OTHER SECTIONS IN WHICH PRIMERS ARE PROVIDED TO ENSURE COMPATIBILITY OF THE TOTAL SYSTEM FOR VARIOUS SUBSTATES. ON REQUEST FURNISH INFORMATION ON CHARACTERISTICS OF FINISH MATERIALS TO ENSURE USE OF COMPATIBLE PRIMERS.

1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.
2. At interior areas to be painted with Dry Fall Acrylic Latex, touch up factory primed surfaces as required.
3. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
4. Galvanized Surfaces:
5. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
6. Ferrous Metal:
7. Solvent clean according to SSPC-SP 1.
8. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to male touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

Re-prime entire shop-primed item.

9. 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.
- 8.16. 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.
- 8.17. METAL DOORS TO BE PAINTED: PRIME METAL DOOR TOP AND BOTTOM EDGE SURFACES.
- 8.18. APPLICATION
- 8.19. REMOVE UNFINISHED LOUVERS, GRILLES, COVERS, AND ACCESS PANELS ON MECHANICAL AND ELECTRICAL COMPONENTS AND PAINT SEPARATELY.
- 8.20. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS IN "MPI ARCHITECTURAL PAINTING SPECIFICATION MANUAL".
- 8.21. WHERE ADJACENT SEALANT IS TO BE PAINTED, DO NOT APPLY FINISH COATS UNTIL SEALANT IS APPLIED.
- 8.22. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY. ALLOW APPLIED COATS TO DRY BEFORE NEXT COAT IS APPLIED.
- 8.23. APPLY EACH COAT TO UNIFORM APPEARANCE IN THICKNESS SPECIFIED BY MANUFACTURER.
- 8.24. DARK COLORS AND DEEP CLEAR COLORS: REGARDLESS OF NUMBER OF COATS SPECIFIED, APPLY AS MANY COATS AS NECESSARY FOR COMPLETE HIDE.
- 8.25. SAND WOOD AND METAL SURFACES LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
- 8.26. VACUUM CLEAN SURFACES OF LOOSE PARTICLES. USE TACK CLOTH TO REMOVE DUST AND PARTICLES JUST PRIOR TO APPLYING NEXT COAT.
- 8.27. REINSTALL ELECTRICAL COVER PLATES, HARDWARE, LIGHT FIXTURE TRIM, ESCUTCHEONS, AND FITTINGS REMOVED PRIOR TO FINISHING.
- 8.28. CLEANING



8.29. COLLECT WASTE MATERIAL THAT COULD CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS, AND REMOVE DAILY FROM SITE.

**PROTECTION**

**PROTECT FINISHES UNTIL COMPLETION OF PROJECT.**

**TOUCH-UP DAMAGED FINISHES AFTER SUBSTANTIAL COMPLETION.**

**SCHEDULE – PAINT SYSTEMS**

**GYPSUM BOARD: FINISH SURFACES EXPOSED TO VIEW.**

**INTERIOR WALLS:**

**PRIME COAT(S): PRIMER SEALER, LATEX, MPI #50.**

**SHERWIN WILLIAMS, PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER.**

**INTERMEDIATE COAT: LATEX, INTERIOR MATCHING TOPCOAT.**

**TOP COAT: LATEX, INTERIOR EGGSHELL, (GLOSS LEVEL 3).**

**SHERWIN WILLIAMS, PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER.**

**LOCATIONS: GENERAL USE, U.N.O.**

**INTERIOR CEILINGS AND UNDERSIDE OF SOFFITS:**

**PRIME COAT(S): PRIMER SEALER, LATEX, MPI #50.**

**SHERWIN WILLIAMS, PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER.**

**INTERMEDIATE COAT: LATEX, INTERIOR MATCHING TOPCOAT.**

**TOP COAT: LATEX, INTERIOR FLAT, (GLOSS LEVEL 1).**

**SHERWIN WILLIAMS, PROMAR 200 ZERO VOC INTERIOR LATEX FLAT.**

**STEEL DOORS AND FRAMES: FINISH SURFACES EXPOSED TO VIEW.**

**PRIME COAT:**

**SHERWIN WILLIAMS, PRO INDUSTRIAL PRO-CRYL UNIVERSAL METAL PRIMER, B66-310 SERIES.**

**INTERMEDIATE COAT: LATEX INTERIOR, INSTITUTIONAL LOW-ODOR/VOC, MATCHING TOPCOAT.**

**TOP COAT:**

- a. Sherwin Williams, B53W01151 Pro Industrial Water-based Alkyd Urethane, Semi-Gloss.
- b. Wood Trims: Finish surfaces exposed to view.
- c. Prime Coat:
- d. Sherwin Williams, B28W8111 Premium Interior Wall and Wood Primer.
- e. Top Coat:
- f. Sherwin Williams, B53W1251 Pro Industrial Waterbased Alkyd Urethane Enamel, Semi-Gloss.

**END OF SECTION**

**SECTION 10 2600 - WALL AND DOOR PROTECTION**

**PART 1 GENERAL**

1.1. SECTION INCLUDES

**PROTECTIVE WALL COVERING**

**REFERENCE STANDARDS**

**ASTM D256 – STANDARD TEST METHODS FOR DETERMINING THE IZOD PENDULUM IMPACT RESISTANCE OF PLASTICS; 2010 (REAPPROVED 2018).**

**ASTM D543 – STANDARD PRACTICES FOR EVALUATING THE RESISTANCE OF PLASTICS TO CHEMICAL REAGENTS; 2021.**

**ASTM G21 – STANDARD PRACTICE FOR DETERMINING RESISTANCE OF SYNTHETIC POLYMERIC MATERIALS TO FUNGI; 2015, WITH EDITORIAL REVISION (2021).**

**SUBMITTALS**

**SEE SECTION 01 3000 – ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.**

**PRODUCT DATA: INDICATED PHYSICAL DIMENSIONS, FEATURES, ANCHORAGE DETAILS, AND ROUGH-IN DIMENSIONS.**

**SHOP DRAWINGS: INCLUDE PLANS, ELEVATIONS, SECTIONS, AND ATTACHMENT DETAILS.**

**SAMPLES: SUBMIT SAMPLES ILLUSTRATING COMPONENT DESIGN, CONFIGURATIONS, JOINERY, COLOR AND FINISH.**

**SUBMIT TWO SAMPLES OF PROTECTIVE WALL COVERING, 6X6 INCHES SQUARE.**

**MAINTENANCE MATERIALS: FURNISH THE FOLLOWING FOR OWNER'S USE IN MAINTENANCE OF PROJECT:**

**SEE SECTION 01 6000 – PRODUCT REQUIREMENTS, FOR ADDITIONAL PROVISIONS.**

**EXTRA STOCK MATERIALS: 10 SQUARE FEET OF EACH KIND OF PROTECTIVE WALL COVERING.**

**MAINTENANCE DATA: MANUFACTURER’S INSTRUCTIONS FOR CARE AND CLEANING OF EACH TYPE OF PRODUCT. INCLUDE INFORMATION ABOUT BOTH RECOMMENDED AND POTENTIALLY DETRIMENTAL CLEANING MATERIALS AND METHODS.**

**DELIVERY, STORAGE AND HANDLING**

**DELIVER WALL AND DOOR PROTECTION ITEMS IN ORIGINAL, UNDAMAGED PROTECTIVE PACKAGING. LABEL ITEMS TO DESIGNATE INSTALLATION LOCATIONS.**

**PROTECT WORK FROM MOISTURE DAMAGE.**

**PROTECT WORK FROM UV LIGHT DAMAGE.**

**DO NOT DELIVER PRODUCTS TO PROJECT SITE UNTIL AREAS FOR STORAGE AND INSTALLATION ARE FULLY ENCLOSED, AND INTERIOR TEMPERATURE AND HUMIDITY ARE IN COMPLIANCE WITH MANUFACTURER’S RECOMMENDATIONS FOR EACH TYPE OF ITEM.**

**STORE PRODUCTS IN EITHER HORIZONTAL OR VERTICAL POSITIONS, IN COMPLIANCE WITH MANUFACTURER’S INSTRUCTIONS.**

22.1. WARRANTY

**SEE SECTION 01 7800 – CLOSEOUT SUBMITTALS FOR ADDITIONAL WARRANTY REQUIREMENTS.**

**PART 2 PRODUCTS**

24.1. MANUFACTURERS

**PROTECTIVE WALL COVERING:**

25.1. CONSTRUCTION SPECIALTIES, INC; ACROVYN HIGH-IMPACT WALL COVERING: [WWW.C-SGROUP.COM](http://WWW.C-SGROUP.COM)

25.2. SUBSTITUTIONS: SEE SECTION 01 6000 – PRODUCT REQUIREMENTS.

**PRODUCT TYPES**

**PROTECTIVE WALL COVERING:**

**MATERIAL: POLYETHYLENE TEREPHTHALATE (PET OR PETG); PVC AND PBTS-FREE.**

**THICKNESS: AS INDICATED ON DRAWINGS.**

29.1. SURFACE BURNING CHARACTERISTICS: PROVIDE ASSEMBLIES WITH FLAME SPREAD INDEX OF 25 OR LESS AND SMOKE DEVELOPED INDEX OF 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

**COLOR: AS INDICATED ON DRAWINGS.**

**ACCESSORIES: PROVIDE MANUFACTURER’S STANDARD COLOR-MATCHED TRIM AND MOLDINGS**

**INSIDE CORNER TRIM: STANDARD ANGLE.**

**OUTSIDE CORNER TRIM: STANDARD ANGLE.**

**MOUNTING: ADHESIVE. FURNISH ADHESIVES APPROVED BY WALL PROTECTION MANUFACTURER.**

**CAULK: COLOR MATCHING, ALL VERTICAL SEAMS.**

**FABRICATION**

**FABRICATE COMPONENTS WITH TIGHT JOINTS, CORNERS AND SEAMS.**

**PRE-DRILL HOLES FOR ATTACHEMENT.**

**FORM END TRIM CLOSURE BY CAPPING AND FINISHING SMOOTH.**

**SOURCE QUALITY CONTROL**

**SEE SECTION 01 4000 – QUALITY REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS.**

**PROVIDE WALL PROTECTION SYSTEMS OF EACH TYPE FROM A SINGLE SOURCE AND MANUFACTURER.**

**PART 3 EXECUTION**

**43.1. EXAMINATION**

**VERIFY THAT ROUGH OPENINGS, CONCEALED BLOCKING, AND ANCHORS ARE CORRECTLY SIZED AND LOCATED.**

**VERIFY THAT FIELD MEASUREMENTS ARE AS INDICATED ON DRAWINGS.**

**VERIFY THAT SUBSTRATE SURFACES FOR ADHERED ITEMS ARE CLEAN AND SMOOTH.**

- A. Test painted or wall covering surfaces for adhesion in inconspicuous area, as recommended by manufacturer. Follow adhesive manufacturer's recommendations for remedial measures at locations and/or application conditions where adhesion test's results are unsatisfactory.

**INSTALLATION**

**INSTALL COMPONENTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, LEVEL AND PLUMB, SECURED RIGIDLY IN POSITION TO SUPPORTING CONSTRUCTION.**

**POSITION PROTECTIVE WALL COVERING NO LESS THAN 1 INCH ABOVE FINISHED FLOOR TO ALLOW FOR FLOOR LEVEL VARIATION.**

- A. 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.
- B. At joints indicated to be caulked, allow for a minimum 1/16 inch wide gap between edges of sheets. Gaps are required to be consistent width throughout the project.

**TOLERANCES**

**MAXIMUM VARIATION FROM REQUIRED HEIGHT: 1/4 INCH.**

**MAXIMUM VARIATION FROM LEVEL OR PLAN FOR VISIBLE LENGTH: 1/4 INCH.**

**CLEANING**

**SEE SECTION 01 7419 – CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL, FOR ADDITIONAL REQUIREMENTS.**

**CLEAN WALL AND DOOR PROTECTION ITEMS OF EXCESS ADHESIVE, DUST, DIRT, AND OTHER CONTAMINANTS.**

**END OF SECTION**

**SECTION 10 4413 - FIRE PROTECTION CABINETS****PART 1 GENERAL****1.1. WORK INCLUDES**

- A. General Contractor is to provide:
  - 1. Fire extinguisher cabinets and accessories.

**1.2. ACTION SUBMITTALS**

- A. Product Data: For each type of product. Show door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing recessed relationships of box and trim to surrounding construction.
- B. Shop Drawings: For fire-protection cabinets. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each type of exposed finish required.
- D. Samples for Initial Selection: For each type of exposed finish required.

**1.3. CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

**1.4. COORDINATION**

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of indicated are accommodated.
- B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

**PART 2 PRODUCTS****2.1. PERFORMANCE REQUIREMENTS**

- A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

**2.2. FIRE-PROTECTION CABINET**

- A. Cabinet Type: Suitable for fire extinguisher.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Fire-End & Croker Corporation.
    - b. GMR International Equipment Corporation.
    - c. Guardian Fire Equipment, Inc.
    - d. JL Industries, Inc.; a division of the Activar Construction Products Group.
    - e. Larsens Manufacturing Company.
    - f. Modern Metal Products, Division of Technico Inc.
    - g. Nystrom, Inc.
    - h. Potter Roemer LLC.
    - i. Strike First Corporation of America.
- B. Cabinet Construction: Nonrated
- C. Cabinet Material: Cold-rolled steel with white powder-coated finish.
  - 1. Shelf: Same metal and finish as cabinet.

- D. Cabinet Type:
  - 1. Semi-recessed with Rolled Edge: Cabinet box (tub) semi-recessed, 2 ½" rolled edge, in walls of sufficient depth to suit style of trim indicated.
- E. Door Style: Vertical duo panel with pull handle; clear tempered glass.
- F. Signage: Red Vertical Lettering "FIRE EXTINGUISHER" on the hinge side.
- G. Weld all joints and grind smooth. Miter and weld perimeter door frames.
- H. Hinge: Continuous hinge allowing the door to open 180 degrees.

### 2.3. GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire-protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 EXECUTION

### 3.1. INSTALLATION

- A. General: Securely fasten cabinets to structure, square and plumb, in accordance with manufacturer's instructions. Install at mounting height to comply with governing authorities.

## FIELD QUALITY CONTROL

### A. INSPECTION: INSPECT AND TAG FIRE EXTINGUISHER AS REQUIRED BY NFPA.

## ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet and mounting bracket manufacturers.
- E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

## END OF SECTION

**SECTION 10 4416 - FIRE EXTINGUISHERS****PART 1 GENERAL**

## 1.1. SUMMARY

- A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

## 1.2. ACTION SUBMITTALS

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

## 1.3. INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

## 1.4. CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

## 1.5. COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

## 1.6. WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

- 1. Warranty Period: Six years from date of Substantial Completion.

**PART 2 PRODUCTS**

## 2.1. PERFORMANCE REQUIREMENTS

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

## 2.2. PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
  - 1. JL Industries
  - 2. General Fire Extinguisher Corp
  - 3. ANSUL Incorporated
  - 4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.
- B. Multipurpose Dry-Chemical Type: UL-rated, 10 lbs. capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.
- C. Clean-Agent Type in Steel Container: UL-rated 5-B:C, 4.75 lbs. nominal capacity, with HFC blend agent and inert material in enameled-steel container; with pressure-indicating gage.

## 2.3. MOUNTING BRACKETS

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

- B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
  - 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

**PART 3 EXECUTION****3.1. INSTALLATION**

- A. Examine fire extinguishers for proper charging and tagging.
  - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
  - 1. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.
- C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

**END OF SECTION**



**SECTION 14 21 00 - ELECTRIC TRACTION ELEVATORS****PART 1 GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Electric Traction Elevators.
- B. Products Supplied But Not Installed Under this Section:
  - 1. Hoist Beam
  - 2. Pit Ladder
- C. Work Supplied Under Other Sections:
  - 1. Temporary lighting, including temporary lighting in hoistway for machine space with switch located in hoistway on the strike jamb side of top landing door.
  - 2. Hoistway ventilation shall be in accordance with local and national building code requirements.
  - 3. Guide Rail Support shall be structurally adequate to extend from pit floor to top of hoistway, with spans in accordance with requirements of authority having jurisdiction and final layouts.
  - 4. Removable barricades at all hoistway openings, in compliance with OSHA 29 CFR 1926.502 in addition to any local code requirements.
  - 5. Lifeline attachments capable of withstanding 5000 lb load in accordance with OSHA 29 CFR 1926.502. Provide a minimum of 2 at the top, front of each hoistway.
  - 6. Pit lighting: Fixture with switch and guards. Provide illumination level equal to or greater than that required by ASME A17.1/CSA B44 2000, or applicable version.
  - 7. Control space lighting with switch. Coordinate switch with lighting for machine space as allowable by code.
  - 8. Access Doors: As required for access to governor. Access door shall be self-closing, self-locking if necessary and operable from the inside without a key.
- D. Related sections:
  - 1. Section 09 68 13 – Tile Carpeting
  - 2. Division 23 - Heating, Ventilating, and Air Conditioning
  - 3. Division 26 - Electrical
  - 4. Division 28 - Fire Detection and Alarm
- E. Industry and government standards:
  - 1. ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities
  - 2. ADAAG - Accessibility Guidelines for Buildings and Facilities
  - 3. ANSI/NFPA 70, National Electrical Code
  - 4. ANSI/NFPA 80, Standard for Fire Doors and Fire Windows
  - 5. ASME/ANSI A17.1, Safety Code for Elevators and Escalators.

## 1.2 DESCRIPTION OF ELEVATOR

- A. Elevator Equipment: Machine Room-less gearless traction elevator
- B. Control Space: ICS
- C. Quantity of Elevators: 1
- D. Landings: 2
- E. Openings: 2 Front Openings, 0 Back Openings
- F. Travel: 14'-1"

- G. Rated Capacity: 2500 lbs (1134 kg)
- H. Rated Speed: 150 fpm
- I. Clear Inside Dimensions (W x D): 6'-9" x 4'-4 1/2"
- J. Cab Shell Height: 7'-6"
- K. Clear height under suspended ceiling: 7'-4"
- L. Entrance Width & Type: 3'-6" & Left Opening
- M. Entrance Height: 7'
- N. Main Power Supply: 208 Volts + 5%, three-phase
- O. Operation: Simplex
- P. Machine Location: Inside the hoistway mounted on car guide rail
- Q. Control Space Location: Inside the hoistway wall
- R. Maintenance Service Period: 12 Months from date of substantial completion.

### 1.3 PERFORMANCE REQUIREMENTS

- A. Car Performance
  1. Car Speed  $\pm$  5% of contract speed under any loading condition or direction of travel.
  2. Car Capacity: Safely lower, stop and hold (per code) up to 125% of rated load.
- B. System Performance
  1. Vertical Vibration (maximum): 25 mg
  2. Horizontal Vibration (maximum): 25 mg
  3. Jerk Rate (maximum): 1.3 ft/sec<sup>3</sup>
  4. Acceleration (maximum) 1.3 ft/sec<sup>2</sup>
  5. In Car Noise: = 55 dB(A)
  6. Leveling Accuracy:  $\pm$ 0.2 inches

### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product literature for each proposed system.
  1. Cab design, dimensions and layout.
  2. Layout, finishes, and accessories and available options.
  3. Controls, signals and operating system.
  4. Color selection charts for cab and entrances.
- B. Shop Drawings:
  1. Clearances and travel of car.
  2. Clear inside hoistway and pit dimensions.
  3. Location and layout of equipment and signals.
  4. Car, guide rails, buffers and other components in hoistway.
  5. Maximum rail bracket spacing.
  6. Maximum loads imposed on building structure.

7. Hoist beam requirements.
8. Location and sizes of access doors.
9. Location and details of hoistway door and frames.
10. Electrical characteristics and connection requirements.

C. Operation and maintenance data:

1. Provide manufacturer's standard maintenance and operation manual.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer: Minimum of ten years experience in the fabrication, installation and service of elevators of the type and performance of the specified. The manufacturer shall have a documented quality assurance program.
- B. Installer: The equipment manufacturer shall install the elevator.
- C. Inspection and Testing: In accordance with requirements of local jurisdiction, obtain required permits, inspections and tests.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. If the construction site is not prepared to receive the elevator equipment at the agreed ship date, the General Contractor shall be responsible to provide a safe, dry, and easily accessible storage area on or off the premises. Additional labor costs for double handling will be the responsibility of the general contractor.
- B. Delivered elevator materials shall be stored in a protected environment in accordance with manufacturer recommendations. A minimum storage area of 10 feet by 20 feet is required adjacent to the hoistway.

#### 1.7 WARRANTY

- A. Provide manufacturer warranty for a period of one year. The warranty period is to begin upon Substantial Completion of the Contract. Warranty covers defects in materials and workmanship. Damage due to ordinary use, vandalism, improper or insufficient maintenance, misuse, or neglect do not constitute defective material or workmanship.

#### 1.8 MAINTENANCE SERVICE

- A. The elevator manufacturer shall provide maintenance service consisting of regular examinations and adjustments of the elevator equipment for a period of 12 Months after date of substantial completion. Replacement parts shall be produced by the original equipment manufacturer.
- B. Maintenance service be performed during regular working hours of regular working days and shall include regular time call back service.
- C. Maintenance service shall not include adjustments, repairs or replacement of parts due to negligence, misuse, abuse or accidents.

### **PART 2 PRODUCTS**

#### 2.1 MANUFACTURER

- A. Provide AC gearless machine room-less elevator systems subject to compliance with the design and performance requirements of this specification. Elevator manufacturers may include but are not limited to one of the following:

1. Basis of Design: Monospace 300 traction elevator by KONE, Inc.
2. Other acceptable machine room-less products:
  - a. Long Elevator Co.
  - b. Otis Elevator Co. - Gen2™ Product

## 2.2 EQUIPMENT: CONTROL COMPONENTS AND CONTROL SPACE

- A. Controller: Provide microcomputer based control system to perform all of the functions.
  1. All high voltage (110V or above) contact points inside the controller cabinet shall be protected from accidental contact in a situation where the controller doors are open.
  2. Controller shall be separated into two distinct halves; Motor Drive side and Control side. High voltage motor power conductors shall be routed and physically segregated from the rest of the controller.
  3. Provide a serial cardrack and main CPU board containing a non-erasable EPROM and operating system firmware.
  4. Variable field parameters and adjustments shall be contained in a non-volatile memory module.
- B. Drive: Provide Variable Voltage Variable Frequency AC drive system to develop high starting torque with low starting current.
- C. Control Space: Locate controller{s} in the hoistway wall at the top floor.

## 2.3 EQUIPMENT: HOISTWAY COMPONENTS

- A. Machine: AC gearless machine, with permanent magnet synchronous motor, direct current electro-mechanical disc brakes and integral traction drive sheave, mounted to the car guide rail at the top of the hoistway.
- B. Governor: Friction type over-speed governor rated for the duty of the elevator specified.
- C. Buffers, Car and Counterweight: Polyurethane buffer.
- D. Hoistway Operating Devices:
  1. Emergency stop switch in the pit
  2. Terminal stopping switches.
  3. Emergency stop switch on the machine
- E. Positioning System: System consisting of magnets and proximity switches.
- F. Guide Rails and Attachments: Steel rails with brackets and fasteners.

## 2.4 EQUIPMENT: HOISTWAY ENTRANCES

- A. Hoistway Entrances
  1. Sills: extruded aluminum with mill finish.
  2. Doors: Stainless Steel construction with vertical internal channel reinforcements.
  3. Fire Rating: Entrance and doors shall be UL fire-rated for 1-1/2 hour.
  4. Entrance Finish: Brushed Stainless Steel.
  5. Entrance Markings Jamb Plates: Provide standard entrance jamb tactile markings on both jambs, at all floors. Plate Mounting: Refer to manufacturer drawings.

## 2.5 EQUIPMENT: CAR COMPONENTS

- A. Car Frame: Provide car frame with adequate bracing to support the platform and car enclosure.

- B. Platform: Platform shall be per manufacturers standard.
- C. Car Guides: Provide guide-shoes mounted to top and bottom of both car and counterweight frame. Each guide-shoe assembly shall be arranged to maintain constant contact on the rail surfaces. Provide retainers in areas with Seismic design requirements.
- D. Load weighing device shall be strain gauge type mounted to dead-end hitch attached atop the hoistway guide-rail.
- E. Steel Cab (Laminate Series)
  - 1. Panels: Non-removable vertical panels, plastic laminate selected by Architect/Engineer from standard manufacturer's catalog of choices.
  - 2. Car Front Finish: Brushed stainless steel.
  - 3. Car Door Finish: Brushed stainless steel.
  - 4. Ceiling:
    - a. LED Rectangular Panel Light; Ceiling Panel Finish: Brushed stainless steel.
  - 5. Handrail:
    - a. Round aluminum - Rails to be located on three sides of car enclosure.
  - 6. Flooring: Walk-off carpet by others (Not to exceed 1/2" finished depth.)
  - 7. Threshold: Aluminum
  - 8. Protective pad hooks and quilted fire retardant protective pads: Pad to be hung from suspended ceiling
- F. Emergency Car Signals
  - 1. Emergency Siren: Siren mounted on top of cab that is activated when the alarm button in the car operating panel is engaged. Siren shall have rated sound pressure level of 80 dB(A) at a distance of three feet from device. Siren shall respond with a delay of not more than one second after activation of alarm button.
  - 2. Emergency Car Lighting: Provide emergency power unit employing a 12-volt sealed rechargeable battery and totally static circuits shall illuminate the elevator car and provide current to the alarm bell in the event of building power failure.
  - 3. Emergency Exit Contact: An electrical contact shall be provided on the car-top exit.
- G. Ventilation: Fan.

## 2.6 EQUIPMENT: SIGNAL DEVICES AND FIXTURES

- A. Car Operating Panel: Provide car operating panel with all push buttons, key switches, and message indicators for elevator operation.
  - 1. Full height car operating panel shall contain a bank of round, mechanical, illuminated buttons marked to correspond to landings served, emergency call button, door open button, door close button, and key switches for lights, inspection, and exhaust fan. Buttons have white illumination (halo). All buttons to have raised text and Braille marking on left hand side. The car operating display panel shall be white Dot Matrix. All texts, when illuminated, shall be white. The full height car operating panel shall have a polycarbonate face plate that is shatterproof and impact resistant in a color and pattern per manufacturers standard selection.
  - 2. Additional features of car operating panel shall include:
    - a. Car Position Indicator within operating panel (white).
    - b. Elevator Data Plate marked with elevator capacity and car number on car top.
    - c. Help buttons with raised markings.
    - d. In car stop switch per local code.
    - e. Firefighter's hat.
    - f. Firefighter's Phase II Key-switch.
    - g. Call Cancel Button.

- h. Pre-programmed integrated ADA phone (complete description of krms features included as standard)
  - i. Help Button/Communicator. Activation of help button will initiate two-way communication between car and a location inside the building, switching over to alternate location if call is unanswered, where personnel are available to take the appropriate action. Visual indicators are provided for call initiation and call acknowledgement.
  - j. Firefighter's Phase II emergency in-car operating instructions.
- B. Hall Fixtures: Wall mounted hall fixtures shall be provided with necessary push buttons and key switches for elevator operation. Wall mounted hall fixtures shall have a polycarbonate face plate that is shatterproof and impact resistant in a color per manufacturers standard selection.
- 1. Hall fixtures shall feature round, mechanical, buttons in applied mount face frame. Hall fixtures shall correspond to options available from that landing. Buttons shall be in a vertically mounted fixture. Hall fixtures shall not be jamb-mounted. Hall lanterns shall feature white illumination.
- C. Car Lantern and Chime: A directional lantern visible from the corridor shall be provided in the car entrance. When the car stops and the doors are opening, the lantern shall indicate the direction in which the car is to travel and a chime will sound. The chime will sound once for up and twice for down.

## 2.7 EQUIPMENT: ELEVATOR OPERATION AND CONTROLLER

- A. Elevator Operation
- 1. Simplex Collective Operation: Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served.
  - 2. Zoned Car Parking.
  - 3. Relative System Response Dispatching.
- B. Standard Operating Features to include:
- 1. Full Collective Operation
  - 2. Fan and Light Control.
  - 3. Load Weighing Bypass.
  - 4. Ascending Car Uncontrolled Movement Protection
  - 5. Top of Car Inspection Station.
- C. Additional Operating Features to include:
- 1. Intercom Provisions
  - 2. Emergency Battery Power Supply
- When the main line power is lost for longer than 5 seconds the emergency battery power supply provides power automatically to the elevator controller. The elevator will rise or lower to the first available landing, open the doors, and shut down. The elevator will return to service upon the return of normal main line power. An auxiliary contact on the main line disconnect and shunt trip breaker ( if used ) will be provided by others.
- D. Elevator Control System for Inspections and Emergency
- 1. Provide devices within controller to run the elevator in inspection operation.
  - 2. Provide devices on car top to run the elevator in inspection operation.
  - 3. Provide within controller an emergency stop switch to disconnect power from the brake and prevents motor from running.
  - 4. Provide the means from the controller to mechanically lift and control the elevator brake to safely bring car to nearest available landing when power is interrupted.
  - 5. Provide the means from the controller to reset the governor over speed switch and also trip the

- governor.
6. Provide the means from the controller to reset the emergency brake when set because of an unintended car movement or ascending car over speed.
  7. Provide the means for the control to reset elevator earthquake operation.

## 2.8 EQUIPMENT: DOOR OPERATOR AND CONTROL

- A. Door Operator: A closed loop permanent magnet VVVF high-performance door operator shall be provided to open and close the car and hoistway doors simultaneously. Door movement shall be cushioned at both limits of travel. Electro-mechanical interlock shall be provided at each hoistway entrance to prevent operation of the elevator unless all doors are closed and locked. An electric contact shall be provided on the car at each car entrance to prevent the operation of the elevator unless the car door is closed.
- B. The door operator shall be arranged so that, in case of interruption or failure of electric power, the doors can be readily opened by hand from within the car, in accordance with applicable code. Emergency devices and keys for opening doors from the landing shall be provided as required by local code.
- C. Doors shall open automatically when the car has arrived at or is leveling at the respective landings. Doors shall close after a predetermined time interval or immediately upon pressing of a car button. A door open button shall be provided in the car. Momentary pressing of this button shall reopen the doors and reset the time interval.
- D. Door hangers and tracks shall be provided for each car and hoistway door. Tracks shall be contoured to match the hanger sheaves. The hangers shall be designed for power operation with provisions for vertical and lateral adjustment. Hanger sheaves shall have polyurethane tires and pre-lubricated sealed-for-life bearings.
- E. Electronic Door Safety Device. The elevator car shall be equipped with an electronic protective device extending the full height of the car. When activated, this sensor shall prevent the doors from closing or cause them to stop and reopen if they are in the process of closing. The doors shall remain open as long as the flow of traffic continues and shall close shortly after the last person passes through the door opening.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Field measure and examine substrates, supports, and other conditions under which elevator work is to be performed.
- B. Do not proceed with work until unsatisfactory conditions are corrected.
- C. Prior to start of Work, verify hoistway is in accordance with shop drawings. Dimensional tolerance of hoistway from shop drawings: -0 inches +2 inches. Do not begin work of this section until dimensions are within tolerances.
- D. Prior to start of Work, verify projections greater than 2 inches (4 inches if ASME A17.1/CSA B44 2000 applies) must be beveled not less than 75 degrees from horizontal.
- E. Prior to start of Work, verify landings have been prepared for entrance sill installation. Traditional sill angle or concrete sill support shall not be required.
- F. Prior to start of Work, verify elevator pit has been constructed in accordance with requirements, is dry and reinforced to sustain vertical forces, as indicated in approved submittal. Verify that sumps or sump pumps located within pit will not interfere with installed elevator equipment.

- G. Prior to start of Work, verify control space has been constructed in accordance with requirements, with access coordinated with elevator shop drawings, including Sleeves and penetrations.
- H. Verify installation of GFCI protected 20-amp in pit and adjacent to each signal control cabinet in control space.

### 3.2 PREPARATION

- A. Coordinate installation of anchors, bearing plates, brackets and other related accessories.

### 3.3 INSTALLATION

- A. Install equipment, guides, controls, car and accessories in accordance with manufacturer installation methods and recommended practices.
- B. Properly locate guide rails and related supports at locations in accordance with manufacturer's recommendations and approved shop drawings. Anchor to building structure using isolation system to minimize transmission of vibration to structure.
- C. All hoistway frames shall be securely fastened to fixing angles mounted in the hoistway. Coordinate installation of sills and frames with other trades.
- D. Lubricate operating system components in accordance with manufacturer recommendations.
- E. Perform final adjustments, and necessary service prior to substantial completion.

### 3.4 CONSTRUCTION

- A. Interface with Other Work:
  - 1. Guide rail brackets attached to steel shall be installed prior to application of fireproofing.
  - 2. Coordinate construction of entrance walls with installation of door frames and sills. Maintain front wall opening until elevator equipment has been installed.
    - a. Ensure adequate support for entrance attachment points at all landings.
    - b. Coordinate wall openings for hall push buttons, signal fixtures and sleeves. Each elevator requires sleeves within the hoistway wall.
    - c. Coordinate emergency power transfer switch and power change pending signals as required for termination at the primary elevator signal control cabinet in each group.
    - d. Coordinate interface of elevators and fire alarm system.
    - e. Coordinate interface of dedicated telephone line.

### 3.5 TESTING AND INSPECTIONS

- A. Perform recommended and required testing in accordance with authority having jurisdiction.
- B. Obtain required permits and provide originals to Owner's Representative.

### 3.6 DEMONSTRATION

- A. Prior to substantial completion, instruct Owner's Representative on the proper function and required daily maintenance of elevators. Instruct personnel on emergency procedures.

**END OF SECTION 14 2100**