



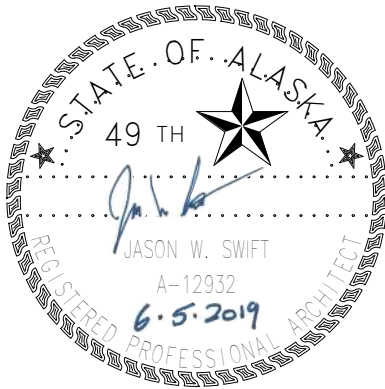
WAREHOUSE #1 CONSTRUCTION SPECIFICATIONS

CITY OF VALDEZ

MAY 31, 2019

ECI

SECTION 00 0107
SEALS PAGE



ARCHITECTURE AND INTERIORS
ECI, Inc.

END OF SECTION

SECTION 00 0101
PROJECT TITLE PAGE

City of Valdez
Valdez, Alaska

OWNER

City of Valdez
212 Chenga Ave
Valdez, AK 99686

ARCHITECTURE AND INTERIORS

ECI, Inc.

CIVIL ENGINEER

PDC Engineers, Inc.

LANDSCAPE DESIGN

Corvus Design

STRUCTURAL ENGINEER

PDC Engineers, Inc.

MECHANICAL AND ELECTRICAL ENGINEERING

PDC Engineers, Inc.

END OF SECTION

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END OF SECTION

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: Warehouse #1
- B. Owner's Name: City of Valdez.
- C. Architect's Name: ECI Alaska.
- D. The Project is the renovation of an existing warehouse building and includes demolition of the north and south ends and entry canopy, new end walls, new finishes to the existing roof and walls, new entry canopy and new landscape/hardscape (to be released in a later phase).

1.02 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 renovated areas of 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.

1.03 CONTRACTOR USE OF SITE AND PREMISES

- A. Arrange use of site and premises to allow:
 - 1. Safe entry by the public into the museum.
- B. 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.
- C. Existing building spaces may not be used for storage.
- D. Time Restrictions:
 - 1. Limit conduct of work to when cruise ships are not scheduled to be at the Port. Coordinate schedules with Owner. Noise related to be limited hours which the Museum is not in operation.
- E. Utility Outages and Shutdown:
 - 1. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
 - 2. Prevent accidental disruption of utility services to other facilities.

1.04 WORK SEQUENCE

- A. Coordinate construction schedule and operations with Owner .

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contingency allowance.
- B. Inspecting and testing allowances.
- C. Payment and modification procedures relating to allowances.

1.02 RELATED REQUIREMENTS

- A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CASH ALLOWANCES

- A. Architect Responsibilities:
 - 1. Select products in consultation with Owner and transmit decision to Contractor (TBD) .
- B. Contractor (TBD) Responsibilities:
 - 1. Obtain proposals from suppliers and installers and offer recommendations.
 - 2. On notification of which products have been selected, execute purchase agreement with designated supplier and installer.
- C. Differences in costs will be adjusted by Change Order.

1.04 CONTINGENCY ALLOWANCE

- A. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.05 INSPECTING AND TESTING ALLOWANCES

1.06 ALLOWANCES SCHEDULE

- A. Section 09-9113: Include the stipulated sum of \$70,000 for purchase and delivery of Mural installation.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General administrative requirements.
- B. Electronic document organization.
- C. Preconstruction meeting.
- D. Site mobilization meeting.
- E. Progress meetings.
- F. Construction progress schedule.
- G. Contractor's daily reports.
- H. Progress photographs.
- I. Coordination drawings.
- J. Coordination.
- K. Submittals for review, information and project closeout.
- L. Number of copies of submittals.
- M. Requests for Interpretation (RFI) procedures.
- N. Submittal procedures.
- O. Shop Drawings.
- P. Requests For Information

1.02 RELATED REQUIREMENTS

- A. Division 0 - General Conditions
- B. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.
- C. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

- A. Conform to requirements of Section 01 70 00 - 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:
 - 1. Requests for Information (RFI).
 - 2. Requests for substitution.
 - 3. Shop drawings, product data, and samples.
 - 4. Test and inspection reports.
 - 5. Design data.

6. Manufacturer's instructions and field reports.
7. Applications for payment and change order requests.
8. Progress schedules.
9. Coordination drawings.
10. Correction Punch List and Final Correction Punch List for Substantial Completion.
11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTALS

- A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF) format and transmitted via email and archived on a box site or other open access platform.
 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 (TBD)'s correction punchlist, and any other document any participant wishes to make part of the project record.
 2. Architect and Contractor (TBD) are required to use this process.
 3. It is Architect's responsibility to submit documents in PDF format.
 4. Paper document transmittals will not be reviewed.
 5. All other specified submittal and document transmission procedures apply.
 6. Electronic document requirements apply to samples or color selection charts via image submission with description as well as physical sample.
 7. Markup notations on submittals shall be distinguishable between reviewers. (Contractor, subcontractor, Architect, etc. by color, font, or initials). Method to be established at preconstruction meeting.
 8. Contractor shall submit a sample template submittal with bookmarks, review marks and images at pre-construction meeting.
 9. Important information to be highlighted in green or orange. Yellow may not be used.
- B. Training: One thirty minute training session will be arranged for all participants, with representatives of Owner's maintenance personnel, Architect and Contractor (TBD) participating.
- C. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.02 PRECONSTRUCTION MEETING

- A. Owner will schedule a meeting after Notice of Award.
- B. Attendance Required:

1. Owner .
 2. Architect .
 3. Contractor (TBD) .
- C. Agenda:
1. Execution of Owner -Contractor (TBD) 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. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 6. Scheduling.
 7. Safety and Security procedures and training.
 8. Security and housekeeping procedures.
 9. Application for payment procedures.
 10. Procedures for Testing.
 11. Special inspections.
- D. Contractor will Record minutes and distribute copies within five days after meeting to participants, with copies to Architect, Contractor (TBD), participants, and those affected by decisions made.

3.03 **SITE MOBILIZATION MEETING**

- A. Contractor will schedule a teleconference meeting prior to Contractor (TBD) occupancy.
- B. Attendance Required:
1. Contractor (TBD).
 2. Owner.
 3. Architect.
 4. Contractor (TBD)'s superintendent.
 5. Major subcontractors.
- C. Agenda:
1. Use of premises by Owner and Contractor (TBD) .
 2. Owner 's requirements and occupancy prior to completion.
 3. Construction facilities and controls provided by Owner.
 4. Temporary utilities provided by Owner .
 5. Survey and building layout.
 6. Security, site cleaning and housekeeping procedures.

7. Schedules.
 8. Application for payment procedures.
 9. Procedures for testing.
 10. Procedures for maintaining record documents.
 11. Requirements for start-up of equipment.
 12. Inspection and acceptance of equipment put into service during construction period.
- D. Contractor will record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Contractor (TBD), participants, and those affected by decisions made.

3.04 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum bi-weekly intervals.
- B. Make arrangements for meetings and prepare agenda with copies for participants.
- C. Attendance Required:
1. Contractor (TBD).
 2. Owner's Representative.
 3. Architect.
 4. Contractor (TBD)'s superintendent.
 5. Major subcontractors.
- D. Agenda:
1. Review minutes of previous meetings.
 2. Review of work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems that impede, or will impede, planned progress.
 5. Review of submittals schedule and status of submittals. Spreadsheet to be updated and submitted by contractor.
 6. Review of RFIs log and status of responses.
 7. Review of off-site fabrication and delivery schedules.
 8. Maintenance of progress schedule.
 9. Corrective measures to regain projected schedules.
 10. Planned progress during succeeding work period.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to work.

- E. Contractor will record minutes and distribute copies within two days after meeting to participants, with electronic copies to Architect, other participants, and those affected by decisions made.

3.05 CONSTRUCTION PROGRESS SCHEDULE

- A. Within 5 days after date of the Agreement, submit preliminary schedule .
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 10 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 5 days after joint review, submit complete schedule.
- E. Prepare schedule using a computerized, time-scaled critical path method analysis diagram for the Work.
 - 1. Failure to include any work item required for the performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect or Owner approval of the schedule.
 - 2. At a minimum, schedule to include all applicable specification sections in the Work Breakdown Structure with sufficient detail to ascertain how the work will be performed.
- F. Update Schedule to record actual start and finish dates of completed activities.
 - 1. Updates shall be representative of how work has been and will be executed on site.
- G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule.
- H. Submit updated schedule with each Application for Payment.

3.06 WEEKLY CONSTRUCTION REPORTS

- A. Include only factual information. Do not include personal remarks or opinions regarding operations and/or personnel.
- B. Prepare a weekly construction report recording the following information concerning events at Project site and Project progress:
 - 1. Date range.
 - 2. High and low temperatures, and general weather conditions.
 - 3. Six or more Digital Images that best represent all aspects of work underway.
 - 4. List of subcontractors at Project site.
 - 5. Approximate count of personnel at Project site.
 - a. Include a breakdown for supervisors, laborers, journeymen, equipment operators and helpers.
 - 6. Major equipment at Project site.
 - 7. Material deliveries.
 - 8. Safety, environmental, or industrial relations incidents.

9. Meetings and significant decisions.
10. Visitors on site.
11. Unusual events (submit a separate special report).
12. Stoppages, delays, shortages, and losses. Include comparison between scheduled work activities (in Contractor (TBD)'s most recently updated and published schedule) and actual activities. Explain differences, if any. Note days or periods when no work was in progress and explain the reasons why.
13. Emergency procedures.
14. Directives and requests of Authority(s) Having Jurisdiction (AHJ).
15. Testing and/or inspections performed.
16. Signature of Contractor (TBD)'s authorized representative.
17. Provide a draft of the weekly log format to the Owner's Representative for review within 15 days after the date of the Agreement.
18. Post weekly log to the Electronic Document site at the end of each week.

3.07 PROGRESS PHOTOGRAPHS

- A. In addition to photos in Weekly Reports, submit a minimum of 10 photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.
- B. Photography Type: Digital; electronic files.
- C. In addition to periodic, recurring views, take photographs of each of the following events:
 1. Completion of site clearing/ demolition.
 2. Foundations in progress and upon completion.
 3. Structural framing in progress and upon completion.
 4. Vapor retarders in progress and upon completion.
 5. Roof underlayments in progress and upon completion.
 6. Roof penetrations in progress and upon completion.
 7. Weather barrier installation.
 8. Insulation installation in progress and upon completion.
 9. Enclosure of building, upon completion.
 10. Final completion, minimum of twenty photos.
- D. Views:
 1. Consult with Architect for instructions on views required.
 2. Provide factual presentation.
 3. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

- E. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format, date stamped; provide files unaltered by photo editing software.
 - 1. File Naming: Include date of view and view identification.
 - 2. Photo CD(s): Provide 1 copy including all photos cumulative to date and PDF file(s), with files organized in separate folders by submittal date.

3.08 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 the Contract Documents.
 - 2. A resolution to an issue which has arisen due to field conditions and affects design intent.
- B. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of the 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.
- C. 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. 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 60 00 - Product Requirements)
 - 2. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, the Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
 - a. The Owner reserves the right to assess the Contractor (TBD) for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.
- D. 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 (TBD)'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. Notify Architect 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.

3.09 SUBMITTALS FOR REVIEW

- A. When products or fabrications are specified in individual sections **or** identified in drawing, submit the following for review:
 - 1. Product data.

- a. Identified by specification item or drawing reference.
- 2. Shop drawings.
- 3. Samples for selection and digital images of samples.
- 4. Samples for verification and digital images of samples.
- B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed 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 78 00 - Closeout Submittals.

3.10 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Certificates.
 - 3. Test reports.
 - 4. Inspection reports.
 - 5. Manufacturer's instructions.
 - 6. Manufacturer's field reports.
 - 7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner.

3.11 SUBMITTALS FOR PROJECT CLOSEOUT

- A. At least three days prior to scheduled substantial completion in section, submit contractor's Correction Punch List for Substantial Completion.
- B. At least three days prior to scheduled final inspection, submit Final Correction Punch List indicating how and when all punch list items have been addressed, with each item signed off by the responsible subcontractor's foreman and general contractor's superintendent.
- C. For each specification, as applicable, submit at project closeout:
 - 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.
- E. Architect to have a minimum of 10 working days to review each submittal.

- F. Submittals shall contain all items identified in that specification section to be considered complete.
 - 1. Incomplete submittals may be rejected.
- G. Resubmittals shall be complete and include all previous markups or clearly identify any new or replaced information to be reviewed.

3.12 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 .

3.13 SUBMITTAL PROCEDURES

- A. General Requirements:
- B. Shop Drawing Procedures:
 - 1. The shop drawing should address the appearance, performance, and prescriptive descriptions in the specifications and construction drawings through layout and detail drawings specific to the fabrications being provided.
 - 2. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
 - 3. Do not reproduce the Contract Documents to create shop drawings.
 - 4. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.
- C. Identify Project, Contractor (TBD), Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- D. Apply Contractor (TBD)'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.
- E. Schedule submittals to expedite the Project, and coordinate submission of related items.
- F. Submittal shall include all subsections completed. Partial submittals will not be accepted.
- G. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- H. When revised for resubmission, identify all changes made since previous submission with date and revision cloud.
- I. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- J. Submittals are required on all products, systems and fabrications identified in the specifications **or** drawings. It is the contractor's responsibility to ensure information is submitted for each product, fabrication or system.

3.14 COORDINATION

- A. Contractor shall coordinate construction operations included in different sections of the contract documents to ensure efficient and orderly installation of each part of the Work.
 - 1. Schedule construction operations in sequence require to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service and repair including mechanical and electrical items.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, special inspections and list of attendees at meetings.
- C. Administrative Procedures: Coordinate the schedule and timing of required administrative procedures and construction activities to ensure orderly progress of the Work.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water and materials.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into the Work. Owner shall have first rights to any salvaged materials and equipment.

3.15 INFORMATION BULLETIN

- A. Information Bulletin is provided by the Architect or Owner to give additional information to the contractor.
 - 1. The additional information may or may not result in a change to the Contract Time or Contract Sum.
 - 2. In the event the contractor believes the Information Bulletin warrants change in the Contract Time or the Contract Sum, they will notify the Owner and Architect in writing within 10 days of the receipt of the Information Bulletin and/or prior to the incorporation of the change, whichever comes first.
- B. Information Bulletins shall be entered and logged into the Electronic Document system in a timely manner.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Construction procedures to promote adequate indoor air quality after construction.

1.02 PROJECT GOALS

- A. Dust and Airborne Particulates: Prevent deposition of dust and other particulates in HVAC ducts and equipment.
 - 1. Cleaning of ductwork is not contemplated under this Contract.
 - 2. Contractor (TBD) shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.
 - 3. Establish condition of existing ducts and equipment prior to start of alterations.
 - 4. Assess conditions of existing ducts and equipment to ensure construction particulates do not affect artifacts in Museum Annex.
- B. Airborne Contaminants: Procedures and products have been specified to minimize indoor air pollutants.
 - 1. Furnish products meeting the specifications.
 - 2. Avoid construction practices that could result in contamination of installed products leading to indoor air pollution. This includes absolutely no smoking within the building perimeter or within 50 feet of building perimeter during construction.

1.03 REFERENCE STANDARDS

- A. SMACNA (OCC) - IAQ Guidelines for Occupied Buildings Under Construction 2007.

1.04 DEFINITIONS

- A. Adsorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics, fibrous insulation, and other similar products.
- B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like.
- C. Particulates: Dust, dirt, and other airborne solid matter.
- D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Low VOC Materials: See other sections for specific requirements for materials with low VOC content.

PART 3 EXECUTION

3.01 CONSTRUCTION PROCEDURES

- A. Prevent the absorption of moisture and humidity by adsorptive materials by:

1. Sequencing the delivery of such materials so that they are not present in the building until wet work is completed and dry.
 2. Delivery and storage of such materials in fully sealed moisture-impermeable packaging.
 3. Provide sufficient ventilation for drying within reasonable time frame.
- B. Begin construction ventilation when building is substantially enclosed.
- C. When working in a portion of an occupied building, prevent movement of air from construction area to occupied area.
- D. Do not store construction materials or waste in mechanical or electrical rooms.
- E. Use other relevant recommendations of SMACNA (OCC) for avoiding unnecessary contamination due to construction procedures.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

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

1.02 REFERENCE STANDARDS

- A. 16 CFR 260.13 - Guides for the Use of Environmental Marketing Claims; Federal Trade Commission; Recycled Content Current Edition.
- B. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 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

2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the 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 .

2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. DO NOT USE products having any of the following characteristics:

1. Made using or containing CFC's or HCFC's.
2. Made of wood from newly cut old growth timber.
3. Containing lead, cadmium, asbestos.
- C. Where all other criteria are met, Contractor (TBD) shall give preference to products that:
 1. If used on interior, have lower VOC
 2. If used on interior, have lower emissions.
 3. Result in less construction waste.
 4. Are Cradle-to-Cradle Certified.
 5. Have a published Health Product Declaration (HPD).
 6. Have a published GreenScreen Chemical Hazard Analysis.

2.03 **PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications. Submit a request for substitution for any manufacturer not named.

2.04 **PRODUCT SELECTION PROCEDURES**

- A. Standard Products: If available, and unless custom products or nonstandard options are necessary, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Where products are accompanied by the term 'as selected' , Architect will make selection.
- C. Where products are accompanied by the term ' match sample' The sample to be matched is the Architect's. Architect's decision will be final on whether or not a proposed product matches.

2.05 **PRODUCT INTERFACES**

- A. Where products of an integrated assembly of materials are provided and installed by different material suppliers and or subcontractors and where one product is attached to another, Contractor shall coordinate entities to ensure a complete and functioning assembly. It is the Contractor's responsibility to fully understand the context in which all products are being installed and constructed.

2.06 **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

3.01 **OWNER-SUPPLIED PRODUCTS**

- A. Owner 's Responsibilities:

1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor (TBD) .
 2. Arrange and pay for Ipe wood cladding delivery to site.
 3. On delivery, inspect products jointly with Contractor (TBD) .
- B. Contractor (TBD) 's Responsibilities:
1. Receive and unload products at site; inspect for completeness or damage jointly with Owner .
 2. Handle, store, install and finish products.
 3. Repair or replace items damaged after receipt.

3.02 **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.

3.03 **STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Do not store products directly on the ground.

- I. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- J. Prevent contact with material that may cause corrosion, discoloration, or staining.
- K. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- L. 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

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cutting and patching.
- D. Surveying for laying out the work.
- E. Cleaning and protection.
- F. Starting of systems and equipment.
- G. Closeout procedures, including Contractor (TBD)'s Correction Punch List, except payment procedures.
- H. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary:
- B. Section 01 30 00 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.
- D. Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.
- E. Section 01 79 00 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections
- F. Individual Product Specification Sections:
 - 1. Advance notification to other sections of openings required in work of those sections.
 - 2. Limitations on cutting structural members.

1.03 REFERENCE STANDARDS

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

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
 - 1. On request, submit documentation verifying accuracy of survey work.
 - 2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
 - 3. Submit surveys and survey logs for the project record.
- C. 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.
- D. 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.
- E. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.05 QUALIFICATIONS

- A. For survey work, employ a land surveyor registered in Alaska and acceptable to Architect . Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.
- B. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in Alaska .
- C. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in Alaska.
- D. Contractor to obtain all permits required by the AHJ.

1.06 PROJECT CONDITIONS

- A. Use of explosives is not permitted.
- B. Restroom facilities to be provided by Contractor and placed on site with approved location by Owner.
- C. Grade site to drain. Maintain area free of water. Provide, operate, and maintain pumping equipment if necessary.
- D. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- E. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- F. 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.
- G. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

- H. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

1.07 COORDINATION

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

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.

- D. Proceed with Work only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.
- E. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- F. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- G. 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.
- H. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the locations and points of connection of utility services.

3.02 **PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 **PREINSTALLATION MEETINGS**

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

3.04 **LAYING OUT THE WORK**

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect of any discrepancies discovered.
- C. Contractor (TBD) shall locate and protect survey control and reference points.
- D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

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

3.05 **GENERAL INSTALLATION REQUIREMENTS**

- A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.
- B. 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.
- C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 **ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Architect before disturbing existing installation.
 - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. 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 as required to protect adjacent areas of the building .
 - 2. Provide perimeter fencing for site improvements and exterior building to prevent public access. Fencing to be approved by Owner prior to order and installation.

3. Coordinate with Owner equipment storage when construction has ceased on site.
- 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 rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 2. Remove items indicated on drawings.
 3. Relocate items indicated on drawings.
 4. 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.
 5. 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 and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
 2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
 3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - a. Disable existing systems only to make switchovers and connections; minimize duration of outages. Coordinate with Owner schedule for work. No outages allowed during operating hours of the Museum Annex.
 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.
- 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.

3.07 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Loud cutting and patching not allowed when Museum Annex is in operations.
- C. See Alterations article above for additional requirements.
- D. 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-conforming work.
- E. 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.
- F. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- G. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

- H. Restore work with new products in accordance with requirements of Contract Documents.
- I. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- J. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.
 - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.08 **PROGRESS CLEANING**

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

3.09 **PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Protect work from spilled liquids. If work is exposed to spilled liquids, immediately remove protective coverings, dry out work, and replace protective coverings.
- G. 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.
- H. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.10 **CORRECTION OF THE WORK**

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Replace defective parts.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace chipped, scratched, and broken glass or reflective surfaces.
- D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

3.11 **SYSTEM STARTUP**

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect and owner seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable Contractor (TBD) personnel and manufacturer's representative in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report signed by installer and general contractor that equipment or system has been properly installed and is functioning correctly.

3.12 **DEMONSTRATION AND INSTRUCTION**

- A. See Section 01 79 00 - Demonstration and Training.

3.13 **ADJUSTING**

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

3.14 **FINAL CLEANING**

- A. Execute final cleaning prior to final project assessment.
 - 1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.
- B. Use cleaning materials that are nonhazardous.
- C. 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.
- D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- F. Clean filters of operating equipment.
- G. Clean debris from roofs and drainage systems.
- H. Clean site; sweep paved areas, rake clean landscaped surfaces.
- I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.15 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
 - 1. Provide pdf copies to Architect.
 - 2. See Section 01 78 00 For Closeout Submittal requirements.
- B. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- C. Submit written certification containing Contractor (TBD)'s Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- D. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor (TBD)'s comprehensive list of items identified to be completed or corrected and submit to Architect.
- E. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- F. Notify Architect when work is considered finally complete and ready for Architect's final inspection.

3.16 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

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 00 72 00 - General Conditions and 00 73 00 - Supplementary Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.
- B. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- C. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
- D. Individual Product Sections: Specific requirements for operation and maintenance data.
- E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
 - 2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
 - 4. Submit two sets of revised final documents and one bookmarked and searchable digital .pdf 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

3.01 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. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 3. Field changes of dimension and detail.
 - 4. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

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

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
 - 1. Product data, with catalog number, size, composition, and color and texture designations.
 - 2. Information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional information as specified in individual product specification sections.
- E. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 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. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

- J. Additional Requirements: As specified in individual product specification sections.

3.05 **ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS**

- A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
- B. Where systems involve more than one specification section, provide separate tabbed divider for each system.
- C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Digital pdf: Provide bookmarked and searchable digital .pdf in the same format and order as the hardcopy. Delivery format can be DVD-rom or USB Flash Drive.
- E. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- F. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor (TBD) and subcontractors, with names of responsible parties.
- G. 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.
- H. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
- I. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- J. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- K. 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. Product data, shop drawings, and other submittals.
 - c. Operation and maintenance data.
 - d. Field quality control data.
 - e. Photocopies of warranties and bonds.

3.06 **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.

END OF SECTION

PART 1 GENERAL

1.01 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. Electrical systems and equipment.
 - 2. Items specified in individual product Sections.
- C. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
 - 1. Roofing, waterproofing, and other weather-exposed or moisture protection products.
 - 2. Finishes, Fixtures and other items specified in individual product Sections including but not limited to the following:
 - a. Exterior Wood Siding.
 - b. Exterior Soffit Decking.
 - c. Weeps and drainage channels in window and door systems.
 - d. Fire Extinguisher Cabinet operation.
 - 3. Fixtures and fittings.
 - 4. Items specified in individual product Sections.

1.02 RELATED REQUIREMENTS

- A. Section 01 78 00 - Closeout Submittals: Operation and maintenance manuals.
- B. Other Specification Sections: Additional requirements for demonstration and training.

1.03 SUBMITTALS

- A. See Section 01 30 00 - 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 for transmittal to Owner .
 - 2. Submit not less than four 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 (TBD) .
- 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 paper and digital .pdf 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.
- E. Video Recordings: Submit digital video recording of each demonstration and training session for Owner 's subsequent use.
- 1. Format: DVD Disc or USB Flash Drive.
 - 2. Label each disc and container with session identification and date.

1.04 **QUALITY ASSURANCE**

- A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
- 1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
 - 2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 **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.

3.02 **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 (TBD) 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 (TBD) .
 - 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

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Building demolition excluding removal of hazardous materials and toxic substances.
- B. Selective demolition of built site elements.
- C. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary:
- B. Section 01 10 00 - Summary: Description of items to be salvaged or removed for re-use by Contractor (TBD).

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards current edition.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Site Plan: Showing:
 - 1. Areas for temporary construction and field offices.
 - 2. Areas for temporary and permanent placement of removed materials.
- C. 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.
 - 2. Identify demolition firm and submit qualifications.
 - 3. Include a summary of safety procedures.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Company specializing in the type of work required.
 - 1. Minimum of 5 years of documented experience.
- B. Conform to applicable Codes for demolition of structures, safety of adjacent structures, dust control, disposal, and additional codes as required.
- C. Conform to applicable Codes for procedures when hazardous or contaminated materials are discovered.
- D. Obtain all required permits and pay all associated fees pertaining to demolition disposal, and any additional items as necessary for the Work.
- E. Perform work in accordance with applicable Federal, State, and Local standards.

PART 3 EXECUTION

2.01 SCOPE

- A. Refer to drawings.
- B. Partial demolition of some elements at the main building for renovation per drawings.
- C. Complete the removal of all hazardous materials according to the approved plans and existing state, federal and local regulations.
- D. Remove other items indicated, for salvage, relocation and recycling.
- E. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Comply with applicable requirements of NFPA 241.
 - 3. Use of explosives is not permitted.
 - 4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 5. Provide, erect, and maintain temporary barriers and security devices.
 - 6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 8. Do not close or obstruct roadways or sidewalks without permit.
 - 9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 - 10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner .
- C. Do not begin removal until built elements to be salvaged or relocated have been removed.
- D. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.

- E. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- F. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.

2.03 **EXISTING UTILITIES**

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

2.04 **SELECTIVE DEMOLITION FOR ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Architect before disturbing existing installation.
 - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- C. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove items indicated on drawings.
- D. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
 - 4. Patch as specified for patching new work.

2.05 **DEBRIS AND WASTE REMOVAL**

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.

- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Formed steel stud exterior wall framing.
- B. Exterior wall sheathing.

1.02 RELATED REQUIREMENTS

- A. Section 07 25 00 - Weather Barriers: Weather barrier over sheathing.
- B. Section 07 92 00 - Joint Sealants.

1.03 REFERENCE STANDARDS

- A. AISI S100-12 - North American Specification for the Design of Cold-Formed Steel Structural Members 2012.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2018.
- D. ASTM C955 - Standard Specification for Cold-Formed Steel Structural Framing Members 2018.
- E. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories 2011a (Reapproved 2015).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with work of other sections that is to be installed in or adjacent to the metal framing system, including but not limited to structural anchors, cladding anchors, utilities, insulation, and firestopping.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate component details, framed openings, bearing, anchorage, loading and type and location of fasteners, and accessories or items required of related work.
 - 1. Indicate stud and ceiling joist layout.
 - 2. Describe method for securing studs to tracks and for bolted framing connections.
 - 3. Design data:
 - a. Shop drawings signed and sealed by a professional structural engineer.
- C. Manufacturer's Installation Instructions: Indicate special procedures, conditions requiring special attention, and [_____].

1.06 QUALITY ASSURANCE

- A. Designer Qualifications: Design framing system under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in Alaska.

PART 2 PRODUCTS

2.01 FRAMING SYSTEM

- A. Provide primary and secondary framing members, bridging, bracing, plates, gussets, clips, fittings, reinforcement, and fastenings as required to provide a complete framing system.

2.02 FRAMING MATERIALS

- A. Studs and Track: ASTM C955; studs formed to channel, "C", or "Sigma" shape with punched web; U-shaped track in matching nominal width and compatible height.

2.03 FASTENERS

- A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot dip galvanized per ASTM A153/A153M.
- B. Anchorage Devices: Powder actuated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION OF STUDS

- A. Install components in accordance with manufacturers' instructions and ASTM C1007 requirements.
- B. Align floor and ceiling tracks; locate to wall layout. Secure in place with fasteners at maximum 24 inches (600 mm) on center. Coordinate installation of sealant with floor and ceiling tracks.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated steel and aluminum items.
 - 1. Exterior extruded aluminum sections at wood panel veneer
 - 2. Exterior steel angle at stone veneer

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 09 91 13 - Exterior Painting: Paint finish.
- C. Section 09 91 23 - Interior Painting: Paint finish.

1.03 REFERENCE STANDARDS

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum 2014 (2015 Errata).
- B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2014.
- C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2014.
- D. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination 2012.
- E. SSPC-SP 2 - Hand Tool Cleaning 2018.

1.04 SUBMITTALS

- A. See Division 1 for Submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
 - 2. Indicate types and locations of coatings or other means of protection from dissimilar metal galvanic corrosion or corrosive reactions with wet concrete.

1.05 QUALITY ASSURANCE

- A. Design any opening support or other structural use items under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in TBD.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Shop and Touch-Up Primer:
 - 1. Provide primer as specifically recommended for use with finish coat product per MPI or manufacturer's recommendation.

2. Refer to Div. 09 for finish to match exposed exterior steel.

2.02 MATERIALS - ALUMINUM

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

2.03 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.04 FABRICATED ITEMS

- A. Ledge Angles, Shelf Angles, Channels and Plates Not Attached to Structural Framing: For support of metal decking; galvanized, primed and painted finish.
- B. Trims at Exterior Wood Paneling:
 1. Basis of Design: Fry Reglet Millwork Trims
 2. Profiles: As indicated on drawings.

2.05 FINISHES - STEEL

- A. Prime paint steel items.
 1. Refer to Div. 09 for steel finish
 2. Exceptions: Galvanize items to be embedded in concrete and items to be embedded in masonry unless noted otherwise.
 3. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Finish Painting: Two coats per Div 09

2.06 FINISHES - ALUMINUM

- A. Exterior Aluminum Surfaces: Class I natural anodized or color anodized at Architect option.
- B. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils (0.018 mm) thick.
- C. Class I Color Anodized Finish: AAMA 611 AA-M12C22A42 Integrally colored anodic coating not less than 0.7 mils (0.018 mm) thick; light bronze.

2.07 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).
- C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).
- D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).
- E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Obtain approval prior to site cutting or making adjustments not scheduled.

3.03 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).
- C. Maximum Out-of-Position: 1/4 inch (6 mm).

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Non-structural dimension lumber framing.
- B. Rough opening framing for doors, windows, and roof openings.
- C. Preservative treated wood materials.
- D. Miscellaneous framing and sheathing.
- E. Concealed wood blocking, nailers, and supports.
- F. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

- A. Section 07 25 00 - Weather Barriers:
- B. Section 07 50 00 - Wood Siding
- C. Section 07 72 00 - Roof Accessories: Misc Roof Curbs and Penetrations.
- D. Section 09 21 16 - Gypsum Board Assemblies: Gypsum-based sheathing.
- E. Section 09 91 93 - Exterior Painting of exposed blocking.

1.03 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- B. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing 2013.
- C. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials 2013.
- D. AWPA U1 - Use Category System: User Specification for Treated Wood 2017.
- E. PS 20 - American Softwood Lumber Standard 2015.
- F. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17 2015.

1.04 SUBMITTALS

- A. See Division 1 for Submittal procedures.
- B. Product Data: Provide technical data on insulated sheathing, wood preservative materials and application instructions.
- C. Shop Drawing: Details of any unique conditions.
- D. Samples: For rough carpentry members that will be exposed to view, submit two samples, 6by6 inch ([]by mm) in size illustrating wood grain, color, and general appearance.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. Species: Douglas Fir-Larch, unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: West Coast Lumber Inspection Bureau; WCLIB (GR).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 1 or Construction Grade.
 - 2. Boards: Standard or No. 3.

2.03 EXPOSED DIMENSION LUMBER

- A. Grading Agency: West Coast Lumber Inspection Bureau; WCLIB (GR).
- B. Sizes: Nominal sizes as indicated on drawings.
- C. Surfacing: S4S.
- D. Moisture Content: S-dry or MC19.

2.04 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Stainless steel at all locations unless noted otherwise.

2.05 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
 - 2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
 - 3. Locations: As indicated and at all exposed or semi-exposed exterior locations unless noted otherwise.
- B. Preservative Treatment:

1. Preservative Pressure Treatment of Plywood Above Grade: AWWPA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative.
 - a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.

PART 3 EXECUTION

3.01 PREPARATION

- A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches (100 mm) and seal.
- B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.
- C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

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

3.03 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
- C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.04 TOLERANCES

- A. Framing Members: 1/4 inch (6 mm) from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet (2 mm/m) maximum, and 1/4 inch in 30 feet (7 mm in 10 m) maximum.

3.05 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01 74 19 - Construction Waste Management and Disposal.
- B. Waste Disposal
 1. Comply with applicable regulations.

2. Do not burn scrap on project site.
 3. Do not burn scraps that have been pressure treated.
 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- C. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- D. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Canopy Wood Soffit
- B. Warehouse Wood Walls and Soffit (OPCI)

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with installation of associated and adjacent components.

1.04 SUBMITTALS

- A. See Division 1 for Submittal Procedures
- B. Product Data:
- C. Shop drawings:
- D. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
- E. Samples:
 - 1. Provide sample of finished wood.
 - 2. Provide sample of finish, full range of manufacturer's colors.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

2.02 WOOD-BASED COMPONENTS

2.03 LUMBER MATERIALS

- A. Softwood Lumber (WD-1): Western Red Cedar species, rift sawn, maximum moisture content of 6 percent; with vertical grain, F1F grade.
 - 1. Grading: In accordance with rules certified by ALSC; www.alsc.org.

2.04 FABRICATION

2.05 SHOP FINISHING

- A. Sand work smooth, prep for field finishing.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

- A. Set and secure materials and components in place, plumb and level.

3.03 TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch (1.6 mm).
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.79 mm).

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING:

1. ROOF COATING PREPARATION INCLUDING REHABILITATION OF METAL ROOF PANEL JOINTS, FASTENERS, AND FLASHING, AND CLEANING PREPARATION FOR COATING.

2. APPLICATION OF COATING ON METAL ROOFING.

B. RELATED REQUIREMENTS:

1. DIVISION 00 DOCUMENT "AVAILABLE INFORMATION," INCLUDING THE FOLLOWING PRE-CONSTRUCTION TEST REPORT ATTACHMENTS.

A. ROOFING FASTENER INSPECTION.

B. PHOTOGRAPHIC SURVEY OF EXISTING ROOF CONDITIONS.

C. CONSTRUCTION DRAWINGS FOR EXISTING ROOFING SYSTEM.

D. ADHESION PULL SAMPLES.

2. DIVISION 01 SECTION "SUMMARY" FOR USE OF THE PREMISES AND PHASING REQUIREMENTS, AND FOR RESTRICTIONS ON USE OF THE PREMISES DUE TO OWNER OR TENANT OCCUPANCY.

1.2 MATERIALS OWNERSHIP

A. DEMOLISHED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM PROJECT SITE.

1.3 DEFINITIONS

A. ROOFING TERMINOLOGY: REFER TO GLOSSARY IN NRCA'S "THE NRCA ROOFING AND WATERPROOFING MANUAL" FOR DEFINITION OF TERMS RELATED TO ROOFING WORK IN THIS SECTION.

B. EXISTING ROOFING SYSTEM: METAL ROOFING, AND COMPONENTS AND ACCESSORIES BETWEEN DECK AND METAL ROOFING.

C. ROOFING COATING PREPARATION: EXISTING ROOFING THAT IS TO REMAIN AND BE PREPARED TO ACCEPT RESTORATIVE COATING APPLICATION.

D. PATCHING: REMOVAL OF A PORTION OF EXISTING METAL ROOFING SYSTEM FROM DECK OR REMOVAL OF SELECTED COMPONENTS AND ACCESSORIES FROM EXISTING METAL ROOFING SYSTEM AND REPLACEMENT WITH SIMILAR MATERIALS.

E. REMOVE: DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OFF-SITE UNLESS INDICATED TO BE REMOVED AND REINSTALLED.

F. EXISTING TO REMAIN: EXISTING ITEMS OF CONSTRUCTION THAT ARE NOT INDICATED TO BE REMOVED.

G. MANUFACTURER/ROOFING MANUFACTURER: MANUFACTURER OF ROOFING REHABILITATION PRODUCTS, UNLESS OTHERWISE INDICATED.

1.4 ROOFING CONFERENCES

A. ROOFING REHABILITATION PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE TO REVIEW METHODS AND PROCEDURES RELATED TO ROOFING SYSTEM.

1. MEET WITH OWNER, ARCHITECT, ROOFING COATING MATERIALS MANUFACTURER'S REPRESENTATIVE; ROOFING COATING INSTALLER INCLUDING PROJECT MANAGER AND FOREMAN; AND INSTALLERS WHOSE WORK INTERFACES WITH OR AFFECTS REHABILITATION INCLUDING INSTALLERS OF ROOF ACCESSORIES AND ROOF-MOUNTED EQUIPMENT REQUIRING REMOVAL AND REPLACEMENT AS PART OF THE WORK.

2. REVIEW METHODS AND PROCEDURES RELATED TO COATING PREPARATION, INCLUDING METAL ROOFING COATING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.

3. REVIEW TEMPORARY PROTECTION REQUIREMENTS FOR EXISTING ROOFING SYSTEM THAT IS TO REMAIN UNCOATED, DURING AND AFTER INSTALLATION.

4. REVIEW ROOF DRAINAGE DURING EACH STAGE OF COATING AND REVIEW ROOF DRAIN PLUGGING AND PLUG REMOVAL PROCEDURES.

5. REVIEW AND FINALIZE CONSTRUCTION SCHEDULE, AND VERIFY AVAILABILITY OF MATERIALS, INSTALLER'S PERSONNEL, EQUIPMENT, AND FACILITIES NEEDED TO MAKE PROGRESS AND AVOID DELAYS.

6. REVIEW BASE FLASHINGS, SPECIAL ROOFING DETAILS, DRAINAGE, PENETRATIONS, EQUIPMENT CURBS, AND CONDITION OF OTHER CONSTRUCTION THAT WILL AFFECT COATING.

7. REVIEW HVAC SHUTDOWN AND SEALING OF AIR INTAKES.

8. REVIEW SHUTDOWN OF FIRE-SUPPRESSION, -PROTECTION, AND -ALARM AND -DETECTION SYSTEMS.

9. REVIEW GOVERNING REGULATIONS AND REQUIREMENTS FOR INSURANCE AND CERTIFICATES IF APPLICABLE.

10. REVIEW EXISTING CONDITIONS THAT MAY REQUIRE NOTIFICATION OF OWNER BEFORE PROCEEDING.

1.5 ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT SPECIFIED.

B. SUSTAINABLE DESIGN SUBMITTALS:

C. PRODUCT TEST REPORTS: FOR ROOF COATING, INDICATING THAT COATED ROOF WILL COMPLY WITH SOLAR REFLECTANCE INDEX REQUIREMENTS.

1.6 INFORMATIONAL SUBMITTALS

A. QUALIFICATION DATA: FOR INSTALLER.

B. CONTRACTOR'S PRODUCT CERTIFICATE: SUBMIT NOTARIZED CERTIFICATE, INDICATING PRODUCTS INTENDED FOR WORK OF THIS SECTION, INCLUDING PRODUCT NAMES AND NUMBERS AND MANUFACTURERS' NAMES, WITH STATEMENT INDICATING THAT PRODUCTS TO BE PROVIDED MEET THE

REQUIREMENTS OF THE CONTRACT DOCUMENTS.

C. MANUFACTURER CERTIFICATES: SIGNED BY ROOFING MANUFACTURER CERTIFYING THAT ROOFING SYSTEM COMPLIES WITH REQUIREMENTS SPECIFIED IN "PERFORMANCE REQUIREMENTS" ARTICLE.

1. INDICATE THAT PROPOSED SYSTEM COMPONENTS ARE COMPATIBLE.

D. PRODUCT TEST REPORTS: BASED ON EVALUATION OF COMPREHENSIVE TESTS PERFORMED BY MANUFACTURER AND WITNESSED BY A QUALIFIED TESTING AGENCY, FOR COMPONENTS OF ROOFING REHABILITATION SYSTEM.

E. WARRANTIES: UNEXECUTED SAMPLE COPIES OF SPECIAL WARRANTIES.

F. PHOTOGRAPHS OR VIDEO RECORDINGS: SHOW EXISTING CONDITIONS OF ADJOINING CONSTRUCTION AND SITE IMPROVEMENTS, INCLUDING EXTERIOR AND INTERIOR FINISH SURFACES, WHICH MIGHT BE MISCONSTRUED AS HAVING BEEN DAMAGED BY COATING OPERATIONS. SUBMIT BEFORE WORK BEGINS.

G. INSPECTION REPORTS: DAILY REPORTS OF ROOFING INSPECTOR. INCLUDE WEATHER CONDITIONS, DESCRIPTION OF WORK PERFORMED, TESTS PERFORMED, DEFECTIVE WORK OBSERVED, AND CORRECTIVE ACTIONS REQUIRED AND CARRIED OUT.

1.7 CLOSEOUT SUBMITTALS

A. MAINTENANCE DATA: TO INCLUDE IN MAINTENANCE MANUALS.

B. WARRANTIES: EXECUTED COPIES OF APPROVED WARRANTY FORMS.

1.8 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: AN EMPLOYER OF WORKERS TRAINED AND CERTIFIED BY MANUFACTURER, INCLUDING A FULL-TIME ON-SITE SUPERVISOR WITH A MINIMUM OF FIVE YEARS' EXPERIENCE INSTALLING PRODUCTS COMPARABLE TO THOSE SPECIFIED, ABLE TO COMMUNICATE VERBALLY WITH CONTRACTOR, ARCHITECT, AND EMPLOYEES, AND THE FOLLOWING:

1. QUALIFIED BY THE MANUFACTURER TO INSTALL MANUFACTURER'S PRODUCT AND FURNISH WARRANTY OF TYPE SPECIFIED.

B. ROOFING INSPECTOR QUALIFICATIONS: A TECHNICAL REPRESENTATIVE OF MANUFACTURER NOT ENGAGED IN THE SALE OF PRODUCTS AND EXPERIENCED IN THE INSTALLATION AND MAINTENANCE OF THE SPECIFIED ROOFING SYSTEM, QUALIFIED TO PERFORM ROOFING OBSERVATION AND INSPECTION SPECIFIED IN FIELD QUALITY CONTROL ARTICLE, TO DETERMINE INSTALLER'S COMPLIANCE WITH THE REQUIREMENTS OF THIS PROJECT, AND APPROVED BY THE MANUFACTURER TO ISSUE WARRANTY CERTIFICATION. THE ROOFING INSPECTOR SHALL BE ONE OF THE FOLLOWING:

1. AN AUTHORIZED FULL-TIME TECHNICAL EMPLOYEE OF THE MANUFACTURER.

1.9 PROJECT CONDITIONS

A. WEATHER LIMITATIONS: PROCEED WITH REHABILITATION WORK ONLY WHEN EXISTING AND FORECASTED WEATHER CONDITIONS PERMIT WORK TO PROCEED WITHOUT WATER ENTERING INTO EXISTING ROOFING SYSTEM OR BUILDING.

1. STORE ALL MATERIALS PRIOR TO APPLICATION AT TEMPERATURES RECOMMENDED BY MANUFACTURER.

2. APPLY COATINGS WITHIN RANGE OF AMBIENT AND SUBSTRATE TEMPERATURES RECOMMENDED BY MANUFACTURER.

3. DO NOT APPLY ROOFING IN SNOW, RAIN, FOG, OR MIST.

B. PROTECT BUILDING TO BE REHABILITATED, ADJACENT BUILDINGS, WALKWAYS, SITE IMPROVEMENTS, EXTERIOR PLANTINGS, AND LANDSCAPING FROM DAMAGE OR SOILING FROM REHABILITATION OPERATIONS.

C. MAINTAIN ACCESS TO EXISTING WALKWAYS, CORRIDORS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES.

D. DAILY PROTECTION: COORDINATE INSTALLATION OF ROOFING SO INSULATION AND OTHER COMPONENTS OF ROOFING SYSTEM NOT PERMANENTLY EXPOSED ARE NOT SUBJECTED TO PRECIPITATION OR LEFT UNCOVERED AT THE END OF THE WORKDAY OR WHEN RAIN IS FORECAST.

E. OWNER WILL OCCUPY PORTIONS OF BUILDING IMMEDIATELY BELOW RE-COATING AREA. CONDUCT RECOATING SO OWNER'S OPERATIONS WILL NOT BE DISRUPTED. PROVIDE OWNER WITH NOT LESS THAN 72 HOURS' NOTICE OF ACTIVITIES THAT MAY AFFECT OWNER'S OPERATIONS.

1.10 WARRANTY

A. MANUFACTURER'S STANDARD WARRANTY FORM, COVERING WORK OF THIS SECTION [AND EXTENDED SYSTEM COMPONENTS INDICATED], IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF ROOFING SYSTEM THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN WARRANTY PERIOD.

1. WARRANTY PERIOD: 12 YEARS FROM DATE OF COMPLETION.

B. INSTALLER'S WARRANTY SIGNED BY INSTALLER, COVERING THE WORK OF THIS SECTION AND EXTENDED SYSTEM COMPONENTS INDICATED[, ON FORM ACCEPTABLE TO ROOFING MANUFACTURER AND OWNER] [, ON FORM INCLUDED IN PROJECT MANUAL].

1. WARRANTY PERIOD: 2 YEARS FROM DATE OF COMPLETION.

C. MANUFACTURER INSPECTION SERVICES: BY MANUFACTURER'S TECHNICAL REPRESENTATIVE, TO REPORT MAINTENANCE RESPONSIBILITIES TO OWNER NECESSARY FOR PRESERVATION OF OWNER'S WARRANTY RIGHTS. THE COST OF MANUFACTURER'S INSPECTIONS IS INCLUDED IN THE CONTRACT SUM.

1. INSPECTIONS TO OCCUR IN FOLLOWING YEARS: 2, 5 AND 10 FOLLOWING COMPLETION.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY A MANUFACTURER MEETING QUALIFICATION REQUIREMENTS IN QUALITY ASSURANCE ARTICLE.

B. BASIS-OF-DESIGN MANUFACTURER/PRODUCT: THE ROOF SYSTEM SPECIFIED IN THIS SECTION IS BASED UPON PRODUCTS OF TREMCO, INC., BEACHWOOD, OH, (800) 562-2728, WWW.TREMCOROOFFING.COM THAT ARE NAMED IN OTHER PART 2 ARTICLES. PROVIDE SPECIFIED PRODUCTS.

C. SOURCE LIMITATIONS: OBTAIN COMPONENTS FOR ROOFING SYSTEM FROM SAME MANUFACTURER AS MEMBRANE ROOFING OR MANUFACTURER APPROVED BY MEMBRANE ROOFING MANUFACTURER.

2.2 PERFORMANCE REQUIREMENTS

A. GENERAL: PROVIDE COATED METAL ROOFING SYSTEM THAT REMAINS WEATHERTIGHT; DOES NOT PERMIT THE PASSAGE OF WATER; AND RESISTS SPECIFIED UPLIFT PRESSURES, THERMALLY INDUCED MOVEMENT, AND EXPOSURE TO WEATHER WITHOUT FAILURE.

B. MATERIAL COMPATIBILITY: PROVIDE ROOFING MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER UNDER CONDITIONS OF SERVICE AND APPLICATION REQUIRED, AS DEMONSTRATED BY ROOFING MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.

C. ENERGY PERFORMANCE: PROVIDE ROOF COATING WITH INITIAL SOLAR REFLECTANCE INDEX NOT LESS THAN 39 WHEN CALCULATED ACCORDING TO ASTM E 1980, BASED UPON TESTING OF IDENTICAL PRODUCTS BY A QUALIFIED TESTING AGENCY.

2.3 MATERIALS, GENERAL

A. GENERAL: REHABILITATION MATERIALS RECOMMENDED BY ROOF COATING MANUFACTURER FOR INTENDED USE AND COMPATIBLE WITH COMPONENTS OF EXISTING METAL ROOFING SYSTEM.

2.4 METAL COATING MATERIALS

A. METAL REHABILITATION COATING:

1. ACRYLIC URETHANE PAINT: SINGLE-COMPONENT WATER-BASED DIRECT-TO-METAL, LOW-ODOR AND LOW- VOC.

A. BASIS OF DESIGN PRODUCT: TREMCO, SOLARGARD ACRYTHANE.

B. PENCIL HARDNESS, ASTM D 3363: 2B.

C. GLOSS AT 60 DEG, ASTM D 523: 40 TO 50 PERCENT.

D. SALT SPRAY RESISTANCE, ASTM B 117: GREATER THAN 800 HOURS.

E. ACCELERATED WEATHERING, ASTM D 4587: NOT LESS THAN 90 PERCENT GLOSS RETENTION.

F. CROSSHATCH ADHESION, ASTM D 3359: 5A.

G. IMPACT RESISTANCE, ASTM D 2794: 100 LB.

H. CONICAL FLEXIBILITY, ASTM D 522: 180 DEG ON 1/2-INCH MANDREL.

I. SOLIDS, BY WEIGHT, ASTM D 1644: 55 +/- 1 PERCENT.

J. SOLIDS, BY VOLUME, ASTM D 2697: 40 +/- 1 PERCENT.

K. MINIMUM THICKNESS: 6 WET MILS PER COAT; 2 COATS REQUIRED.

2. ACRYLIC ROOF COATING, HIGHLY-REFLECTIVE ELASTOMERIC: ASTM D 6083, APPLIED AS BASE COAT PLUS FINISH COAT OVER PREPARED AND PRIMED ROOF SURFACES.

A. BASIS OF DESIGN PRODUCT: TREMCO, SOLARGARD 6083 BASE AND TOP COAT.

B. SOLAR REFLECTANCE INDEX (SRI), WHITE, ASTM E 1980: 105 INITIAL; 100 AGED.

- C. VOLATILE ORGANIC COMPOUNDS (VOC), MAXIMUM, ASTM D 3960: 50 G/L.
- D. TENSILE STRENGTH AT 73 DEG. F (23 DEG. C), MINIMUM, ASTM D 2370: 250 PSI (1700 KPA).
- E. ELONGATION AT 73 DEG. F (23 DEG. C), MINIMUM, ASTM D 2370: 350 PERCENT.
- F. FLEXIBILITY AT -15 DEG F (-26 DEG C), ASTM D 522: PASS 1/2 INCH MANDREL AFTER 1000 HRS. ACCELERATED WEATHERING.
- G. SOLIDS BY WEIGHT, MINIMUM ASTM D 1644: 60 PERCENT.
- H. SOLIDS BY VOLUME, MINIMUM ASTM D 2697: 50 PERCENT.
- I. COLOR, TOP COAT: TO BE SELECTED BY OWNER.
- J. MINIMUM THICKNESS OVER METAL: 16 WET MILS EACH COAT FOR BASE AND FINISH COATS.
- K. MINIMUM THICKNESS OVER WEATHERED SINGLE PLY: 16 WET MILS EACH COAT FOR BASE AND FINISH COATS.
- L. MINIMUM THICKNESS OVER BUR AND MB: 24 WET MILS EACH COAT FOR BASE AND FINISH COATS.

B. METAL RUST PRIMER:

1. ACRYLIC CORROSION-RESISTANT PRIMER FORMULATED FOR USE WITH ACRYLIC EMULSION METAL COATINGS.

- A. BASIS OF DESIGN PRODUCT: TREMCO, SOLARGARD RUST PRIMER WB.
- B. VOLATILE ORGANIC COMPOUNDS (VOC), MAXIMUM, ASTM D 3960: 3 G/L.
- C. SOLIDS, BY WEIGHT: 50 PERCENT.
- D. APPLICATION: 8 TO 16 MILS WET.

2.5 AUXILIARY MATERIALS

A. GENERAL: AUXILIARY MATERIALS RECOMMENDED BY ROOFING SYSTEM MANUFACTURER FOR INTENDED USE AND COMPATIBLE WITH EXISTING ROOFING SYSTEM AND ROOFING COATING SYSTEM.

B. SEAM SEALER MASTIC: WATERPROOF SEAM AND FASTENER PATCHING MATERIAL.

1. ELASTOMERIC SEAM SEALER: WHITE, SINGLE-COMPONENT HIGH SOLIDS MOISTURE CURING ALIPHATIC POLYURETHANE SEALANT, LOW-VOC, FORMULATED FOR COMPATIBILITY AND USE WITH SPECIFIED ROOFING SUBSTRATES..

- A. BASIS OF DESIGN PRODUCT: TREMCO, SOLARGARD SEAM SEALER.
- B. VOLATILE ORGANIC COMPOUNDS (VOC), MAXIMUM, ASTM D 3960: 75 G/L.
- C. TENSILE STRENGTH, ASTM D 412: 270 PSI.
- D. TEAR STRENGTH, ASTM D 412: 35 PLI.
- E. ELONGATION, ASTM D 412: 700 PERCENT.

C. JOINT SEALANT: ELASTOMERIC JOINT SEALANT COMPATIBLE WITH APPLIED COATING, WITH MOVEMENT CAPABILITY APPROPRIATE FOR APPLICATION.

1. JOINT SEALANT, POLYURETHANE: ASTM C 920, TYPE S, GRADE NS, CLASS 50 SINGLE- COMPONENT MOISTURE CURING SEALANT, FORMULATED FOR COMPATIBILITY AND USE IN DYNAMIC AND STATIC JOINTS; PAINTABLE..

A. BASIS OF DESIGN PRODUCT: TREMCO, TREMSEAL PRO.

B. VOLATILE ORGANIC COMPOUNDS (VOC), MAXIMUM, ASTM D 3960: 40 G/L.

C. HARDNESS, SHORE A, ASTM C 661: 40.

D. ADHESION TO CONCRETE, ASTM C 794: 35 PLI.

E. TENSILE STRENGTH, ASTM D 412: 350 PSI.

F. COLOR: CLOSEST MATCH TO SUBSTRATE.

D. FASTENERS: FACTORY-COATED STEEL FASTENERS AND METAL OR PLASTIC PLATES MEETING CORROSION- RESISTANCE PROVISIONS IN FM 4470; DESIGNED FOR FASTENING METAL ROOFING COMPONENTS TO SUBSTRATE; TESTED BY FASTENER MANUFACTURER FOR REQUIRED PULLOUT STRENGTH; AND ACCEPTABLE TO ROOFING SYSTEM MANUFACTURER.

E. METAL FLASHING SHEET: PROVIDE METAL FLASHING SHEET MATCHING TYPE, THICKNESS, FINISH, AND PROFILE OF EXISTING METAL FLASHING AND TRIM.

PART 3 EXECUTION

3.1 EXISTING WARRANTIES

A. NOTIFY WARRANTOR OF EXTENT OF WORK. DO NOT PROCEED WITH WORK THAT WILL DIMINISH OWNER'S PROTECTION UNDER EXISTING WARRANTIES UNLESS DIRECTED BY OWNER.

3.2 EXAMINATION

A. EXAMINE EXISTING ROOFING SUBSTRATES, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS AND FOR OTHER CONDITIONS AFFECTING APPLICATION AND PERFORMANCE OF ROOF COATINGS

1. FOR THE RECORD, PREPARE WRITTEN REPORT, ENDORSED BY INSTALLER, LISTING CONDITIONS DETRIMENTAL TO PERFORMANCE.

2. VERIFY COMPATIBILITY WITH AND SUITABILITY OF SUBSTRATES.

3. VERIFY THAT SUBSTRATES ARE VISIBLY DRY AND FREE OF MOISTURE.

4. VERIFY THAT METAL ROOFING IS FREE OF RUST AFFECTING STRUCTURAL INTEGRITY OF ROOFING, OR OTHER INDICATIONS OF IMPENDING METAL ROOF SYSTEM FAILURE.

5. APPLICATION OF COATINGS INDICATES ACCEPTANCE OF SURFACES AND CONDITIONS.

3.3 PREPARATION

A. SHUT DOWN AIR INTAKE EQUIPMENT IN THE VICINITY OF THE WORK IN COORDINATION WITH THE OWNER. COVER AIR INTAKE LOUVERS BEFORE PROCEEDING WITH REHABILITATION WORK THAT COULD AFFECT INDOOR AIR QUALITY OR ACTIVATE SMOKE DETECTORS IN THE DUCTWORK.

1. VERIFY THAT ROOFTOP UTILITIES AND SERVICE PIPING AFFECTED BY THE WORK HAVE BEEN SHUT OFF BEFORE COMMENCING WORK.

B. MAINTAIN ROOF DRAINS IN FUNCTIONING CONDITION TO ENSURE ROOF DRAINAGE AT END OF EACH WORKDAY. PREVENT DEBRIS FROM ENTERING OR BLOCKING ROOF DRAINS AND CONDUCTORS.

DO NOT PERMIT WATER TO ENTER INTO OR UNDER EXISTING METAL ROOFING SYSTEM COMPONENTS THAT ARE TO REMAIN.

3.4 ROOFING COATING PREPARATION

A. METAL ROOFING SURFACE PREPARATION:

1. REMOVE RIDGES, BUCKLES, FAILED OR LOOSE ROOFING FASTENERS, AND OTHER SUBSTRATE IRREGULARITIES FROM EXISTING METAL ROOFING THAT WOULD INHIBIT APPLICATION OF UNIFORM, WEATHERTIGHT COATING.

2. REPAIR METAL ROOFING AT LOCATIONS WHERE IRREGULARITIES HAVE BEEN REMOVED.

3. PROVIDE REPLACEMENT FASTENERS WHERE REQUIRED.

4. PROVIDE ADDITIONAL FASTENERS WHERE REQUIRED TO MEET PERFORMANCE REQUIREMENTS.

5. CLEAN SUBSTRATE OF CONTAMINANTS SUCH AS DIRT, DEBRIS, OIL, AND GREASE THAT CAN AFFECT ADHESION OF COATING BY POWER WASHING AT MINIMUM 2000 PSI. REMOVE EXISTING COATINGS IF ANY. ALLOW TO DRY THOROUGHLY.

6. VERIFY THAT EXISTING SUBSTRATE IS DRY BEFORE PROCEEDING WITH APPLICATION OF COATING.

7. PERFORM ADHESION TESTING BEFORE PROCEEDING WITH APPLICATION OF COATING.

3.5 FLASHING REPAIR

A. DO NOT DAMAGE METAL COUNTERFLASHINGS THAT ARE TO REMAIN. REPLACE METAL COUNTERFLASHINGS DAMAGED DURING REMOVAL WITH COUNTERFLASHINGS OF SAME METAL, WEIGHT OR THICKNESS, AND FINISH.

B. REPAIR FLASHINGS, COPINGS, AND OTHER ROOF-RELATED SHEET METAL AND TRIM ELEMENTS. RESEAL JOINTS, REPLACE LOOSE OR MISSING FASTENERS, AND REPLACE COMPONENTS WHERE REQUIRED TO LEAVE IN A WATERTIGHT CONDITION.

3.6 ROOF COATING APPLICATION

A. PRIMER: SPOT PRIME CLEANED RUSTED OR BARE AREAS WITH METAL PRIMER AT MANUFACTURER'S RECOMMENDED APPLICATION RATE AND ALLOW TO DRY.

B. METAL ROOFING SEAM REINFORCEMENT PLIES: COAT HORIZONTAL AND VERTICAL SEAMS WITH DETAIL COURSE OF SEAM SEALER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. EMBED SEAM REINFORCEMENT FABRIC IN SEAM SEALER.

C. COATING: APPLY NUMBER OF COATS AND THICKNESS OF COATS INDICATED IN PART 2 PRODUCT LISTING AND AS REQUIRED IN MANUFACTURERS WRITTEN INSTRUCTIONS. [APPLY MINIMUM OF TWO COATS.]

D. JOINT SEALANT: APPLY JOINT SEALANT AT EXPOSED MOVEMENT JOINTS, TERMINATIONS, AND WHERE REQUIRED FOR COMPLETE WEATHERTIGHT APPLICATION.

3.7 PROTECTING AND CLEANING

- A. PROTECT ROOFING SYSTEM FROM DAMAGE AND WEAR DURING REMAINDER OF CONSTRUCTION PERIOD.**
- B. CORRECT DEFICIENCIES IN OR REMOVE COATING THAT DOES NOT COMPLY WITH REQUIREMENTS, REPAIR SUBSTRATES, AND REAPPLY COATING.**
- C. CLEAN OVERSPRAY AND SPILLAGE FROM ADJACENT CONSTRUCTION USING CLEANING AGENTS AND PROCEDURES RECOMMENDED BY MANUFACTURER OF AFFECTED CONSTRUCTION.**

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sheet Waterproofing:
 - 1. Plastic sheet membrane.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete: Concrete substrate.

1.03 REFERENCE STANDARDS

- A. ASTM D4551 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-Containment Membrane 2017.
- B. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials 2016.
- C. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover 2008a, with Editorial Revision (2013).
- D. NRCA (WM) - The NRCA Waterproofing Manual 2005.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for membrane.

1.05 QUALITY ASSURANCE

- A. Membrane Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 FIELD CONDITIONS

- A. Maintain ambient temperatures above 40 degrees F (5 degrees C) for 24 hours before and during application and until liquid or mastic accessories have cured.

1.07 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Contractor (TBD) shall correct defective Work within a five year period after Date of Substantial Completion; remove and replace materials concealing waterproofing at no extra cost to Owner .

PART 2 PRODUCTS

2.01 WATERPROOFING APPLICATIONS

- A. Plastic Sheet Membrane:
 - 1. Location: below slab foundation.

2.02 MEMBRANE MATERIALS

A. Plastic Sheet Membrane:

1. Type: Polyvinyl Chloride (PVC) complying with ASTM D4551.
2. Thickness: [] inch (15 mm), minimum.
3. Water Vapor Permeability: [.0183] perm inch ([] gm/Pa/s/m), measured in accordance with ASTM E96/E96M.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions are acceptable prior to starting this work.

3.02 PREPARATION

- A. Protect adjacent surfaces from damage not designated to receive waterproofing.
- B. Do not apply waterproofing to surfaces unacceptable to membrane manufacturer.

3.03 INSTALLATION - MEMBRANE

- A. Install membrane waterproofing in accordance with manufacturer's instructions and NRCA (WM) applicable requirements.
- B. Roll out membrane, and minimize wrinkles and bubbles.
- C. Overlap edges and ends, minimum 3 inches (76 mm), seal permanently waterproof by method recommended by manufacturer, and apply uniform bead of sealant to joint edge.
- D. Reinforce membrane with multiple thickness of membrane material over joints, whether joints are static or dynamic.
- E. Weather lap joints on sloped substrate in direction of drainage, and seal joints and seams.
- F. Flexible Flashings: Seal items watertight that penetrate through waterproofing membrane with flexible flashings.
- G. Seal membrane and flashings to adjoining surfaces.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Board insulation at perimeter foundation wall, underside of floor slabs, exterior wall behind various wall finish and at soffits as indicated.

1.02 RELATED REQUIREMENTS

- A. Section 07 25 00 - Weather Barriers: Separate air barrier and vapor retarder materials.

1.03 REFERENCE STANDARDS

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2017.
- B. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications 2013.
- C. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2018.
- D. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation 2014.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2018b.
- F. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials 2016.
- G. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components 2012.

1.04 SUBMITTALS

- A. See Division 1 for Submittal procedures
- B. Product Data: Provide data on product characteristics, performance criteria and product limitations.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

1.05 FIELD CONDITIONS

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation per manufacturers recommendations or common sense.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Thermal Insulation:
 - 1. R Tech Wall Type XIV Fire Rated Rigid Insulation.

2.02 APPLICATIONS

- A. Insulation Under Concrete Slabs: Extruded polystyrene board.
- B. Insulation at Perimeter of Foundation: Expanded polystyrene board.

- C. Insulation on Inside of Concrete and Masonry Exterior Walls: Mineral Fiber board and High Density EPS.

2.03 FOAM BOARD INSULATION MATERIALS

- A. Expanded Polystyrene (EPS) Board Insulation: ASTM C578, Type XIV; with the following characteristics:
1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
 2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
 3. Board Thickness: [2.5] inch ([] mm).
 4. Board Edges: Square.

2.04 FIBER BOARD INSULATION MATERIALS

- A. Mineral Fiber Board Insulation: Rigid or semi-rigid mineral fiber, ASTM C612 or ASTM C553; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
1. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
 2. Thermal Resistance: R-value (RSI-value) of 4.2 degrees F hr sq ft/Btu (0.74 K sq m/W) per inch at 25 degrees F ([] C), minimum, when tested according to ASTM C518.
 3. Maximum Density: 4 pounds per cubic foot ([] kg/cu m), nominal.

2.05 BATT INSULATION MATERIALS

2.06 ACCESSORIES

- A. Sheet Vapor Retarder: Specified in Section 07 25 00.
- B. Tape: Reinforced polyethylene film with acrylic pressure sensitive adhesive.
1. Application: Sealing of interior circular penetrations, such as pipes or cables.
 2. Width: Are required for application.
- C. Insulation Fasteners: Lengths of galvanized, 13 gage (0.072 inch) (1.83 mm) high carbon spring steel with chisel or mitered tips, held in place by tension, length to suit insulation thickness and substrate, capable of securely supporting insulation in place.
1. Friction fit products when possible. Use fasteners sparingly.
- D. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

- A. Install boards horizontally on foundation perimeter.
1. Place boards to maximize adhesive contact.

- 2. Install in running bond pattern.
- 3. Butt edges and ends tightly to adjacent boards and to protrusions.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.03 **BOARD INSTALLATION AT EXTERIOR WALLS**

- A. Install boards horizontally on walls.
 - 1. Butt edges and ends tightly to adjacent boards and to protrusions.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.04 **BOARD INSTALLATION UNDER CONCRETE SLABS**

- A. Place insulation under slabs on grade after base for slab has been compacted.
- B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
- C. Prevent insulation from being displaced or damaged while placing vapor retarder and placing slab.

3.05 **BATT INSTALLATION**

- A. Install insulation in accordance with manufacturer's instructions.
- B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

3.06 **PROTECTION**

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

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Vapor Retarders: Materials to make exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls and underslabs and ceilings water vapor resistant and air tight.
- B. Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, joints around frames of openings in exterior walls and allow the passage of water vapor to escape from within the building.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete:
- B. Section 07 21 00 - Thermal Insulation:
- C. Section 07 62 00 - Sheet Metal Flashing and Trim: Metal flashings installed in conjunction with weather barriers.
- D. Section 09 21 16 - Gypsum Board Assemblies:

1.03 DEFINITIONS

- A. Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.
- B. Air Barrier: Air tight barrier made of material that is relatively air impermeable but water vapor permeable, both to the degree specified, with sealed seams and with sealed joints to adjacent surfaces.
Note: For the purposes of this specification, vapor impermeable air barriers are classified as vapor retarders.

1.04 REFERENCE STANDARDS

- A. AATCC Test Method 127 - Water Resistance: Hydrostatic Pressure Test 2018.
- B. ASTM D4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications 2016.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2018b.
- D. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials 2016.
- E. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs 2017.
- F. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials 2013.
- G. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers 2016.
- H. ICC-ES AC148 - Acceptance Criteria for Flexible Flashing Materials 2017.
- I. ICC-ES AC212 - Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing 2015.

1.05 SUBMITTALS

- A. See Division 1 for Submittal procedures

- B. Product Data: Provide data on material characteristics and any deviations from basis of design products.
- C. Shop Drawings: Provide drawings of all joint conditions, typical and unique.
- D. Manufacturer's Installation Instructions: Indicate preparation and installation methods.

1.06 **FIELD CONDITIONS**

- A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 **WEATHER BARRIER ASSEMBLIES**

- A. Air Barrier:
 - 1. On outside surface of exterior walls use air barrier where indicated.

2.02 **AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)**

- A. Air Barrier Sheet, Self Adhered:
 - 1. Air Permeance: [0.00002] cubic feet per minute per square foot ([_____] L/s/sq m), maximum, when tested in accordance with ASTM E2178.
 - 2. Water Vapor Transmission: 52.57 US perms per ASTM E398
 - 3. Flame and Smoke: Class A per ASTM E84
 - 4. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for up to 180 days of weather exposure.
 - 5. Surface Burning Characteristics: Flame spread index of 25 or less, and smoke developed index of 50 or less, when tested in accordance with ASTM E84.
 - 6. Seam and Perimeter Tape: Of same material as barrier or made for use with specified barrier self adhering type, 2 inches (50 mm) wide, compatible with sheet material; unless otherwise specified.
 - 7. Manufacturers:
 - a. VaproShield, LLC; WrapShield SA: www.vaproshield.com.

2.03 **ACCESSORIES**

- A. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.
- B. Liquid Flashing: One part, fast curing, non-sag, elastomeric, gun grade, trowelable liquid flashing.
 - 1. Manufacturers:
 - a. VaproShield Liquiflash

PART 3 EXECUTION

3.01 **EXAMINATION**

- A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 **PREPARATION**

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.
- B. Clean and prime substrate surfaces to receive adhesives in accordance with manufacturer's instructions.

3.03 **INSTALLATION**

- A. Install materials in accordance with manufacturer's instructions.
- B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
- C. Openings and Penetrations:
 - 1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches (125 mm) onto weather barrier or exterior drainage plane and at least 6 inches (150 mm) up jambs; fasten stretched edges. Follow air barrier manufacturer recommendations for details at corners, jamb and sill.
 - 2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches (100 mm) wide; do not seal sill flange.
 - 3. At openings to be filled with non-flanged frames, seal weather barrier to all sides of opening framing, using flashing at least 9 inches (230 mm) wide, covering entire depth of framing.
 - 4. At head of openings, install flashing under weather barrier extending at least 4 inches ([] mm) beyond face of jambs; seal weather barrier to flashing.
 - 5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
 - 6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.04 **FIELD QUALITY CONTROL**

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.
- B. Take digital photographs of each portion of the installation prior to covering up including all penetrations in wall or ceiling.

3.05 **PROTECTION**

- A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Factory-assembled metal panel system for walls, with trim, related flashings and accessory components.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

- A. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference 2014.

1.04 PRE-INSTALLATION MEETING

- A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer documentation on tested structural, thermal and fire resistance capabilities of assembled panel.
- C. Shop Drawings: Indicate dimensions, panel profile and layout, spans, joints and construction details.
- D. Samples: Submit two samples of panel, 10x10 inch (____x____ mm) in size illustrating finish color, sheen, and texture.
- E. Design and Performance Data: Indicate panel profile and dimensions.
- F. Manufacturer's Installation Instructions: Indicate special handling criteria.
- G. Special Building Enclosure Warranty Documentation: Submit installer warranty and ensure that forms have been completed in Owner's name and registered with installer.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this Section with minimum 5 years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this Section with minimum 5 years experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.
- B. Store pre-finished material off ground with weather protection to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- C. Prevent contact with materials that could cause discoloration or staining.

1.08 WARRANTY

- A. Correct defective work within a twenty year period after Date of Substantial Completion for degradation of panel finish, including color fading caused by exposure to weather.

- B. Correct defective work within a 20 year period after Date of Substantial Completion, including defects in water tightness and integrity of seals for insulated metal wall panels.
- C. Special Building Enclosure Warranty: Provide 2 year warranty by installer of exterior cladding covering leaks that directly result from defective materials or workmanship supplied or performed by installer of exterior insulated metal wall panels.
 - 1. When exterior walls develop such leaks during warranty period, installer to provide necessary materials and labor to repair effected areas and restore watertight conditions.
 - 2. Provisions for access to effected area and removal of necessary materials is included in warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: [_____].
- B. Insulated Metal Wall Panels:
 - 1. Kingspan Insulated Panels; KS Series Wall Panel, with Profile Azteco: www.kingspan.com/#sle.

2.02 PANEL SYSTEM

- A. Metal Panel System: Factory-assembled metal panel system, with trim, related flashings and accessory components.
 - 1. Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
 - 2. Accommodate tolerances of building structural framing.
- B. Performance Requirements:
 - 1. Thermal Performance: Provide thermal resistance through entire system; R-value (RSI-value) of 20 deg F hr sq ft/Btu ([_____] K sq m/W), minimum.
 - 2. Structural Performance: Design and size to withstand all dead loads and wind loads caused by positive and negative wind pressure acting normal to plane of panel.
 - a. Verify structural performance in accordance with ASTM E330/E330M, using test pressure 1.5 times design wind pressure, with 10 seconds duration of maximum load.
 - 3. Movement: Accommodate the movement caused by the following without damage to system, components, or deterioration of seals:
 - a. Normal movement between system components.
 - b. Seasonal temperature cycling.
 - c. Deflection of structural support framing,

2.03 PANELS AND TRIM

- A. Wall Panels: Exterior and interior metal sheet skin, factory-assembled, with foamed in place insulation; exterior and interior sheet interlocking at edges, with (2) continuous butyl sealant joints.
 - 1. Panel Width: 42 inch ([_____] mm).

2. Profile: Azteco; horizontal panels.
3. Panel Thickness: [2.5] inch ([] mm).
4. Exterior Sheet: Pre-finished galvanized steel, 22 gage, 0.0299 inch (0.76 mm) minimum base metal thickness; stucco embossed.
5. Interior Sheet: Galvanized steel, pre-finished, 26 gage, [] inch ([] mm) minimum base metal thickness.
6. Exterior Finish: Polyvinylidene fluoride (PVDF) coating; Full Range to be selected by Architect color.
7. Interior Finish: Polyvinylidene fluoride (PVDF) coating; Standard color to be selected by Architect color.

2.04 **PANEL MATERIALS**

- A. Foamed-in-Place Insulation: Urethane type.

2.05 **ACCESSORIES**

- A. Concealed Sealants: Non-curing butyl sealant or tape sealant.
- B. Fasteners: Manufacturer's standard type to suit application; stainless steel with soft neoprene washers. Fastener cap same color as exterior panel.

PART 3 EXECUTION

3.01 **EXAMINATION**

- A. Verify that structural framing is ready to receive panel system.

3.02 **INSTALLATION**

- A. Install panel system on walls and soffits in accordance with manufacturer's instructions.
- B. Permanently fasten panel system to structural supports; aligned, level, and plumb, within specified tolerances.
- C. Locate panel joints over supports.
- D. Use concealed fasteners unless otherwise approved by Architect .
- E. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.03 **TOLERANCES**

- A. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch (1.6 mm).

3.04 **CLEANING**

- A. Remove site cuttings from finish surfaces.
- B. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Board siding for wall exterior.
- B. Trim, flashings, accessories, and fastenings.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 - Rough Carpentry:
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: Product requirements for metal flashings and trim associated with wood siding for placement by this section.
- C. Section 09 91 13 - Exterior Painting: Prime and finish painting.

1.03 REFERENCE STANDARDS

- A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2014.
- B. Architectural Woodwork Institute: Standards for installation of Architectural paneling.
- C. NHLA National Hardwood Lumber Association Grading Rules
- D. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17 2015.
- E. WWPA G-5 - Western Lumber Grading Rules 2017.

1.04 SUBMITTALS

- A. See Division 1 for submittal procedures.
- B. Product Data: Provide data indicating materials, component profiles, fastening methods, jointing details, sizes, surface texture, finishes and accessories.
- C. Samples: Submit two samples 12 by 12 inch (305 by 305 mm) in size illustrating surface texture.
- D. Samples: Submit two samples 12 by 12 inch (305 by 305 mm) in size to applicator of finish paint for use in preparation of finish samples.
- E. Submit a mockup sample of a 2 board sample with edge trim mounted to a backer.
- F. Submit one sample of end-to-end lapped miter joint.
- G. Shop Drawings: Submit shop drawing layout of typical panel area.
 - 1. Include no more than 15% horizontal end-to-end joints in any panel.
 - 2. No more than one end joint in any horizontal board run (trim to trim).

1.05 QUALITY ASSURANCE

- A. Grade lumber in accordance with the following: NHLA Grading Rules

1.06 WARRANTY

- A. 25 Year Manufacturer's warranty on product.

- B. 5 year installation warranty.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store in ventilated areas with constant minimum temperature of 60 degrees F (16 degrees C) and maximum relative humidity of 55 percent.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Wood Siding:
 - 1. Iron Woods: Ipe Decking. ironwoods.com

2.02 SIDING

- A. Board Siding: Hardwood Species: Ipe
 - 1. Wood Common Name: Ipe
 - 2. Wood Scientific Name: Hymenaea Courbaril
 - 3. Size: 1x6 nominal (3/4"x 5 1/2")
 - 4. Stick Length: 10' overall lengths to minimize off-cutts
 - 5. Surface Texture: S4S
 - 6. Face Surface: 100% Clear.
 - 7. Orientation and Profile: Refer to Drawings.
 - 8. Finish: Refer to division 9.

2.03 ACCESSORIES

- A. Stainless steel 316 alloy , self tapping, tamper resistant, flat head fasteners with color coated heads.
 - 1. Color to be selected by Architect from manufacturer's full range.
 - 2. Basis of Design: Headcote Stainless Trim Head marine Grade 316
- B. Edge Trims: See drawings for profiles and products.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrates are ready to receive work.
- B. Verify that water-resistive barrier has been installed over substrate completely and correctly.
- C. Do not begin until unacceptable conditions have been corrected.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 INSTALLATION

- A. Install siding in accordance with manufacturer's instructions.
- B. Fasten siding in place, level and plumb.

1. Arrange for orderly fastening pattern. Refer to drawings for typical fastener pattern and spacing..
 2. Predrill holes prior to installing fasteners to avoid splitting.
 3. Screw heads to be countersunk and flush with surface of siding. Do not overdrive screws.
 4. Install siding for natural shed of water.
 5. Position cut ends over bearing surfaces. Sand cut edges smooth and clean.
- C. Prepare for site finishing specified in Section 09 91 13.
- D. Protect wood from damage by other trades or harsh weather until final finishing has been completed.
- E. Coordinate with div 09 for backpriming of boards as indicated.

3.03 **TOLERANCES**

- A. Maximum Variation From Plumb and Level: 1/4 inch per 10 feet (6 mm/3 m).
- B. Maximum Offset From Joint Alignment: 1/16 inch (1.5 mm).

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including flashings, counterflashings and roofing fascia.
- B. Sealants for joints within sheet metal fabrications.

1.02 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2018.
- B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- D. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.

1.04 SUBMITTALS

- A. See Division 1 for Submittal procedures
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Samples: Submit two samples, 6x6 inch (____by____ mm) in size illustrating material of typical external corner, junction to vertical dissimilar surface and Roof fascia profile.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

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

PART 2 PRODUCTS

2.01 SHEET MATERIALS

- A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch (0.61 mm) thick base metal, shop pre-coated with PVDF coating.
 - 1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, Pearlescent, thermally cured fluoropolymer finish system.

2. Color: TBD by Owner/Architect from full range of manufacturer colors.
 3. Location: Sheet metal profiled roof fascia.
- B. Stainless Steel: ASTM A666, Type 316 alloy, soft temper, 28 gage, (0.0156 inch) (0.40 mm) thick; smooth No. 4 - Brushed finish.

2.02 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Hem exposed edges on underside 1/2 inch (13 mm); miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 18 inch (450 mm) long legs; seam for rigidity, seal with sealant.
- F. Fabricate flashings to allow toe to extend 2 inches (50 mm) over roofing gravel. Return and brake edges.

2.03 ACCESSORIES

- A. Fasteners: Stainless steel, with soft neoprene washers.
- B. Primer: Zinc chromate type.
- C. Concealed Sealants: Non-curing butyl sealant.
- D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
- E. Plastic Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil (0.4 mm).

3.03 INSTALLATION

- A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- B. Apply plastic cement compound between metal flashings and felt flashings.
- C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sealants and joint backing.

1.02 RELATED REQUIREMENTS

- A. Section 07 25 00 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders:
- B. Section 09 21 16 - Gypsum Board Assemblies: Acoustic sealant.

1.03 REFERENCE STANDARDS

- A. ASTM C834 - Standard Specification for Latex Sealants 2017.
- B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications 2012 (Reapproved 2017).
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.
- E. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber 2014.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with other sections referencing this section.

1.05 SUBMITTALS

- A. See Division 1 for Submittals Procedures
- B. Product Data: Provide data indicating sealant chemical characteristics.
- C. Manufacturer's Installation Instructions: Indicate special procedures.

1.06 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Non-Sag Sealants: For use in joints on vertical and horizontal surfaces without sagging or slumping.:
 - 1. Dow Corning Corporation: www.dowcorning.com.
 - 2. Sika Corporation: www.usa-sika.com.

2.02 SEALANTS

- A. Color: sealant color to be selected by Architect by manufacturer's full range.
- B. General Purpose Exterior Sealant: Silicone, ASTM C920, Grade NS, Class 50, Uses A, G, M, and O, single component
 - 1. Basis of Design Product: 795 by Dow Corning

- C. General Purpose Interior Sealant: Silicone; ASTM C920, Grade NS, Uses NT, A, G, M, O, single component, non-sagging, non-staining, fungus resistant, non-bleeding.
 - 1. Basis of Design Product: 790 Building Sealant by Dow Corning
- D. Interior Vandal Resistant Areas: Areas with reach of children or the general public where picking of sealants could be expected including but not limited to doors and windows. Product should meet the following characteristics:
 - 1. Color: Match adjacent finished surfaces as selected by Architect.
 - 2. Hardness: Shore A Scale = 50 points
 - 3. Ultimate Tensile Strength at maximum elongation: 600 psi
 - 4. Peel Strength: ASTM 7964 = 31-43 psi
 - a. Stain and Color ASTM C510 : Pass
 - 5. Movement Capabilities:
 - 6. Basis of Design Product: Sonneborne Ultra
- E. Acoustical Sealant for Concealed Locations:
 - 1. Applications: Use for concealed locations only:
 - a. Sealant bead between top stud and structure and between bottom stud and floor.
 - b. Sealant bead at top and bottom of gwb walls indicated as acoustic.
 - 2. Products:
 - a. Tremco Global Sealants; [____]: www.tremcosealants.com.

2.03 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Backing: Round foam rod compatible with sealant; surface that sealant will not adhere to and recommended for that specific location; oversized 30 to 50 percent larger than joint width.
- C. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.
- H. Immediately clean any excess from adjacent surfaces.

3.04 CLEANING

- A. Clean adjacent soiled surfaces at end of workday.

3.05 PROTECTION

- A. Protect sealants until cured.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Insulated hollow metal doors and frames.

1.02 RELATED REQUIREMENTS

- A. Section 08 71 00 - Door Hardware.
- B. Section 09 91 13 - Exterior Painting:
- C. Section 09 91 23 - Interior Painting:

1.03 ABBREVIATIONS AND ACRONYMS

- A. HMMA - Hollow Metal Manufacturers Association.
- B. NAAMM - National Association of Architectural Metal Manufacturers.
- C. SDI - Steel Door Institute.
- D. UL - Underwriters Laboratories.

1.04 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2011.
- C. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames 2003 (R2009).
- D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2017.
- E. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2018b.
- G. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames 2016.
- H. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames 2007.
- I. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames 2014.

1.05 SUBMITTALS

- A. See Division 1 for Submittal procedures
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
- D. Samples: Submit two samples of metal, 2 inch by 2 inch in size (50 mm by 50 mm in size) showing factory finishes, colors, and surface texture.
- E. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.
- F. Manufacturer's Qualification Statement.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide hollow metal doors and frames from SDI Certified manufacturer: www.steeldoor.org/sdicertified.php.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Insulated Hollow Metal Doors and Frames:
 - 1. Ceco Door, an Assa Abloy Group company; Heavy Duty Galvanized : www.assaabloydss.com.
 - 2. Curries Heavy Duty Galvanized
 - 3. Steelcraft, an Allegion brand; Heavy Duty Galvanized : www.allegion.com/#sle.
- B. Stainless Steel Frames:
 - 1. Ceco Door, an Assa Abloy Group company; 316 alloy, heavy duty: www.assaabloydss.com.
 - 2. Curries, an Assa Abloy Group company; 316 Alloy Heavy duty: www.assaabloydss.com.
 - 3. Next Door Company; Stainless Steel Door and Frame, Type 316 alloy heavy duty: www.nextdoorco.com/#sle.

2.02 DESIGN CRITERIA

- A. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 INSULATED HOLLOW METAL DOORS

- A. Door Finish: Galvanized and Shop or Field painter per 09 90 00.
- B. Exterior and Interior Doors: Thermally insulated.
 - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 2 - Heavy-duty.
 - b. Physical Performance Level B 500 000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Model 1 - Full Flush.
 - d. Door Face Metal Thickness: 18 gage, 0.042 inch (1.0 mm), minimum.
 - 2. Door Core Material: Polyurethane, 1.8 lbs/cu ft minimum density.
 - 3. Door Thickness: 1-3/4 inch (44.5 mm), nominal.
 - 4. Top Closures for Outswinging Doors: Flush with top of faces and edges.
 - 5. Door Face Sheets: Flush. 14 gauge type 316 stainless steel.

2.04 **HOLLOW METAL FRAMES**

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Frame Finish: Stainless Steel alloy 316.
- C. Door Frames: Full profile/continuously welded type.
 - 1. Frame Metal Thickness: 12 gage, 0.093 inch (2.36 mm), minimum.
 - 2. Thermally Broken Frame at Exterior Doors

2.05 **ACCESSORIES**

- A. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- B. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.
- C. Spray foam insulation for exterior frames.

PART 3 EXECUTION

3.01 **EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 **INSTALLATION**

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Coordinate frame anchor placement with wall construction.
- C. Protect door and frame finishes during installation.

D. Install door hardware as specified in Section 08 71 00.

1. Comply with recommended practice for hardware placement of doors and frames in accordance with ANSI/SDI A250.6 or NAAMM HMMA 861.

E. Touch up damaged factory finishes. Replace doors that have visible damage.

3.03 **TOLERANCES**

- A. Maximum Diagonal Distortion: 1/16 inch (1.6 mm) measured with straight edge, corner to corner.

3.04 **ADJUSTING**

- A. Adjust for smooth and balanced door movement.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for Insulated Hollow Metal doors.
- B. Thresholds.
- C. Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS

- A. Section 08 11 13 - Hollow Metal Doors and Frames.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. BHMA (CPD) - Certified Products Directory 2017.
- C. BHMA A156.1 - American National Standard for Butts and Hinges 2016.
- D. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches 2017.
- E. BHMA A156.5 - American National Standard for Cylinders and Input Devices for Locks 2014.
- F. BHMA A156.21 - American National Standard for Thresholds 2014.
- G. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association 2017.
- H. BHMA A156.36 - American National Standard for Auxiliary Locks 2016.
- I. ITS (DIR) - Directory of Listed Products current edition.
- J. UL (DIR) - Online Certifications Directory Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.05 SUBMITTALS

- A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- B. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
 - 1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
 - 2. Provide complete description for each door listed.
- C. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

- D. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.
- C. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC) to assist in work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.
- C. Provide door hardware products that comply with the following requirements:
 - 1. Applicable provisions of federal, state and local codes.
 - 2. Hardware on Fire-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), testing firm acceptable to authorities having jurisdiction or [_____] as suitable for application indicated.

2.02 HINGES

- A. Hinges: Comply with BHMA A156.1, Grade 1.
 - 1. Provide hinges on every swinging door.
 - 2. Provide non-removable pins on exterior outswinging doors.
 - 3. Provide following quantity of butt hinges for each door:
 - a. Doors From 60 inches (1.5 m) High up to 90 inches (2.3 m) High: Three hinges.

2.03 CYLINDRICAL LOCKS

- A. Cylindrical Locks (Bored): Comply with BHMA A156.2, Grade 1, 4000 Series.
 - 1. Basis of Design: Stanley QCL200
 - 2. Bored Hole: 2-1/8 inch (54 mm) diameter.
 - 3. Latchbolt Throw: 1/2 inch (12.7 mm), minimum.
 - 4. Backset: 2-3/4 inch (70 mm) unless otherwise indicated.

5. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
 - a. Finish: To match lock or latch.
6. Provide a lock for each door, unless otherwise indicated that lock is not required.
7. Trim: Provide lever handle or pull trim on outside of each lock, unless otherwise indicated.

2.04 AUXILIARY LOCKS (DEADLOCKS)

- A. Auxiliary Locks (Deadlocks): Comply with BHMA A156.36, Grade 1.

2.05 THRESHOLDS

- A. Thresholds: Comply with BHMA A156.21.
 1. Provide threshold at each exterior door, unless otherwise indicated.
 2. Type: Flat surface.
 3. Material: Aluminum.
 4. Threshold Surface: Fluted horizontal grooves across full width.
 5. Field cut threshold to profile of frame and width of door sill for tight fit.
 6. Provide non-corroding fasteners at exterior locations.

2.06 WEATHERSTRIPPING AND GASKETING

- A. Weatherstripping and Gasketing: Comply with BHMA A156.22.
 1. Head and Jamb Type: Adjustable.
 2. Door Sweep Type: Encased in retainer.
 3. Material: Aluminum, with brush weatherstripping.

2.07 FINISHES

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
- D. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.03 ADJUSTING

- A. Adjust work under provisions of Section 01 70 00 - Execution and Closeout Requirements.
- B. Adjust hardware for smooth operation.
- C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.04 **CLEANING**

- A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.
- B. Clean adjacent surfaces soiled by hardware installation.

3.05 **PROTECTION**

- A. Protect finished Work under provisions of Section 01 70 00 - Execution and Closeout Requirements.
- B. Do not permit adjacent work to damage hardware or finish.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Acoustic insulation.
- B. Gypsum sheathing.
- C. Cementitious backing board.
- D. Gypsum wallboard for walls and ceilings.
- E. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 21 00 - Thermal Insulation: Acoustic insulation.
- B. Section 07 92 00 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.
- C. Section 09 22 16 - Non-Structural Metal Framing.

1.03 REFERENCE STANDARDS

- A. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units 2010 (Reaffirmed 2016).
- B. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board 2015.
- C. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board 2018b.
- D. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base 2014a.
- E. ASTM C1280 - Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing 2018.
- F. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels 2018.
- G. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2016.
- H. GA-216 - Application and Finishing of Gypsum Panel Products 2016.

1.04 SUBMITTALS

- A. See Division 1 for submittal procedures.
- B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.
- C. Product Data: Provide data on metal framing, gypsum board, accessories and joint finishing system.
- D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing gypsum board installation and finishing, with minimum 5 years of experience.
- B. Copies of Documents at Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.

2.02 METAL FRAMING MATERIALS

- A. See specification section 09 22 16

2.03 BOARD MATERIALS

- A. Gypsum wallboard: Glass-Mat faced gypsum panels.
 - 1. Glass mat faced gypsum panels as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - a. Mold resistant board is required at all locations.
 - b. Use type 'X' board at all locations.
- B. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
 - 1. Application: Exterior sheathing, unless otherwise indicated.
 - 2. Edges: Square.

2.04 ACCESSORIES

- A. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
- B. Water-Resistive Barrier: As specified in Section 07 25 00.
- C. Finishing Accessories Concealed by mud: ASTM C1047, galvanized steel, unless noted otherwise.
- D. Exposed Trims
 - 1. Manufacturer: Fry Reglet Basis of Design
 - 2. Profile Types: As shown in drawings or required for finished appearance if not shown.
 - a. Corner Profile: Fry Reglet DMCT-1250 Aluminum corner guard with mud-in flanges.
- E. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
 - 1. Tape: 2 inch (50 mm) wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
 - 2. Chemical hardening type compound.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 - 1. Place one bead continuously on substrate before installation of perimeter framing members.
 - 2. Place continuous bead at perimeter of walls.
 - 3. Seal around all penetrations by conduit, pipe, ducts and rough-in boxes, except where firestopping is provided.

3.03 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
 - 1. Paper-Faced Sheathing: Immediately after installation, protect from weather by application of water-resistive barrier.
- C. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

3.04 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
- B. Corner Beads: Install at external corners, using longest practical lengths.

3.05 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, bedded and finished with chemical hardening type joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 2. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
 - 3. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

3.06 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints, stains and varnishes.
- C. Scope: Finish exterior surfaces exposed or semi exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Structural Steel.
 - 2. Misc Steel
 - 3. Metal Doors
 - 4. Existing Metal Fascia
 - 5. Hardwood Siding.
 - 6. Softwood Siding.
 - 7. Exposed surfaces of steel lintels and ledge angles.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, zinc, and lead.
 - 6. Floors, unless specifically indicated.
 - 7. Glass.

1.02 RELATED REQUIREMENTS

- A. Section 05 12 00 - Structural Steel- Architecturally Exposed Structural Steel (AESS)
- B. Section 05 50 00 - Metal Fabrications: Shop-primed items.
- C. Section 09 91 23 - Interior Painting.
- D. Section 09 97 23 Concrete and Masonry Coatings - Floor sealer.

1.03 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications 2016.

- B. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association Current Edition.
- C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.
- D. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).
- E. SSPC-SP 2 - Hand Tool Cleaning 2018.

1.05 **SUBMITTALS**

- A. See Division 1 for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
 - 4. Manufacturer's installation instructions.
 - 5. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed and side by side comparison to specified basis-of-design product.
- C. 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. Sample draw down application method to match field application method: ie roller applied draw down for roller applied paint in the field, spray applied draw down for spray applied paint in the field.
 - 3. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.
 - 4. Allow 21 for approval process, after receipt of complete samples by Architect.
- D. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
- E. Manufacturer's Instructions: Indicate special surface preparation procedures.
- F. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, 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.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.

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

1.06 **QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

1.07 **DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.08 **FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer or when precipitation is expected within the cure time necessary.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 **MANUFACTURERS**

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 1. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
- C. Transparent Finishes:
 1. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
- D. Primer Sealers: Bare Steel: Kem Bond HS Universal Alkyd Primer.
- E. Primer Sealers: Other Locations: Extremem Bond Primer

2.02 **PAINTS AND FINISHES - GENERAL**

- A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
 1. Where MPI paint numbers are and basis of design products are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com,

for specified MPI categories , and provide side by side comparison to specified basis of design product. Not all products within the MPI category will be considered equal.

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 complete entire project's work from a single production run.
 5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- C. Colors: To be selected from manufacturer's full range of available colors.
1. Final selection of color match to be made by 1731 after award of contract.

2.03 PAINT SYSTEMS - EXTERIOR

- A. General:
1. At least two topcoats over specified or recommended primer unless indicated otherwise.
 2. If sheen is not indicated, provide semi gloss subject to architect verification.
 3. Color: As indicated and approved by Architect through sample submittal.
- B. Exterior Metal - Topcoats: Pro Industrial Water Base Alkyd Urethane. Semi gloss. Color TBD by Owner from Full Range unless noted otherwise.
1. Exposed Structural Steel- New:
 - a. Primer/Prep for Galvanized Steel: Wash primer, clean and etch, SW Procryl Universal Primer.
 - b. Topcoats: Water Base Alkyd Urethane-.Basis of Design:SW Acrolon 100
 2. Exposed Structural Steel- Existing to be repainted:
 - a. Primer/Prep: Hand tool clean per SSPC-SP2
 - b. Topcoats:Water Base Alkyd Urethane-.Basis of Design:SW Acrolon 100
 3. Insulated Hollow Metal Doors - New
 - a. Primer/Prep for Galvanized Steel: Wash primer, clean and etch, SW Procryl Universal Primer
 - b. Topcoats:Water Base Alkyd Urethane-.Basis of Design:SW Acrolon 100
 4. Insulated Hollow Metal Doors - existing to be repainted.
 - a. Primer/Prep: Clean and etch, Basis of Design : SW Extreeme Bond Primer
 - b. Topcoats:Water Base Alkyd Urethane-.Basis of Design:SW Acrolon 100

5. Metal Trims and Misc Steel not pre-finished:
 - a. Primer/Prep: Basis of Design: SW Procril Universal Primer
 - b. Topcoats: Water Base Alkyd Urethane-.Basis of Design:SW Acrolon 100
 6. Prefinished Metal Trims and Fascias- existing to be repainted:
 - a. Primer/Prep: SSPC SP-2
 - b. Topcoats: Basis of Design: SW Bond Plex
 - c. Note: This coating may be used for misc steel and adjacent CMU block to be repainted nearby existing fascia designated to be repainted.
- C. Exterior Wood
1. Hardwood Siding- Basis of Design: Penofin Architectural Grade TMF Hardwood
 - a. Clean wood prior to product application per manufacturer's recommendations.
 - b. One coats min pre applied on all faces.
 - c. Two coat min on exposed faces.
 2. Softwood Panel Ceiling- If not supplied factory finished- Basis of Design:SuperDeck Exterior Waterborne Semi-Transparent Stain.
 - a. Two coats min for exposed faces.
 - b. One coat min concealed faces.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Provide adhesion tests for application to existing surfaces.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.

- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Galvanized Surfaces:
 - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
- H. Exterior Wood to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied. Prime concealed surfaces.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- C. Apply each coat to uniform appearance.
- D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints, stains and varnishes.
- C. Scope: Finish interior surfaces of doors, unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, and lead items.
 - 6. Marble, granite, slate, and other natural stones.
 - 7. Floors, unless specifically indicated.
 - 8. Glass.
 - 9. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

- A. Section 09 91 13 - Exterior Painting.

1.03 REFERENCE STANDARDS

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications 2016.
- B. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association Current Edition.
- C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.
- D. SSPC V1 (PM1) - Good Painting Practice: Painting Manual, Volume 1 2016.
- E. SSPC-SP 2 - Hand Tool Cleaning 2018.
- F. SSPC-SP 3 - Power Tool Cleaning 1982, with Editorial Revision (2004).

1.04 SUBMITTALS

- A. See division 1 for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").

2. MPI product number (e.g. MPI #47).
3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- C. Samples: Submit two 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 that sheen and one sheen higher gloss.
 2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.
- D. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
- E. Manufacturer's Instructions: Indicate special surface preparation procedures.
- F. Maintenance Data: Submit data including product technical data sheets, care and cleaning instructions, touch-up procedures and repair of painted and finished surfaces.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
 3. Label each container with color in addition to the manufacturer's label.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum two years experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F (3 degrees C) above the dew point; or to damp or wet surfaces.

- D. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Sherwin-Williams Company: www.sherwin-williams.com/#sle.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. 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.
 - 3. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 4. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Flammability: Comply with applicable code for surface burning characteristics.
- C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- D. Colors: As Indicated or to be selected by Architect to match sample provided by Architect.

2.03 PAINT SYSTEMS - INTERIOR

- A. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
 - 1. Two top coats and one coat primer.
 - 2. Top Coat(s): Interior Epoxy-Modified Latex; MPI #115 or 215.
 - a. Products:
 - 1) Sherwin-Williams Waterbased Catalyzed Epoxy, Semi-Gloss.
- B. Interior Paint System Medium Duty Vertical and Overhead: Including gypsum board and shop primed steel.
 - 1. Two top coats and one coat primer.
 - 2. Top Coat(s): Interior Light Industrial Coating, Water Based; MPI #153.
 - a. Products:

- 1) Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, Semi-Gloss. (MPI #153)

2.04 PRIMERS

- A. Primers: Provide primer as required or recommended by manufacturer of top coats unless indicated otherwise.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 1. Gypsum Wallboard: 12 percent.
 2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. 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.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- B. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- E. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- F. Sand wood and metal surfaces lightly between coats to achieve required finish.
- G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 **CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 **PROTECTION**

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Building and Exterior Entrance mounted identification signs.

1.02 RELATED REQUIREMENTS

- A. Section 26 51 00 - Interior Lighting: Exit signs required by code.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS

- A. See Division 1 for Submittal Procedures.
- B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, materials, font, foreground and background colors, locations, overall dimensions of each sign.
- C. Shop Drawings: Include plans, elevations, show mounting methods, mounting heights, layout, accessories, and installation details.
- D. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including text, sign and letter sizes, fonts, and colors.
 - 1. Submit for approval by Dept. prior to fabrication.
- E. Samples: Submit two samples of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment.
- F. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
- G. Manufacturer's Installation Instructions: Include installation templates, support requirements and attachment devices.
- H. Maintenance Data: For signage cleaning and maintenance requirements to include in maintenance manuals.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package signs as required to prevent damage before installation.

PART 2 PRODUCTS

2.01 SIGNAGE APPLICATIONS

- A. Building Identification Signs:
 - 1. 2'x11'x1/2" CNC Cut lettering Cast Aluminum Sheet.

2.02 ACCESSORIES

- A. Exposed Screws: Stainless steel.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.
- C. Locate signs where indicated:
 - 1. If no location is indicated obtain Owner's instructions.
- D. Protect from damage until Substantial Completion; repair or replace damaged items.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Accessories.
- D. Key box.

1.02 REFERENCE STANDARDS

- A. FM (AG) - FM Approval Guide current edition.
- B. NFPA 10 - Standard for Portable Fire Extinguishers 2017.
- C. UL (DIR) - Online Certifications Directory Current Edition.

1.03 SUBMITTALS

- A. See Division 1 for submittal procedures.
- B. Shop Drawings: Indicate cabinet physical dimensions, rough-in measurements for recessed cabinets, wall bracket mounted measurements and location.
- C. Product Data: Provide extinguisher operational features, color and finish and anchorage details.
- D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.
- E. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.04 FIELD CONDITIONS

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.01 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
 - 1. Provide extinguishers labeled by UL (DIR) or FM (AG) for purpose specified and as indicated.

2.02 FIRE EXTINGUISHER CABINETS (FEC)

- A. Basis of Design Manufacturer: Larsens Manufacturing Company
 - 1. Product: Architectural Series Fire Extinguisher Cabinets
 - a. Aluminum
 - b. Vertical Duo
 - c. Square profile
- B. Metal: Formed aluminum; [0.036] inch ([_____] mm) thick.

- C. Cabinet Configuration: Semi-recessed type.
 - 1. Size to accommodate extinguisher and accessories.
 - 2. Projected Trim: Returned to wall surface, with [1 1/4] inch ([____] mm) projection, and 1 inch ([____] mm) wide face.
- D. Door: 0.036 inch (0.9 mm) metal thickness, reinforced for flatness and rigidity with nylon catch. Hinge doors for 180 degree opening with two butt hinge.
- E. Door Style: Solid
- F. Door Trim: 1/4" Flat Trim
- G. Door Glazing: Acrylic plastic, clear, 1/8 inch (3 mm) thick, flat shape and set in resilient channel glazing gasket.
- H. Cabinet Mounting Hardware: Appropriate to cabinet, with pre-drilled holes for placement of anchors.
- I. Weld, fill, and grind components smooth.
- J. Finish of Cabinet Exterior Trim and Door: Aluminum Clear Anodized.
- K. Lettering Style: Type A
- L. Lettering: White.
- M. Finish of Cabinet Interior: Aluminum.

2.03 ACCESSORIES

- A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Secure rigidly in place.
- C. Place extinguishers in cabinets.

END OF SECTION