SECTION 000101
PROJECT TITLE PAGE

PROJECT MANUAL

FOR
ALTERATION TO
SEA Community Help Resource and Cultural Center
6284 ARMSTRONG ROAD
ELKTON, FLORIDA 32033

ARCHITECT'S PROJECT NUMBER: 2303

OWNER:
SEA COMMUNITY HELP RESOURCE CENTER
PREPARED BY:
OPEN CITY ARCHITECTURE, LLC

END OF SECTION

SECTION 000102
PROJECT INFORMATION

PART 1 GENERAL

1.01 PROJECT IDENTIFICATION

A. Project Name: SEA Community Help Resource and Cultural Center
   6284 Armstrong Rd
   Elkton, Florida 32033

B. Architect's Project Number: 2303

C. The Owner, hereinafter referred to as Owner: SEA Community Help Resource

D. Owner's Project Manager: Malina Peeples
   1. Executive Director
   2. 6408 Armstrong Rd
   3. Elkton, FL 32033
   4. 904.629.2307
   5. seacommunity@yahoo.com

1.02 PROJECT DESCRIPTION

A. Summary Project Description: Renovation and transformation of existing single story concrete block residence to Community Center. Work to include floor repairing/rebuilding, new windows/doors, new electrical/HVAC/plumbing systems, new lighting, restoration of original carport, new roof as well as onsite parking, site lighting, and bike paths.

B. Contract Scope: Construction, demolition, and renovation.

1.03 PROCUREMENT TIMETABLE

A. The Owner reserves the right to change the schedule or terminate the entire procurement process at any time.

1.04 PROCUREMENT DOCUMENTS

A. Availability of Documents: Complete sets of procurement documents may be obtained:
   1. From Owner at the Project Manager's address listed above.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 007100

CONTRACTING DEFINITIONS

PART 1 GENERAL

APPLICABILITY: THESE DEFINITIONS ARE INTEGRAL TO THE AGREEMENT.

2.01 DEFINITIONS - DESIGN-BUILD DOCUMENTS

A. Contract Documents: As defined in the Agreement.
   1. At the time of execution of the Agreement, Contract Documents consist of the following:
      a. The Agreement and Conditions of the Contract, and other documents listed on the Table of Contents under the heading Contracting Requirements.
   2. From time to time after execution of the Agreement, upon approval by the Owner, the following types of documents will be incorporated into Contract Documents:
      a. Drawings and other documents documenting the design.
      b. Construction drawings and specifications detailing the execution of the design.

B. Project Program: The Owner's requirements for size, arrangement, organization, and location of functional spaces , description of space functions , identification of fittings, equipment, and furnishings , description of the physical and environmental requirements for each space , together with a description of the image, goals, or "mission" of the project.

2.02 DEFINITIONS - TIME PERIODS AND MILESTONE DATES

A. Preliminary Design: The time period during which the design criteria are finalized and preliminary drawings and written descriptions are prepared to illustrate the proposed design of the work or a portion of the work to the Owner, as described in the Conditions of the Contract.

B. Design Development: The time period during which the form, arrangement, size, and materials of the work or a portion of the work are determined.

C. Construction Documents: The time period during which process working drawings, specifications, and other documents describing the work or a portion of the work are prepared in sufficient detail to allow accurate and complete construction.

D. Construction: The time period from the beginning of work on the project site until final payment.

E. Substantial Completion: The date as defined in the Conditions of the Contract. Date of Substantial Completion is the due date for the following:
   1. Design-Builder's complete punchlist of items to be completed.
   2. Owner's complete punchlist of items to be completed.
   3. Compliance with requirements of governing authorities, for submittals, inspections, and permits.
   4. Compliance with Owner's requirements for access to areas occupied by the Owner.

F. Closeout: The time period during which all details of both construction and commissioning are completed.
   1. The Closeout period is the time from Date of Substantial Completion until final payment, both as defined by the Conditions of the Contract.
   2. Before and during the Closeout period, the Owner will ascertain whether the completed project complies with Contract Documents.

G. Occupancy: The time period during which the project is occupied for its intended purpose.

1. The Occupancy period begins at Date of Substantial Completion, as defined by the Conditions of the Contract.

H. Correction Period: The time period defined by the Conditions of the Contract.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 011000
SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: SEA Community Help Resource and Cultural Center

B. Owner's Name: SEA Community Help Resource Center, Inc.

C. Architect's Name: Open City Architecture, LLC.

D. The project consists of renovating a concrete block and wood truss home into a community center for the SEA Community Help Resource organization. The existing CMU exterior walls are to remain, be patched as required, and painted. The existing wood trusses are to remain and new roof sheathing, soffits, and fascias to be added. All windows/doors are to be replaced and new exterior and interior doors. New wood floor system is required to replace the current rotted floor. A new HVAC system, new electrical system, a new tankless water heater are to be added. The site work consists of a gravel parking lot, paved main drive aisle, paved loading zone, paved bike path and retention areas. A new septic tank and drainfield are also included in the site work.

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 005200 - Agreement Form.

1.03 DESCRIPTION OF ALTERATIONS WORK

A. Scope of demolition and removal work is indicated on drawings and specified in Section 024100.

B. Scope of alterations work is indicated on drawings.

C. Plumbing: Alter existing system and add new construction.

D. HVAC: Non existing, add new system. New HVAC system is to be design/build by subcontractor.

E. Electrical Power and Lighting: None existing, add new per documents.

1.04 WORK BY OWNER

A. Items noted NIC (Not in Contract) will be supplied and installed by Owner before Date of Substantial Completion. Some items include:
   1. Movable cabinets.
   2. Furnishings.
   3. Small equipment.

1.05 OWNER OCCUPANCY

A. Owner intends to occupy the Project upon Substantial Completion.

B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

C. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. Provide access to and from site as required by law and by Owner:
   1. Do not obstruct roadways, sidewalks, or other public ways without permit.

1.07 WORK SEQUENCE

A. Coordinate construction schedule and operations with Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 012500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A. Section 013000 - Administrative Requirements: Submittal procedures, coordination.

1.03 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
   1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
      a. Unavailability.
      b. Regulatory changes.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on the proposer.

C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
   1. No specific form is required. Contractor's Substitution Request documentation must include the following:
      a. Project Information:
      b. Substitution Request Information:
      c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
      d. Impact of Substitution:

D. Limit each request to a single proposed substitution item.

3.02 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

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

3.03 RESOLUTION

3.04 ACCEPTANCE

END OF SECTION

SECTION 013000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Preconstruction meeting.

C. Progress meetings.

D. Submittals for review, information, and project closeout.

E. Number of copies of submittals.

F. Requests for Interpretation (RFI) procedures.

G. Submittal procedures.

H. Payment procedures

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements: General product requirements.

B. Section 017800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 017000 - 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 Interpretation (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 PRECONSTRUCTION MEETING

A. Schedule meeting after Notice to Proceed.

B. Attendance Required:
   1. Owner.
   2. Architect.

3. Contractor.
4. Major Subcontractors.

C. Agenda:
1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties to Contract, Owner and Architect.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.

B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required:
1. Contractor.
2. Owner.
3. Architect.
4. Contractor'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.
6. Maintenance of progress schedule.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Maintenance of quality and work standards.
10. Effect of proposed changes on progress schedule and coordination.
11. Other business relating to work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.03 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare a separate RFI for each specific item.
   2. Prepare in a format and with content acceptable to Owner.

D. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

E. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.

F. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.

3.04 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 017800 - Closeout Submittals.

3.05 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.

3.06 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 017800 - Closeout Submittals:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.07 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.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.08 SUBMITTAL PROCEDURES

A. General Requirements:

3.09 SUBMITTAL REVIEW

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

B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.

D. Architect's and consultants' actions on items submitted for review:
   1. Authorizing purchasing, fabrication, delivery, and installation:
      a. "Approved", or language with same legal meaning.
      b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
         1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
      c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
   2. Not Authorizing fabrication, delivery, and installation:
      a. "Revise and Resubmit".
         1) Resubmit revised item, with review notations acknowledged and incorporated.
      b. "Rejected".
         1) Submit item complying with requirements of Contract Documents.

E. Architect's and consultants' actions on items submitted for information:
   1. Items for which no action was taken:
      a. "Received" - to notify the Contractor that the submittal has been received for record only.

2. Items for which action was taken:
   a. "Reviewed" - no further action is required from Contractor.

3.10 PAYMENT PROCEDURES

A. Contractor shall submit application for payment to the architect with a copy to the owner on a monthly basis. The schedule for submission, review, and payment will be agreed upon at the pre-construction meeting.

B. Payment application form
   1. Applications for payment shall be on AIA Document G702 and G703 (continuation)
   2. Accompanying each Application for Payment shall be a Waiver and release of liens for the contractor, which shall include either by reference or actually release of liens for each subcontractor for whom amounts are included in the application. The contractor may submit AIA Document G706a or another form acceptable to their bonding agent and the Owner.

C. Review – The architect will review the amounts requested with the contractor on site at a regularly scheduled site meeting and may edit the Application to reflect conditions not in accordance, according to the judgment of the Architect, with the application submitted.
   1. Payment shall be approved for work in place and materials stored on site OR stored off-site if the application is accompanied with an insurance certificate covering the stored items with the Owner named as an additionally insured.
   2. Payment shall not be unreasonably withheld by the owner once the Application for payment has been approved.
   3. Work shall not be delayed on the project due to a delay in payment until such time as the Contractor has notified the Owner in writing that the delay is imminent due to lack of performance on the part of the Owner.

END OF SECTION

SECTION 014000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.

B. Quality assurance.

C. References and standards.

D. Testing and inspection agencies and services.

E. Control of installation.

F. Mock-ups.

G. Tolerances.

H. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Section 013000 - Administrative Requirements: Submittal procedures.

B. Section 014216 - Definitions.

C. Section 014219 - Reference Standards.

1.03 Testing and Inspection Agencies and Services

PART 3 EXECUTION

2.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

2.02 MOCK-UPS

A. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Architect will use accepted mock-ups as a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

2.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

2.04 TESTING AND INSPECTION

A. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
   5. Perform additional tests and inspections required by Architect.
   6. Submit reports of all tests/inspections specified.

B. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the Work.

C. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
   5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

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

2.05 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

END OF SECTION

SECTION 014216
DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

A. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

A. Furnish: To supply, deliver, unload, and inspect for damage.

B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

D. Provide: To furnish and install.

E. Supply: Same as Furnish.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 015100
TEMPORARY UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Provision of electricity, lighting, heat, ventilation, and water.

1.02 RELATED REQUIREMENTS

A. Section 015000 - Temporary Facilities and Controls:
   1. Temporary sanitary facilities required by law.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - Safety and Health Regulations for Construction Current Edition.

1.04 TEMPORARY ELECTRICITY

A. Cost: By Owner.

B. Connect to Owner's existing power service.

C. Provide temporary electric feeder from existing building electrical service at location as directed.

D. Complement existing power service capacity and characteristics as required.

E. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.

F. Provide main service disconnect and over-current protection at convenient location and meter.

G. Permanent convenience receptacles may be utilized during construction.

H. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.05 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain LED, compact fluorescent, or high-intensity discharge lighting as suitable for the application for construction operations in accordance with requirements of 29 CFR 1926 and authorities having jurisdiction.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Maintain lighting and provide routine repairs.

1.06 TEMPORARY HEATING

A. Provide heating devices and heat as needed to maintain specified conditions for construction operations.

B. Maintain minimum ambient temperature of 50 degrees F (10 degrees C) in areas where construction is in progress, unless indicated otherwise in specifications.

1.07 TEMPORARY COOLING

A. Provide cooling devices and cooling as needed to maintain specified conditions for construction operations.

B. Maintain maximum ambient temperature of 80 degrees F (26 degrees C) in areas where construction is in progress, unless indicated otherwise in specifications.

1.08 TEMPORARY VENTILATION

A. Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.09 TEMPORARY WATER SERVICE

A. Cost of Water Used: By Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 016000
PRODUCT REQUIREMENTS

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. Substitution limitations.

F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 012500 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

B. Section 014000 - Quality Requirements: Product quality monitoring.

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 Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 012500 - Substitution Procedures.

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. See Section 017419.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. 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. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 017000
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition.

C. Cutting and patching.

D. Surveying for laying out the work.

E. Cleaning and protection.

F. Demonstration and instruction of Owner personnel.

G. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

1.02 RELATED REQUIREMENTS

A. Section 011000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 014000 - Quality Requirements: Testing and inspection procedures.

C. Section 015100 - Temporary Utilities: Temporary heating, cooling, and ventilating facilities.

1.03 QUALIFICATIONS

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

1.04 PROJECT CONDITIONS

A. Use of explosives is not permitted.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Perform dewatering activities, as required, for the duration of the project.

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

E. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

1.05 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

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

3.03 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

F. Utilize recognized engineering survey practices.

G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

H. Periodically verify layouts by same means.

I. Maintain a complete and accurate log of control and survey work as it progresses.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 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. 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.

C. Remove existing work as indicated and as required to accomplish new work.

1. Remove items indicated on drawings.
2. Relocate items indicated on drawings.
3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, and Electrical): 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. Verify that abandoned services serve only abandoned facilities.
4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

E. 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.

F. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
3. Where a change of plane of 1/4 inch (6 mm) or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

G. 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.

H. 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.

I. Clean existing systems and equipment.

J. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

K. Do not begin new construction in alterations areas before demolition is complete.

L. Comply with all other applicable requirements of this section.

3.06 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
   1. Complete the work.
   2. Fit products together to integrate with other work.
   3. Provide openings for penetration of mechanical, electrical, and other services.
   4. Match work that has been cut to adjacent work.
   5. Repair areas adjacent to cuts to required condition.
   6. Repair new work damaged by subsequent work.
   7. Remove samples of installed work for testing when requested.
   8. Remove and replace defective and non-complying work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

G. Restore work with new products in accordance with requirements of Contract Documents.

H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. 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.

3.07 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

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

3.09 DEMONSTRATION AND INSTRUCTION

A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.

3.10 ADJUSTING

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

3.11 FINAL CLEANING

A. 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.

B. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

D. Clean filters of operating equipment.

E. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, and area drains.

F. Clean site; sweep paved areas, rake clean landscaped surfaces.

G. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.12 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.

E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

END OF SECTION

SECTION 024100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

B. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Section 011000 - Summary: Limitations on Contractor's use of site and premises.

B. Section 011000 - Summary: Description of items to be salvaged or removed for re-use by Contractor.

C. Section 015000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

D. Section 016000 - Product Requirements: Handling and storage of items removed for salvage and relocation.

E. Section 017000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

F. Section 312323 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Site Plan: Showing:
   1. Areas for temporary construction and field offices.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 3 EXECUTION

2.01 SCOPE

A. Remove existing walls, windows, doors, damaged/rotted flooring, roof as indicated on drawings.

B. Remove other items indicated, for salvage, relocation, and recycling.

C. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 312200.

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. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   3. Provide, erect, and maintain temporary barriers and security devices.

4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
5. Do not close or obstruct roadways or sidewalks without permit.
6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

D. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

E. Perform demolition in a manner that maximizes salvage and recycling of materials.
1. Dismantle existing construction and separate materials.
2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

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. 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.

E. 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 rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
2. Remove items indicated on drawings.

D. Services (Including but not limited to HVAC, Plumbing, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
1. 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.

E. 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

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.02 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes**. Should variation be found between this specification section and the specifications included on the Contract Drawings, the Specifications on the Contract Drawings will take precedence.**

A. Cast-in-place concrete includes the following:

1. Foundations and footings.
2. Slabs-on-grade.
3. Building frame members.
4. Equipment pads and bases.

1.03 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others if requested by Architect.

C. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement.

B. Samples of materials as requested by Architect, including names, sources, and descriptions, as follows:

2. Reglets.
3. Waterstops.
4. Vapor retarder/barrier.

C. Laboratory test reports for concrete materials and mix design test.

1.04 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:

1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
2. ACI 318, "Building Code Requirements for Reinforced Concrete."
3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."

B. Materials and installed work may require re-testing at any time during progress of Work. Re-testing of rejected materials for installed Work, shall be done at Contractor's expense.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.

B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Forms for Cylindrical Columns and Supports: Metal, glass-fiber-reinforced plastic, or paper or fiber tubes that will produce smooth surfaces without joint indications. Provide units with sufficient wall thickness to resist wet concrete loads without deformation.

D. Form Release Agent: Provide commercial formulation form release agent with a maximum of 350 g/L volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

E. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling of concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches (38 mm) to the plane of the exposed concrete surface.

3. Provide ties that, when removed, will leave holes not larger than 1 inch (25 mm) in diameter in the concrete surface.

2.02 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615 Grade 60, deformed.

B. Steel Wire: ASTM A 82, plain, cold-drawn steel.

C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.

D. Deformed-Steel Welded Wire Fabric: ASTM A 497.

E. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.

1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
4. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

2.03 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I.

1. Use one brand of cement throughout Project unless otherwise acceptable to Architect.

B. Fly Ash: ASTM C 618, Type F.

C. Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.

1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.
2. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect.

D. Lightweight Aggregates: ASTM C 330.

E. Water: Potable.

F. Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.

G. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Darex AEA or Daravair, W.R. Grace & Co.
   b. MB-VR or Micro-Air, Master Builders, Inc.
   c. Sealtight AEA, W.R. Meadows, Inc.

H. Water-Reducing Admixture: ASTM C 494, Type A.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Eucon WR-75, Euclid Chemical Co.
   b. WRDA, W.R. Grace & Co.
   c. Pozzolith Normal or Polyheed, Master Builders, Inc.

I. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Eucon 37, Euclid Chemical Co.
   b. WRDA 19 or Daracem, W.R. Grace & Co.
   c. Sikament 300, Sika Corp.

J. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Accelguard 80, Euclid Chemical Co.
   b. Daraset, W.R. Grace & Co.
   c. Pozzutec 20, Master Builders, Inc.

K. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

a. Eucon Retarder 75, Euclid Chemical Co.
b. Daratard-17, W.R. Grace & Co.
c. Pozzolith R, Master Builders, Inc.

2.04 RELATED MATERIALS

A. Reglets: Where sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 0.0217- inch- (0.46-mm-) thick galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.

B. Dovetail Anchor Slots: Hot-dip galvanized sheet steel, not less than 0.0336 inch thick (0.76 mm) with bent tab anchors. Fill slot with temporary filler or cover face opening to prevent intrusion of concrete or debris.

C. Waterstops: Provide flat, dumbbell-type or centerbulb-type waterstops at construction joints and other joints as indicated. Size to suit joints.

D. Vapor Retarder: Provide vapor retarder that is resistant to deterioration when tested according to ASTM E 154, as follows:

1. Polyethylene sheet not less than 6 mils (0.2 mm) thick or as indicated on drawings.
2. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
5. Products: Subject to compliance with requirements, provide one of the following:
   a. Conshake 600 Colortone, Conspec Marketing & Mfg. Co.
   b. Floorcron, Cormix Construction Chemicals.
   c. Quartz Tuff, Dayton-Superior.
   d. Surflex, Euclid Chemical Co.
   e. Colorundum, A.C. Horn, Inc.

E. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.

1. Waterproof paper.
2. Polyethylene film.
3. Polyethylene-coated burlap.

F. Liquid Membrane-Forming Curing Compound: Liquid-type membrane-forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.55 kg/sq. m when applied at 200 sq. ft./gal (4.9 sq. m/L).

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Eucocure, Euclid Chemical Co.
   b. L&M Cure R, L&M Construction Chemicals, Inc.
   c. Kure-N-Seal, Sonneborn-Chemrex.
2. Provide material that has a maximum volatile organic compound (VOC) rating of 350 g/L.
3. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Safe Cure and Seal, Dayton Superior Corp.
   b. Aqua-Cure, Euclid Chemical Co.
   c. Masterkure 100W, Master Builders, Inc.

G. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab

surfaces for temporary protection from rapid moisture loss.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Aquafilm, Conspec Marketing and Mfg. Co.
   b. Eucobar, Euclid Chemical Co.
   c. Confilm, Master Builders, Inc.

H. Underlayment Compound: Free-flowing, self-leveling, pumpable, cement-based compound for applications from 1 inch (25 mm) thick to feathered edges.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Flo-Top, Euclid Chemical Co.
   b. Gyp-Crete, Gyp-Crete Corp.
   c. Underlayment 110, Master Builders, Inc.

I. Bonding Agent: Polyvinyl acetate or acrylic base.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Polyvinyl Acetate (Interior Only):
      1) Euco Weld, Euclid Chemical Co.
      2) Weld-Crete, Larsen Products Corp.
      3) Everweld, L&M Construction Chemicals, Inc.
   b. Acrylic or Styrene Butadiene:
      1) Daraweld C, W.R. Grace & Co.
      2) Everbond, L&M Construction Chemicals, Inc.
      3) Sonocrete, Sonneborn-Chemrex.

J. Epoxy Adhesive: ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project requirements.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
   a. Rezi-Weld 1000, W.R. Meadows, Inc.
   b. Metco Hi-Mod Epoxy, Metalcrete Industries.
   c. Sikadur 32 Hi-Mod, Sika Corp.

2.05 PROPORTIONING AND DESIGNING MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

1. Do not use the same testing agency for field quality control testing.
2. Limit use of fly ash to not exceed 25 percent of cement content by weight. Provide ASTM C618 autoclave certification per ASTM C618 if over 20%.

B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of Work. Do not begin concrete production until proposed mix designs have been reviewed by Architect.

C. Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:

1. 4000 psi (27.6 MPa), 28-day compressive strength; water-cement ratio, 0.44 maximum (non-air-entrained), 0.35 maximum (air-entrained).
2. 3000 psi (20.7 MPa), 28-day compressive strength; water-cement ratio, 0.58 maximum (non-air-entrained), 0.46 maximum (air-entrained).

D. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:

1. Subjected to freezing and thawing: W/C 0.45.
2. Subjected to deicers/watertight: W/C 0.40.

E. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Ramps, slabs, and sloping surfaces: Not more than 5 inches +/- 1 inch.
2. Reinforced foundation systems: Not less than43 inches and not more than 6 inches.
3. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site-verified 4 -65 inch slump concrete.
3. Other concrete: Not more than 5 inches +/- 1 inch.

F. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in Work.

2.06 ADMIXTURES

A. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.

B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).

C. Use high-range water-reducing admixture in pumped concrete, architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water-cement ratios below 0.50.

D. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent within the following limits:

1. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure:
   a. 5.0 percent (moderate exposure); for 3/4 inch (19 mm) maximum aggregate.
2. Other concrete not exposed to freezing, thawing, or hydraulic pressure, or to receive a surface hardener: 2 to 4 percent air.

E. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.

2.07 CONCRETE MIXING

A. Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.

1. When air temperature is between 85 deg F (29 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.01 GENERAL

A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with placement of forms and reinforcing steel.

3.02 FORMS

A. General: Design, erect, support, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances and surface irregularities complying with the following ACI 347 limits:

1. Provide Class A tolerances for concrete surfaces exposed to view.
2. Provide Class C tolerances for other concrete surfaces.

B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the Work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.

C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like for easy removal.

D. Provide temporary openings for clean-outs and inspections where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings and set tightly to forms to prevent losing concrete mortar. Locate temporary openings in forms at inconspicuous locations.

E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

3.03 VAPOR RETARDER/BARRIER INSTALLATION

A. General: Place vapor retarder/barrier sheeting in position with longest dimension parallel with direction of pour.

B. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended mastic or pressure-sensitive tape.

3.04 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.

1. Avoiding cutting or puncturing vapor retarder/barrier during reinforcement placement and concrete operations. Repair damages before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Architect.

D. Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.05 JOINTS

A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Architect.

B. Provide keyways at least 1-1/2 inches (38 mm) deep in construction joints in walls and slabs and between walls and footings. Bulkheads designed and accepted for this purpose may be used for slabs.

C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.

D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

E. Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated unless otherwise noted or detailed in plans.

1. Joint fillers and sealant are specified in Division 7 Section "Joint Sealants."

F. Contraction (Control) Joints in Slabs-on-Grade: Construct contraction joints in slabs-on-grade to form panels of patterns as noted. Use saw cuts 1/8 inch (3 mm) wide by one-fourth of slab depth or inserts 1/4 inch (6 mm) wide by one-fourth of slab depth, unless otherwise indicated.

1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
3. If joint pattern is not shown, provide joints not exceeding 20 ft. in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).
4. Joint fillers and sealant are specified in Division 7 Section "Joint Sealants."

3.06 INSTALLING EMBEDDED ITEMS

A. General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.

B. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.

C. Install dovetail anchor slots in concrete structures as indicated on drawings.

D. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.07 PREPARING FORM SURFACES

A. General: Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before placing reinforcement.

B. Do not allow excess form-coating material to accumulate in forms or come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply according to manufacturer's instructions.

1. Coat steel forms with a non-staining, rust-preventative material. Rust-stained steel formwork is not acceptable.

3.08 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.

C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches (600 mm) and in a manner to avoid inclined construction joints. Where placement consists of

several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.

2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.

E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.

1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
2. Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
3. Maintain reinforcing in proper position on chairs during concrete placement.

F. Cold-Weather Placement: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

G. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.

1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
2. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.

G. Hot-Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
3. Fog spray forms, reinforcing steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without puddles or dry areas.
4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Architect.

3.09 FINISHING FORMED SURFACES

A. Rough-Formed Finish: Provide a rough-formed finish on formed concrete surfaces not exposed to

view in the finished Work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch (6 mm) in height rubbed down or chipped off.

B. Smooth-Formed Finish: Provide a smooth-formed finish on formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or another similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.

C. Grout-Cleaned Finish: Provide grout-cleaned finish on scheduled concrete surfaces that have received smooth-formed finish treatment.

1. Combine one part portland cement to one and one-half parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to form the consistency of thick paint. Blend standard portland cement and white portland cement in amounts determined by trial patches so that final color of dry grout will match adjacent surfaces.
2. Thoroughly wet concrete surfaces, apply grout to coat surfaces, and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 MONOLITHIC SLAB FINISHES

A. Scratch Finish: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and where indicated.

1. After placing slabs, finish surface to tolerances of F(F) 15 (floor flatness) and F(L) 13 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes, brooms, or rakes.

B. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and where indicated.

1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Finish surfaces to tolerances of F(F) 18 (floor flatness) and F(L) 15 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

C. Trowel Finish: Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.

1. After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to tolerances of F(F) 20 (floor flatness) and F(L) 17 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Grind smooth any surface defects that would telegraph through applied floor covering system.

D. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply a trowel finish as specified, then immediately follow by slightly scarifying the surface with a fine broom.

E. Nonslip Broom Finish: Apply a nonslip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

F. Nonslip Aggregate Finish: Apply nonslip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and where indicated.
1. After completing float finishing and before starting trowel finish, uniformly spread dampened nonslip aggregate at a rate of 25 lb per 100 sq. ft. (12 kg/10 sq. m) of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as specified.
2. After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose nonslip aggregate.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

3.12 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

C. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified.

D. Provide moisture curing by the following methods:

1 Keep concrete surface continuously wet by covering with water.
2 Use continuous water-fog spray.
3 Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4 inch (100 mm) lap over adjacent absorptive covers.

C. Provide moisture-retaining cover curing as follows:

1 Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches (75 mm) and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

D. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and curbs as follows:
1 Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
2 Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

E. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

F. Curing Unformed Surfaces: Cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.

1 Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed.

3.13 SHORES AND SUPPORTS

A. General: Comply with ACI 347 for shoring and reshoring in multistory construction, and as specified.

B. Extend shoring from ground to roof for structures four stories or less, unless otherwise permitted.

C. Remove shores and reshore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to support work without excessive stress or deflection.
D. Keep reshores in place a minimum of 15 days after placing upper tier, or longer, if required, until concrete has attained its required 28-day strength and heavy loads due to construction operations have been removed.

3.14 REMOVING FORMS

A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.

B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days or until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.

C. Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

3.15 REUSING FORMS

A. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.

B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use patched forms for exposed concrete surfaces except as acceptable to Architect.

3.16 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removing forms, when acceptable to Architect.

B. Mix dry-pack mortar, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh (1.2 mm) sieve, using only enough water as required for handling and placing.

1. Cut out honeycombs, rock pockets, voids over 1/4 inch (6 mm) in any dimension, and holes left by tie rods and bolts down to solid concrete but in no case to a depth less than 1 inch (25 mm). Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried.
2 For surfaces exposed to view, blend white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

C. Repairing Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes and fill with dry-pack mortar or precast cement cone plugs secured in place with bonding agent.
1. Repair concealed formed surfaces, where possible, containing defects that affect the concrete's durability. If defects cannot be repaired, remove and replace the concrete.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as

specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.

1. Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface defects include crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
3. Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Architect.
4. Repair defective areas, except random cracks and single holes not exceeding 1 inch (25 mm) in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4 inch (19 mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

E. Perform structural repairs with prior approval of Architect for method and procedure, using specified epoxy adhesive and mortar.

F. Repair methods not specified above may be used, subject to acceptance of Architect.

3.17 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. General: The Owner will employ a testing agency to perform tests and to submit test reports.

B. Sampling and testing for quality control during concrete placement may include the following, as directed by Architect.

1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
   a. Slump: ASTM C 143; one test at point of discharge for each set of cylinders of each type of concrete; additional tests when concrete consistency seems to have changed.
   b. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
   c. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.
   d. Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
   e. Compressive-Strength Tests: ASTM C 39; one set for each day's pour for each 50 cu. yd. (38 cu. m) or less of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
2. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.
3. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and

curing the in-place concrete.

4. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi (3.4 MPa).

C. Test results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

E. Additional Tests: The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

END OF SECTION 033000

SECTION 042000
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete block.

B. Mortar and grout.

C. Reinforcement and anchorage.

D. Lintels.

E. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 032000 - Concrete Reinforcing: Reinforcing steel for grouted masonry.

B. Section 040511 - Masonry Mortaring and Grouting.

C. Section 061000 - Rough Carpentry: Nailing strips built into masonry.

D. Section 079200 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.

B. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire 2019.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.

D. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement 2016, with Editorial Revision (2018).

E. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2018a.

F. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units 2022.

G. ASTM C91/C91M - Standard Specification for Masonry Cement 2018.

H. ASTM C270 - Standard Specification for Mortar for Unit Masonry 2019a, with Editorial Revision.

I. ASTM C476 - Standard Specification for Grout for Masonry 2020.

J. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 by 8 inches (400 by 200 mm) and nominal depth of 8 inches (200 mm).
   2. Load-Bearing Units: ASTM C90, normal weight.
      a. Hollow block, as indicated.

2.02 MORTAR AND GROUT MATERIALS

A. Mortar and Grout: As specified in Section 040511.

2.03 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel: size as indicated on drawings; galvanized finish.

B. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.

C. Single Wythe Joint Reinforcement: ASTM A951/A951M.
   1. Type: Truss or ladder.
   2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
   3. Size: 0.1483 inch (3.8 mm) side rods with 0.1483 inch (3.8 mm) cross rods; width as required to provide not less than 5/8 inch (16 mm) of mortar coverage on each exposure.

2.04 ACCESSORIES

A. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.

B. Nailing Strips: Softwood lumber, preservative treated; as specified in Section 061000.

C. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

PART 3 EXECUTION

3.01 EXAMINATION

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

B. Verify that related items provided under other sections are properly sized and located.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:

1. Bond: Running.
2. Coursing: One unit and one mortar joint to equal 8 inches (200 mm).
3. Mortar Joints: Flush.

3.04 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints.

C. Remove excess mortar and mortar smears as work progresses.

D. Interlock intersections and external corners.

E. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

F. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

G. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.

3.05 CAVITY MORTAR CONTROL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

3.06 REINFORCEMENT AND ANCHORAGE - GENERAL, SINGLE WYTHE MASONRY, AND CAVITY WALL MASONRY

A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches (400 mm) on center.

B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches (400 mm) each side of opening.

C. Place continuous joint reinforcement in first and second joint below top of walls.

D. Lap joint reinforcement ends minimum 6 inches (150 mm).

3.07 LINTELS

A. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled.

3.08 TOLERANCES

A. Install masonry within the site tolerances found in TMS 402/602.

B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch (1.6 mm).

C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft (6 mm/3 m) and 1/2 inch in 20 ft (13 mm/6 m) or more.

D. Maximum Variation from Plumb: 1/4 inch (6 mm) per story non-cumulative; 1/2 inch (13 mm) in two stories or more.

E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft (3 mm/m) and 1/4 inch in 10 ft (6 mm/3 m); 1/2 inch in 30 ft (13 mm/9 m).

F. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch (6 mm).

3.09 CUTTING AND FITTING

A. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.10 PARGING

A. Dampen masonry walls prior to parging.

B. Scarify each parging coat to ensure full bond to subsequent coat.

C. Parge masonry walls in two uniform coats of mortar to a total thickness of 3/4 inch (19 mm).

D. Steel trowel surface smooth and flat with a maximum surface variation of 1/8 inch per foot (1 mm/m).

E. Strike top edge of parging at 45 degrees.

3.11 CLEANING

A. Remove excess mortar and mortar droppings.

B. Clean soiled surfaces with cleaning solution.

3.12 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

SECTION 061000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Nonstructural dimension lumber framing.

C. Rough opening framing for doors, windows, and roof openings.

D. Subflooring.

E. Roofing nailers.

F. Preservative treated wood materials.

G. Miscellaneous framing and sheathing.

H. Concealed wood blocking, nailers, and supports.

1.02 RELATED REQUIREMENTS

A. Section 061500 - Wood Decking.

B. Section 072500 - Weather Barriers: Water-resistive barrier over sheathing.

C. Section 076200 - Sheet Metal Flashing and Trim: Sill flashings.

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard 2022.

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 2020.

D. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing 2003 (Reapproved 2017).

E. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board 2022.

F. ASTM D3498 - Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing 2019a.

G. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings 2018.

H. AWPA U1 - Use Category System: User Specification for Treated Wood 2022.

I. PS 1 - Structural Plywood 2009 (Revised 2019).

J. PS 2 - Performance Standard for Wood Structural Panels 2018.

K. PS 20 - American Softwood Lumber Standard 2021.

L. SPIB (GR) - Grading Rules 2014.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Structural Composite Lumber: Submit manufacturer's published structural data including span tables, marked to indicate which sizes and grades are being used; if structural composite lumber is being substituted for dimension lumber or timbers, submit grading agency structural tables marked for comparison.

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.
   2. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   3. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19.

D. Stud Framing (2 by 2 through 2 by 6 (50 by 50 mm through 50 by 150 mm)):
   1. Species: Douglas Fir-Larch.
   2. Grade: No. 2.

E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16 (50 by 150 mm through 100 by 400 mm)):
   1. Species: Douglas Fir-Larch.

F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 STRUCTURAL COMPOSITE LUMBER

A. Structural Composite Lumber: Factory fabricated beams, headers, and columns, of sizes and types indicated on drawings; structural capacity as published by manufacturer.
   1. Beams: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with manufacturer's published modulus of elasticity, E: 1,800,000 psi (12,410 MPa), minimum.
   2. Headers Not Longer Than 48 inches (1220 mm): Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber.
   3. Manufacturers:
      a. Weyerhaeuser Company: www.weyerhaeuser.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

2.04 CONSTRUCTION PANELS

A. Subfloor/Underlayment Combination: PS 2 type, rated Single Floor.
   1. Bond Classification: Exterior.
   2. Span Rating: 48.
   3. Performance Category: 1-1/8 PERF CAT.
   4. Edges: Tongue and groove.

B. Roof Sheathing: PS 2 type, rated Structural I Sheathing.
   1. Bond Classification: Exterior.
   2. Span Rating: 60.
   3. Performance Category: 3/4 PERF CAT.

2.05 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.

B. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions.
   1. For contact with preservative treated wood in exposed locations, provide minimum G185 (Z550) galvanizing complying with ASTM A653/A653M.

C. Sill Flashing: See Section 076200.

D. Subfloor Adhesives: Waterproof, air cure type, cartridge dispensed; adhesives designed for subfloor applications and complying with either ASTM C557 or ASTM D3498.
   1. Manufacturers:
      a. Franklin International, Inc; Titebond PROvantage Weatherproof Subfloor Adhesive: www.titebond.com/#sle.

2.06 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. 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.

B. Preservative Treatment:
   1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber exposed to weather.
      c. Treat lumber in contact with roofing, flashing, or waterproofing.
      d. Treat lumber in contact with masonry or concrete.
      e. Treat lumber less than 18 inches (450 mm) above grade.
      f. Treat lumber in other locations as indicated.
   2. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, Commodity Specification A using waterborne preservative.
      a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.

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. 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 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches (38 mm) of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Provide bridging at joists in excess of 8 feet (2.3 m) span as detailed. Fit solid blocking at ends of members.

H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 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 authorities having jurisdiction may be used in lieu of solid wood blocking.

C. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

D. 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.

E. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.05 ROOF-RELATED CARPENTRY

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

B. Provide wood curb at each roof opening except where specifically indicated otherwise; form corners by alternating lapping side members.

3.06 TOLERANCES

A. Framing Members: 1/4 inch (6 mm) from true position, maximum.

B. Surface Flatness of Floor: 1/8 inch in 10 feet (1 mm/m) maximum, and 1/4 inch in 30 feet (7 mm in 10 m) maximum.

C. 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.

END OF SECTION

SECTION 062000
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood door frames, glazed frames.

C. Wood casings and moldings.

D. Hardware and attachment accessories.

1.02 RELATED REQUIREMENTS

A. Section 061000 - Rough Carpentry: Support framing, grounds, and concealed blocking.

B. Section 081433 - Stile and Rail Wood Doors.

C. Section 085200 - Wood Windows.

D. Section 099113 - Exterior Painting: Painting of finish carpentry items.

E. Section 099123 - Interior Painting: Painting of finish carpentry items.

1.03 REFERENCE STANDARDS

A. AWI (QCP) - Quality Certification Program Current Edition.

B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).

C. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards 2021, with Errata.

D. AWPA U1 - Use Category System: User Specification for Treated Wood 2022.

E. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood 2020.

F. PS 1 - Structural Plywood 2009 (Revised 2019).

1.04 QUALITY ASSURANCE

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

B. Quality Certification:

1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: www.awiqcp.org/#sle.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Exterior Woodwork Items:

1. Window Casings and Moldings: Softwood; prepare for paint finish.
2. Soffits and Fascias: Prepare for paint finish.
3. Brackets, Finials, and Pediments: Prepare for paint finish.

C. Interior Woodwork Items:

1. Loose Shelving: Birch plywood; prepare for paint finish.

2.02 LUMBER MATERIALS

A. Softwood Lumber: pine species, plain sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

B. Hardwood Lumber: oak species, quarter sawn, maximum moisture content of 6 percent ; with vertical grain , of quality suitable for transparent finish.

2.03 SHEET MATERIALS

A. Softwood Plywood, Not Exposed to View: Any face species, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application.

B. Softwood Plywood, Exposed to View: Face species as indicated, plain sawn, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application.

C. Hardwood Plywood: Face species as indicated, plain sawn, book matched, medium density fiberboard core; HPVA HP-1 Front Face Grade AA, Back Face Grade 1, glue type as recommended for application.

2.04 FASTENINGS

A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.

B. Fasteners for Exterior Applications: Stainless steel; length required to penetrate wood substrate 1-1/2 inch (38 mm) minimum.

2.05 ACCESSORIES

A. Adhesive: Type recommended by fabricator to suit application.

B. Primer: Alkyd primer sealer.

C. Wood Filler: Solvent base, tinted to match surface finish color.

2.06 WOOD TREATMENT

A. Factory-Treated Lumber: Comply with requirements of AWPA U1 - Use Category System for pressure impregnated wood treatments determined by use categories, expected service conditions, and specific applications.

B. Wood Preservative by Pressure Treatment (PT Type): Provide AWPA U1 treatment using waterborne preservative with 0.25 percent retainage.

2.07 SITE FINISHING MATERIALS

2.08 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 INSTALLATION

A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (0.79 mm). Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

B. Site Finishing: See Section 099113 and 099123.

C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.04 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

SECTION 072100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Batt insulation at attic ceiling construction in accordance with the project's design and applicable codes and regulations.

B. 1” Rigid Foam insulation at exterior CMU walls were indicated in accordance with the project's design and applicable codes and regulations.

1.02 RELATED REQUIREMENTS

A. Section 061000 - Rough Carpentry: Installation requirements for board insulation over steep slope roof sheathing or roof structure.

B. Section 075400 - Thermoplastic Membrane Roofing: Installation requirements for board insulation over low slope roof deck specified in this section.

1.03 REFERENCE STANDARDS

A. ASTM C240 - Standard Test Methods for Testing Cellular Glass Insulation Block 2021.

B. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation 2022.

C. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing 2003 (Reapproved 2017).

D. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2022.

E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2017.

F. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board 2022.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2022.

H. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C 2019a.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

C. 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.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation on Inside of Concrete and Masonry Exterior Walls: Polyisocyanurate board.

B. Insulation in Wood Framed Ceiling Structure: Batt insulation with separate vapor retarder.

2.02 INSULATION MATERIALS

A. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
   1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
   2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
   3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
   4. Formaldehyde Content: Zero.
   5. Facing: Aluminum foil, one side.
   6. Products:
      a. CertainTeed Corporation: www.certainteed.com/#sle.
      b. Johns Manville: www.jm.com/#sle.
      c. Owens Corning Corporation; EcoTouch PINK FIBERGLAS Insulation: www.ocbuildingspec.com/#sle.
      d. Substitutions: See Section 016000 - Product Requirements.

B. 1" Thick Rigid Foam Insulation Boards
   1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
   2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
   3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
   4. Formaldehyde Content: Zero.
   5. Facing: Aluminum foil, one side.
   6. Minimum Compressive Strength Of 20 Psi.
   7. Insulation Material Shall Have A Minimum R-Value Of 6 Per Inch.
   8. The insulation material shall be Polyisocyanurate

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 BATT INSTALLATION

A. Install in exterior roof spaces without gaps or voids. Do not compress insulation.

B. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

C. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

3.03 RIGID INSTALLATION

A. Install The 1" Rigid Foam Insulation In Accordance With The Manufacturer's Guidelines And Industry Best Practices.

B. Ensure That All Joints Between Insulation Boards Are Tightly Fitted And Sealed To Prevent Thermal Bridging.

C. Adhere The Insulation Boards To The Substrate Using A Compatible Adhesive Recommended By The Insulation Manufacturer.

D. Cut And Shape The Insulation As Required To Fit Around Obstacles, Openings, And Irregularities In The Building Envelope.

E. Install Insulation Without Gaps Or Voids To Maintain A Continuous Thermal Barrier.

END OF SECTION

SECTION 073113
FIBERGLASS-BASED ASPHALT SHINGLES & ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Roof shingles and accessories including the following:
   1. Fiberglass-based asphalt shingles.
   2. Hip and ridge shingles.
   3. Starter shingles.
   4. Self-adhering ice and water barrier.
   5. Shingle underlayment.
   6. Attic ventilation.
   7. Fasteners.
   8. Metal flashing and trim.

1.2 RELATED SECTIONS

A. Section 061000 - Rough Carpentry.

B. Section 071300 – Sheet Waterproofing.

C. Section 076000 - Flashing and Sheet Metal; for snow guards, metal flashing and drip edges, including step-type flashing installed with shingles.

D. Section 077100 – Roof Specialties: Manufactured Gutters and Downspouts.

E. Section 077200 - Roof Accessories.

F. Section 086000 – Roof Windows and Skylights.

1.3 REFERENCES

A. American Society of Civil Engineers (ACSE):
   1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures.

B. Asphalt Roofing Manufacturers Association (ARMA).

C. ASTM International (ASTM):
   .
   1. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
   2. ASTM D228 - Standard Test Method for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing.
   3. ASTM D1079 – Standard Terminology Relating to Roofing and Waterproofing.
   4. ASTM D3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
   5. ASTM D3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
   6. ASTM D3462 - Standard Specification for Asphalt Shingles Made from Glass felt and Surfaced with Mineral Granules

7. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
8. ASTM D4869 - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing.
9. ASTM D6381 - Standard Test Method for Measurement of Asphalt Shingle Mechanical Uplift Resistance.
10. ASTM D6757 - Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing.
11. ASTM D7158 - Standard Test Method for Wind Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method).
12. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.
13. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

D. Cool Roof Rating Council (CRRC): Product Rating Program.

E. FM Approvals
   1. FM 4474 - American National Standard for Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures.
   2. FM 4475 – Approval Standard for Class 1 Steep Slope Roof Covers

F. Florida Building Commission (FBC):
   1. Florida Building Code.
   2. Florida Product Approvals.

G. Environmental Protection Agency (EPA): ENERGY STAR Rating System.

H. International Code Council (ICC):
   1. International Residential Code (IRC).
   2. International Building Code (IBC).

I. International Code Council Evaluation Service (ICC-ES)
   1. ICC-ES Evaluation Reports.
   2. ICC-ES Acceptance Criteria.

J. Intertek
   1. Intertek Code Compliance Research Report (CCRR)

K. Miami-Dade County Department of Regulatory and Economic Resources (RER), Product Control Section:
   1. Miami-Dade County Notice of Acceptance (NOA).

L. National Roofing Contractors Association (NRCA).

M. Sheet Metal and Air Conditioning Contractors National Association, 1nc. (SMACNA) – Architectural Sheet Metal Manual.

N. Underwriters Laboratories (UL):
   1. UL 790 - Standard Test Methods for Fire Test of Roof Coverings.
   2. UL 2218 - Impact Resistance of Prepared Roof Covering Materials.
   3. UL 1897 – Uplift Tests for Roof Covering Systems

O. PRI Evaluation Services

1. PRI Evaluation Reports.

P. US Green Building Council (USGBC): Leadership in Energy and Environmental Design (LEED).

Q. SCS Global Services – 20% Pre-Consumer Recycled Content Certification

1.4 REGULATORY REQUIREMENTS AND CERTIFICATIONS

A. Provide a roofing system having an Underwriters Laboratories (UL) Class A or ASTM E108 Class A fire resistance classification.

B. When applicable provide a roofing system that will help to qualify points for LEED certification:
1. Sustainable Site credit – Heat Island Reduction.
2. Materials and Resource credit – Building Product Disclosure and Optimization - Environmental Product Declaration (manufacturer specific Environmental Product Declarations).
3. Materials and Resource credit – Building Product Disclosure and Optimization – Sourcing of Raw Materials.
4. Materials and Resources credit – Construction and Demolition Waste Management.

C. When applicable provide a roofing system achieving ENERGY STAR certification.

D. Install all roofing products in accordance with all federal, state and local building codes.

E. All work shall be performed in a manner consistent with current OSHA guidelines.

1.5 PRODUCT ATTRIBUTES

A. **When applicable, provide fiberglass-based asphalt shingle with a woven fabric reinforcing strip in the nailing zone on the shingle's top surface.**

1.6 SUBMITTALS

A. Submit under provisions of Section 013300 - Submittal Procedures.

B. Submit printed copies of Owens Corning product data sheets indicating product characteristics, product information, installation instructions (including required preparation and installation procedures) and product limitations and color samples.

C. Certificate of Compliance: Provide Certificate of Compliance or Evaluation Report from independent laboratory or Evaluation Agency indicating that Owens Corning asphalt shingles made in normal production meet or exceed the requirements of the following:
1. ASTM D3462.
2. ASTM D3161/D7158 – Indicating a Class of Wind Resistance.
3. ASTM E108/UL790 – Indicating Class A Fire Resistance.

D. LEED submittal: When appropriate provide a LEED submittal and coordinate with provisions in Section 013563 – Sustainability Certification Project Requirements and Section 013566 – Sustainability Certification Project Procedures.

E. Shop Drawings: Indicate specially configured metal flashing, jointing methods and locations, fastening methods and locations, and installation details as required by project conditions.

F. Copy of Warranty: For warranty specified in Section 1.9.

G. Selection Samples: Two complete sets of samples, representing manufacturer's full range of available products and colors.

H. Verification Samples: For each product and finish specified, two samples representing actual products and colors.

1.7 PRE-INSTALLATION MEETING

A. For all projects, a pre-installation meeting is strongly recommended. Conduct a pre-installation meeting at the site prior to commencing work in this section. Require attendance of entities directly concerned with roof installation.

Topics to be discussed:

1. Safety procedures.
2. Installation procedures/method (including substrate preparation), sequencing of materials, and coordination with installation of other/adjacent work.
3. Roofing material availability, storage and handling.
4. Additional roof covering and roof accessory materials.
5. Through roof penetrations and other roof details.
6. Product compliance – Verify that products comply with requirements specified by local Authority Having Jurisdiction (AHJ)
7. All other items related to successful execution/completion of work.

B. Submit printed copies of product data sheets indicating product characteristics, product information, installation instructions (including required preparation and installation procedures), product limitations and color samples.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, ice and water barrier, and ventilation, by a single manufacturer.

B. Installer Qualifications: Installer shall be licensed or otherwise authorized by all federal, state and local authorities to install all products specified in this section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer’s unopened bundles with labels intact and legible.

B. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.

C. Store all products in accordance with Owens Corning recommendations.

D. Do not install underlayment or shingles on wet surfaces.

E. Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

F. For rooftop loading, lay shingle bundles flat. Do not bend over the ridge.

1.10 PROJECT CONDITIONS

A. Do not install systems under environmental conditions outside Owens Corning recommended limits. Proceed with work only when existing and forecasted weather conditions will permit work to be performed within Owens Corning recommended limits.

1.11 WARRANTY

A. Full Standard Warranty per selected manufacturer. Install per manufacturer's guidelines to maintain full product warranty: Manufacturer's Extended Limited Warranty:

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Owens Corning Roofing and Asphalt, LLC. or similar

B. Requests for substitutions will be considered in accordance with provisions of Section 016000.

2.2 ASPHALT SHINGLES

A. Standard Algae Resistant Shingles:
1. Nominal Size: 13-1/4 in (337 mm) by 39-3/8 in (1000 mm).
2. Exposure: 5-5/8 in (143 mm).
3. Shingles per Square: 64.
4. Bundles per Square: 4 bundles of 16 shingles.
5. Coverage per Square: 98.4 sq ft (9.1 sq m).
6. Color: As selected from manufacturer's full range.
7. Standards/Qualifications: ASTM D228, ASTM D3018 (Type 1), ASTM D3161 (Class F Wind Resistance), ASTM D3462, ASTM D7158 (Class H Wind Resistance), ASTM E108/UL 790 (Class A Fire Resistance), ICC-ES AC438, and PRI ER 1378E01.

2.3 HIP AND RIDGE SHINGLES

A. Standard Algae Resistant Shingles with Sealant color formulated to complement field of roof.
1. Nominal Size: 12 in (305 mm) by 10 ⅝ in (270 mm) with 8 in (203 mm) exposure
2. Standards/Qualifications: ASTM D3018 (Type 1), ASTM D3161 (Class F Wind Resistance), ASTM D3462, ASTM E108/UL790 (Class A Fire Resistance), ICC-ES AC438, PRI ER 1378E01, Florida Product Approval, Miami-Dade County Product Approval, and CSA A123.5.

2.4 STARTER SHINGLES

Starter Shingle Roll:

A. Self-adhering, starter course. Each strip measures 7-1/5 in (191 mm) tall by 33-2/5 ft (10.1 m) wide.

B. Standards/Qualifications: ASTM D1970 and Florida Product Approval.

2.5 SELF-ADHERING UNDERLAYMENTS

A. WeatherLock® Mat: As manufactured by Owens Corning Roofing and Asphalt, LLC. or equivalent
1. Mat-faced skid resistant surface, self-adhering, self-sealing, bituminous ice and water barrier.
2. Roll Width: 36 in (914 mm).
3. Selvage: 3 in (76 mm).
4. Standards/Qualifications: ASTM D1970, ASTM E108/UL 790 (Class A Fire Resistance[1]), PRI ER 1378E02, Florida Product Approval, and Miami-Dade County Product Approval.

2.6 MECHANICALLY FASTENED UNDERLAYMENTS

A. Fiberglas™ Reinforced Felt Underlayment.
   1. Wrinkle resistant, water resistant, breather type cellulose/glass fiber composite roofing underlayment.
   2. Roll Width: 36 in (91.4 cm).
   3. Roll Length: 141.5 ft (43.1 m).
   4. Coverage Per Roll: 4 roof squares.
   5. Standards/Qualifications: ASTM D226 (Type II), ASTM D4869 (Type IV), ASTM D6757, ASTM E108/UL 790 (Class A Fire Resistance[1]), and Florida Product Approval.

2.7 FASTENERS

A. Fasteners: Galvanized steel, stainless steel, or aluminum nails complying with ASTM F1667, minimum 12-gauge, 0.0808 in (2.05 mm) shank with 3/8 in (9.5 mm) diameter head. Check local building code requirements.

2.8 METAL FLASHING

A. Flashing: Provide flashing as specified by Section 07600 - Metal Flashing and Sheet Metal.

PART 3 EXECUTION

3.1 EXAMINATION

B. Prior to starting work, examine all roof decks on which work will be applied for defects in materials and workmanship.

C. Do not begin installation until the roof deck has been properly prepared.

D. If another installer is responsible for roof deck preparation, notify the architect, designer-of-record on the project, or building owner of unsatisfactory preparation prior to proceeding with installation. Commencement of installation constitutes acceptance of conditions.

E. Underlayment and shingles installed directly over roof insulation or similar type decks is not approved.

   1. Roof deck must be dry, minimum 3/4 in (19 mm) thick, minimum 6 in (152 mm) wide boards with maximum 1/4 in (6.4 mm) spaces, or APA rated sheathing (exposure 1): minimum 3/8 in (9.5 mm) plywood, minimum 7/16 in (11.1 mm) oriented strand board. Consult your manufacturer for other approved constructions.
   2. Ventilation under the roof deck must meet local code requirements.

3.2 PREPARATION

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

G. Remove all existing roofing down to the roof deck.

H. Verify that the deck is dry, structurally sound, clean and smooth. It shall be free of any depressions, waves, and projections. Cover ALL holes 1 in (25 mm) or less in diameter, cracks over 1/2 in (13 mm) in width, loose knots and excessively resinous areas with

minimum 28 gauge; 0.0187 in (0.475 mm) galvanized steel, 0.0156 in (0.396 mm) stainless steel, or 0.0126 in (0.320 mm) aluminum sheet metal. Decking or deck boards with holes greater than 1 in (25 mm) in diameter shall be replaced.

I. Replace damaged deck with new materials.

J. Verify installed roof deck is acceptable to receive shingles. Acceptable roof decks include the following:
   1. Wood boards: 6 in (152 mm) minimum width, 3/4 in (19 mm) minimum thickness.
   2. Plywood sheathing: 3/8 in (9.5 mm) minimum thickness Exposure 1 grade plywood sheathing as recommended by APA and in compliance with local building code requirements.
   3. OSB panels: 7/16 in (11.1 mm) minimum thickness non-veneer structural panels as recommended by APA and in compliance with local building code requirements.
   4. Spacing between boards or panels shall not exceed 1/4 in (6.4 mm) between roof boards or 1/8 in (3.2 mm) between plywood or OSB sheathing panels.

3.3 UNDERLAYMENT INSTALLATION

K. Install underlayments using manufacturer installation instructions and in accordance with local building code requirements. When local codes and installation instructions are in conflict, the local building code requirements shall take precedence.
   1. In areas where ice damming is likely to occur, Install self-adhering ice and water barrier from the eaves edge of roof up the slope not less than 24 in (610 mm), measured horizontally,
   2. beyond the interior edge of the exterior wall. Lap ends 6 in (152 mm) on roof decks sloped 5:12 and greater. On roofs with slopes from 2:12 up to 4:12, see application instructions printed on each package.

L. Drip Edge
   1. Drip edge shall be installed on all roof edges.
   2. Install drip edge on eaves first with underlayment installed over the drip edge, or per local code requirements.
   3. Install drip edge on rakes after underlayment is installed, with the drip edge fastened over the underlayment.
   4. Joints in drip edge shall be lapped minimum 2 in (51 mm) with the upslope piece lapped over the down slope piece, or per local building code requirements
   5. Install fasteners 8 in to 10 in (203 mm to 254 m) on center, approximately 1-3/4 in (44 mm) to 3 in (76 mm) from the outside edge of the drip edge, or per local building code requirements.

M. Valleys
   1. Install self-adhering ice and water barrier at least 36 in (914 mm) wide and centered on the valley. Lap ends 6 in (152 mm) and seal.
   2. Where valleys are indicated to be "open valleys", install metal flashing over self-adhering ice and water barrier before roof deck underlayment is installed; DO NOT nail through the flashing. Secure the flashing by nailing at 18 in (457 mm) on center just beyond edge of flashing so that nail heads hold down the edge, or use valley metal with a formed edge and secure with clips.

N. Roof Deck

1. On roofs with slope greater than 4:12, lap horizontal edges at least 2 inches (51 mm) and at least 2 inches (51 mm) over self-adhering ice and water barrier. Lap ends at least 4 inches (102 m). End laps in succeeding course should be located at least 6 ft (1.8 m) from end laps in the preceding course.
2. On roofs with pitch between 2:12 to less than 4:12, see application instructions printed on each shingle wrapper, or follow local code requirements.
3. Lap underlayment over valley protection at least 6 inches (152 mm).

O. Penetrations
1. Vent pipes: Install a 24 in (610 mm) square piece of self-adhering ice and water barrier lapping over roof deck underlayment; seal tightly to pipe.
2. Vertical walls: Install self-adhering ice and water barrier extending at least 3 in to 4 in (76 mm to 102 mm) up the wall and 12 in (305 mm) onto the roof surface. Lap the membrane over the roof deck underlayment.
3. Chimneys: Install self-adhering ice and water barrier around entire chimney extending at least 6 in (152 mm) up the wall and 12 in (305 mm) on to the roof surface. Lap the membrane over the roof deck underlayment.

3.4 SHINGLE INSTALLATION

P. Roof shingles (including started shingles as well as hip and ridge shingles) in accordance with manufacturer installation instructions and in accordance with local building code requirements.

Q. Install starter course at lowest roof edge and along rake with edge of shingles extending 1/4 in (6.4 mm) over edge of roof. Sealant strip should be closest to roof edge.

R. Install first and successive courses of shingles stepping diagonally up and across roof deck with manufacturer recommended offset at each succeeding course. Maintain uniform exposure of shingles at each succeeding course. Use of a chalk line every other course is recommended.

S. Fasten shingles to deck with number of roofing nails per shingle and type of nails specified by Owens Corning, or in accordance specified by local Authority Having Jurisdiction.

T. All fasteners must be driven flush with the shingle surface and penetrate at least 3/4 in (19.1 mm) into the wood deck. Where the deck is less than 3/4 in (19.1 mm) thick, the fastener should be long enough to penetrate fully and extend through the roof sheathing.

U. Install roof shingles at valleys, eaves, rakes, hips and ridges in accordance with manufacturer installation instructions and local building code requirements.

3.5 VENT INSTALLATION

V. Install vents in accordance with manufacturer installation instructions and local building code requirements.

W. Ventilation at minimum must meet or exceed local building code requirements. ie:
1. Net Free Ventilating Area (NFVA) of 1:150 as a minimum.

2. Balanced approach for most effective ventilation (balance between the lower and upper parts of the roof by providing 50% of NFVA at the soffit and 50% at the ridge).
3. NFVA at the upper part of the roof should not exceed 50%.
4. Where length of the roof ridge is sufficient provide continuous ridge vents for most effective ventilation approach.

3.6 PROTECTION

X. Protect installed products until completion of project.

Y. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 076200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counter flashings, gutters, and downspouts.

B. Sealants for joints within sheet metal fabrications.

1.02 RELATED REQUIREMENTS

A. Section 061000 - Rough Carpentry: Wood nailers for sheet metal work.

B. Section 073113 - Asphalt Shingles: Non-metallic flashings associated with shingle roofing.

1.03 REFERENCE STANDARDS

A. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2021.

B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2021, with Errata (2022).

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.

D. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2021a.

E. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction 2022.

F. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Pre-Finished Aluminum: ASTM B209/B209M; 18 gauge, 0.040 inch (1.02 mm) thick; plain finish shop pre-coated with silicone modified polyester coating.
   1. Silicone Modified Polyester Coating: Pigmented organic powder coating, AAMA 2603; baked enamel finish system.
   2. Fluoropolymer Coating: High performance organic powder coating, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.

B. Copper: ASTM B370, cold rolled 16 oz/sq ft, 24 gauge, 0.0216 inch (0.55 mm) thick; natural finish for gutters and downspouts

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. New Flashings: Install new flashing as follows:
   1. Rake Wall: Similar to SMACNA Figure 4-7A.
   2. Valley: SMACNA Figure 4-9.
   3. Pipe Penetrations: SMACNA Figures 4-19 A.

F. Eave Drips: Fabricate from 20 oz. copper with a 3” wide roof flange and 1-1/2” high vertical face with 45-degree break and hemmed edge at bottom.

G. Fabricate corners from one piece with minimum 18-inch (450 mm) long legs; seam for rigidity, seal with sealant.

H. Fabricate flashings to allow toe to extend 2 inches (50 mm) over roofing gravel. Return and brake edges.

I. Separations: Provide for separations of metal from non-compatible metal or corrosive substrates by loading concealed surfaces at locations of contact with bituminous coating or other permanent separation as recommended by the manufacturer.

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, 0.015 inch (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.

D. Seal metal joints watertight.

E. Secure gutters and downspouts in place with concealed fasteners.

F. Set splash pads under downspouts.

END OF SECTION

SECTION 079200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions: Additional requirements for sealants and primers.

1.03 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer 2015 (Reapproved 2022).

B. ASTM C834 - Standard Specification for Latex Sealants 2017.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.

E. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants 2022.

F. ASTM C1311 - Standard Specification for Solvent Release Sealants 2022.

G. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2018.

H. SCAQMD 1168 - Adhesive and Sealant Applications 1989, with Amendment (2017).

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.

1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
2. List of backing materials approved for use with the specific product.
3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.

C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

1.05 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
   2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
   3. Do not seal the following types of joints.
      a. Intentional weepholes in masonry.
      b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
      c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.

B. Type 1 - Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
   1. Type 1a - Lap Joints in Sheet Metal Fabrications: Butyl rubber, non-curing.
   2. Type 1b - Lap Joints between Manufactured Metal Panels: Butyl rubber, non-curing.

C. Type 2 - Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
   1. Type 2a - Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
   2. Type 2b - Wall and Ceiling Joints in Wet Areas: Non-sag polyurethane sealant for continuous liquid immersion.
   3. Type 2c - Floor Joints in Wet Areas: Non-sag polyurethane "non-traffic-grade" sealant suitable for continuous liquid immersion.
   4. Type 2d - Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
   5. Type 2e - Narrow Control Joints in Interior Concrete Slabs: Self-leveling epoxy sealant.

2.03 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products with acceptable levels of volatile organic compound (VOC) content; see Section 016116.

2.04 NONSAG JOINT SEALANTS

A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
   1. Non-Staining to Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
   2. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.

B. Type 1 - Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 25 percent, minimum.
   2. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
   3. Color: To be selected by Architect from manufacturer's standard range.
   4. Cure Type: Single-component, neutral moisture curing
   5. Service Temperature Range: Minus 65 to 180 degrees F (Minus 54 to 82 degrees C).

C. Type 2 - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.

1. Color: White.

D. Type 3 - Polymer Sealant: ASTM C920; single component, cured sealant is paintable and mold/mildew resistant, low odor and VOC, and ultraviolet (UV) resistant.
   1. Adheres to wet surfaces.
   2. Color: White.

E. Type 4 - Hybrid Urethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 35 percent, minimum.
   2. Hardness Range: 20 to 40, Shore A, when tested in accordance with ASTM C661.
   3. Color: To be selected by Architect from manufacturer's standard range.
   4. Service Temperature Range: Minus 40 to 180 degrees F (Minus 40 to 82 degrees C).

F. Type 5 - Tamper-Resistant, Silyl-Terminated Polyether (STPE) and Polyurethane (STPU) Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus [___] percent, minimum
   2. Hardness Range: 25 to 30, Shore A, when tested in accordance with ASTM C661.
   3. Color: Match adjacent finished surfaces.
   4. Service Temperature Range: Minus 40 to 180 degrees F (Minus 40 to 82 degrees C).
   5. Manufacturers:
      a. Sika Corporation; SikaHyflex-150 LM: www.usa.sika.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

G. Type 6 - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
   1. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
   2. Color: Match adjacent finished surfaces.

H. Type 7 - Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface.
   1. Movement Capability: Plus and minus 35 percent, minimum.

I. Type 8 - Acrylic-Urethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; paintable; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 12-1/2 percent, minimum.
   2. Color: White.
   3. Service Temperature Range: Minus 40 to 180 degrees F (Minus 40 to 82 degrees C).
   4. Manufacturers:
      a. DAP Products Inc; DYNAFLEX 920 Sealant: www.dapspecline.com/#sle.
      b. Sherwin-Williams Company; Shermax Urethanized Elastomeric Sealant: www.sherwin-williams.com/#sle.
      c. Substitutions: See Section 016000 - Product Requirements.

J. Type 9 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
   1. Color: Standard colors matching finished surfaces, Type OP (opaque).
   2. Grade: ASTM C834; Grade 0 Degrees F (Minus 18 Degrees C).

K. Type 10 - Non-Curing Butyl Sealant: Solvent-based, single component, non-sag, non-skinning, non-hardening, non-bleeding; non-vapor-permeable; intended for fully concealed applications.

2.05 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
   1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
   2. Open Cell: 40 to 50 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

4.01 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

4.02 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Install bond breaker backing tape where backer rod cannot be used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

F. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

4.03 POST-OCCUPANCY

A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at low temperature in thermal cycle. Report failures immediately and repair.

END OF SECTION

SECTION 081433
STILE AND RAIL WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood doors, stile and rail design; non-fire rated.

B. Panels of wood and glass.

1.02 RELATED REQUIREMENTS

A. Section 081113 - Hollow Metal Doors and Frames.

B. Section 088000 - Glazing.

C. Section 099123 - Interior Painting: Field finishing.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials Current Edition.

B. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass 2018.

C. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights 2019c.

D. AWI (QCP) - Quality Certification Program Current Edition.

E. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Indicate stile and rail core materials and construction; veneer species, type and characteristics.

C. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory finishing criteria, cutouts for glazing, and cutouts for louvers.

D. Manufacturer's Installation Instructions: Indicate special installation instructions.

E. Manufacturer's qualification statement.

F. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

A. Maintain one copy of specified door quality standard on site for review during installation and finishing.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
   1. Accredited participant in specified certification program prior to commencement of fabrication and throughout duration of project.

C. Quality Certification:
   1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: www.awiqcp.org/#sle.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver, and store doors in accordance with quality standard specified.

B. Accept doors on site in manufacturer's packaging, and inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges with tinted sealer if stored more than one week, and break seal on site to permit ventilation.

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Glass Paneled Clear Finished Exterior Entrance Doors:
   1. Doors By Decora, See drawings for size and configuration
      www.doorsbydecora.net
   2. Substitutions: See Section 016000 - Product Requirements.

2.02 DOORS

2.03 ACCESSORIES

A. Hollow Metal Door Frames: See Section 081113.

B. Glazed Openings:
   1. Heat-Strengthened and Fully Tempered Glass: ASTM C1048.
   2. Glazing: Single vision units, 1/4 inch (6.4 mm) thick panes of glass.
   3. Tint: Clear.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standards.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Field-Finished Doors: Trimming to fit is acceptable.

D. Machine cut for hardware.

E. Coordinate installation of doors with installation of frames and hardware.

3.03 TOLERANCES

A. Comply with specified quality standard for fit, clearance, and joinery tolerances.

B. Maximum Width Distortion (Cup): 1/8 inch (3.2 mm) measured with straight edge or taut string, edge to edge, over an imaginary 36 by 84 inch (915 by 2130 mm) surface area.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

END OF SECTION

SECTION 085131
ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Aluminum Windows of the following types:

1. Non-impact rated windows.

1.2 RELATED SECTIONS

A. Section 06 10 00 – Rough Carpentry.
B. Section 07 2500 – Weather Barriers.
C. Section 07 92 00 – Joint Sealants.
D. Section 08 13 26 – Aluminum Doors.
E. Section 08 80 00 – Glazing.

1.3 REFERENCES

A. ASTM International (ASTM):

1. ASTM E283 – Standard Test Method for Determining Rate of Air Leakage Through Exterior Widows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
2. ASTM E331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
3. ASTM E547 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.
4. ASTM E987 – Standard Test Methods for Deglazing Force of Fenestration Products.
5. ASTM F588 – Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact.

B. American Architectural Manufacturers Association (AAMA).

1. AAMA/WDMA/CSA 101/I.S.2/A440 – North American Fenestration Standard/Specification for Windows, Doors, and Skylights.

C. Florida Building Code (FBC).

1. Florida High-Velocity Hurricane Zones (HVHZ).

D. International Building Code (IBC).
E. Miami Dade County.
F. National Fenestration Rating Council (NFRC).

G. U.S. Environmental Protection Agency (EPA):

1. ENERGY STAR.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00.
B. Product Data:

1. Manufacturer's data sheets on each product to be used.

2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Typical installation methods.

C. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
B. Protect from damage due to weather, excessive temperature, and construction operations.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: PGT Custom Windows and Doors
B. Substitutions: Permitted upon approval

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 PERFORMANCE AND DESIGN REQUIREMENTS

A. Standards Compliance:
1. Florida Building Code: Miami Dade Notice of Acceptance for impact windows
2. International Building Code: Meets or exceeds standards for the following.
    a. Air infiltration.
    b. Deglazing.
    c. Structural integrity.
    d. Water resistance.
    e. Forced-entry resistance.
3. ENERGY STAR Certified.
4. Texas Department of Insurance.
5. AAMA/WDMA/CSA 101/I.S.2/A440.
6. ASTM E283 for air infiltration.
7. ASTM E987 for deglazing.
8. ASTM E547 and E331 for water resistance.
9. ASTM F588 for forced entry resistance.
10. NFRC Certified.

2.3 NON-IMPACT VINYL WINDOWS

A. General:
1. Warranty:
    a. Limited lifetime warranty on frames and insulated glass.
2. Construction:
    a. 3-1/2 inches (83 mm) frame depth.
    b. 5/8 inch (13 mm) flange frame.
    c. Capture-lock sash system.
    d. Snap-on glazing beads.
    e. Structural glazing.
    f. Aluminum reinforced sash.
    g. Extruded screen frame with fiberglass mesh.

3. Frame: for CMU retrofit
4. Glazing:
    a. Insulated glazing.
    b. Tint: Clear.
    c. Coating: Lo-E Energy Shield.
5. Muntins: None
6. Finish: Black/Bronze.

B. Basis of Design: ClassicVue Max Series Single Hung Aluminum Windows, SH7600; as manufactured by PGT Custom Windows and Doors.

1. Performance and Design Requirements:
    a. Maximum Water Resistance: 9.75 psf (0.47 kPa).
    b. Design Pressure: Positive 65 psf (3.11 kPa) and negative 70 psf (3.35 kPa).
2. Features:
    a. Sloped sill.
    b. Lift Assist Constant Force Balance System.
    c. No installation fasteners required in sill.
    d. Extruded aluminum interlock.
3. Configuration: Single hung window.
    a. Sash Style: ProView.
    b. Top Frame: Rectangular.
4. Sizes: See window schedule
5. Hardware:
    a. Recessed tilt latches.
    b. Sweep locks.
    c. Window Opening Control Device (WOCD).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly constructed and prepared.
B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions approved submittals and in proper relationship with adjacent construction.
B. Securely fasten frames, and set units level, plumb, and square with respect to the surrounding structure, without twist or bow.
C. Place insulation materials around shim spaces as required to ensure continuity of the thermal barrier of the structure.

D. Apply sealant all around between the aluminum frame and the structure, ensuring that a continuous airtight and watertight perimeter seal results. Leave exposed surfaces clean and free of sealant.

3.4 ADJUSTING

A. Ensure that units freely operate in a normal fashion, and that vents make proper contact with weatherstripping perimeter seal. Adjust frame, vent, or hardware as needed.

3.5 CLEANING AND PROTECTION

A. Clean products in accordance with the manufacturer’s recommendations.
B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 092116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Gypsum wallboard.

C. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 061000 - Rough Carpentry: Building framing and sheathing.

B. Section 061000 - Rough Carpentry: Wood blocking product and execution requirements.

1.03 REFERENCE STANDARDS

A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board 2017 (Reapproved 2022).

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2017.

C. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board 2020.

D. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base 2019.

E. ASTM C1396/C1396M - Standard Specification for Gypsum Board 2017.

F. GA-216 - Application and Finishing of Gypsum Panel Products 2021.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on gypsum board, accessories, and joint finishing system.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.
   1. See PART 3 for finishing requirements.

B. Interior Partitions, all interior partitions are to be considered "acoustic" and be insulated appropriately: Provide completed assemblies with the following characteristics:
   1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

2.02 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. American Gypsum Company: www.americangypsum.com/#sle.
   2. Georgia-Pacific Gypsum: www.gpgypsum.com/#sle.
   3. National Gypsum Company: www.nationalgypsum.com/#sle.
   4. USG Corporation: www.usg.com/.
   5. Substitutions: See Section 016000 - Product Requirements.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Thickness:
      a. Vertical Surfaces: 1/2 inch (13 mm).
      b. Ceilings: 1/2 inch (13 mm).
   3. Paper-Faced Products:
      a. CertainTeed Corporation; Type C Drywall: www.certainteed.com/#sle.
      b. Georgia-Pacific Gypsum; ToughRock: www.gpgypsum.com/#sle.

2.03 GYPSUM WALLBOARD ACCESSORIES

A. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.
   1. Corner Beads: Low profile, for 90 degree outside corners.
   2. Architectural Reveal Beads:
      a. Reveal Depth: 1/2 inch (12 mm).
      b. Reveal Width: 1/2 inch (12 mm).

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Nonrated: Install gypsum board parallel to framing, with ends and edges occurring over firm bearing.

C. Installation on Wood Framing: For nonrated assemblies, install as follows:
   1. Single-Layer Applications: Screw attachment.
   2. Double-Layer Application: Install base layer using screws. Install face layer using adhesive.

3.03 INSTALLATION OF TRIM AND ACCESSORIES

A. Corner Beads: Install at external corners, using longest practical lengths.

B. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.04 JOINT TREATMENT

A. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.

B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
   2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   3. Level 3: Walls to receive textured wall finish.
   4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.

5. Level 1: 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).

D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

3.05 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

SECTION 096429
WOOD STRIP AND PLANK FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood strip and plank flooring, nailed.

B. Secondary subflooring.

1.02 RELATED REQUIREMENTS

A. Section 061000 - Rough Carpentry: Wood overlay subfloor surface.

B. Section 099123 - Interior Painting: Surface finish to flooring.

C. Section 099123 - Interior Painting: Product requirements for surface finish materials for application in this section.

1.03 REFERENCE STANDARDS

A. NWFA (IG) - Installation Guidelines Current Edition.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for flooring.

C. Samples: Submit two samples illustrating floor finish, color, and sheen.

D. Installation Instructions: Indicate standard and special installation procedures.

E. Maintenance Data: Include maintenance procedures and recommended maintenance materials.

1.05 FIELD CONDITIONS

A. Do not install wood flooring until wet construction work is complete and ambient air at installation space has moisture content stabilized at maximum moisture content of 40 percent.

B. Provide heat, light, and ventilation prior to installation.

C. Store materials in area of installation for minimum period of 72 hours prior to installation.

D. Maintain minimum room temperature of 65 degrees F (18 degrees C) for a period of two days prior to delivery of materials to installation space, during installation, and after installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Wood Strip Flooring:
   1. Species: White oak.
   2. Grade: Clear.
   3. Cut: Edge grain.
   4. Moisture Content: 7 to 9 percent.
   5. Actual Thickness: 3/4 inch (19 mm).
   6. Actual Width: 2-1/4 inches (57 mm).
   7. Edge: Tongue and groove.
   8. End: End matched.
   9. Length: Random, minimum of 24 inches ([____] mm).

B. Flooring Nails: Type recommended by flooring manufacturer.

C. Sheathing Paper: Plain building paper.

2.02 ACCESSORIES

A. Wood Base: 1 x 6 (nom) painted on first floor. 1 x 8 (nom) painted on second floor

B. Transition Strip: Same species and finish as flooring material; profiles indicated.

C. Floor Finish: Polyurethane, to achieve satin sheen surface; to match existing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting this work.

B. Verify wood subfloor is properly secured, smooth and flat to plus or minus 1/4 inch in 10 feet (6 mm in 3 m).

C. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Prepare substrate to receive wood flooring in accordance with manufacturer's and NWFA instructions.

B. Broom clean substrate.

3.03 INSTALLATION

A. Sheathing Paper: Place over wood subfloor; lap edges and ends 2 inches (50 mm), staple in place.

B. Wood Flooring:
   1. Install in accordance with manufacturer's and NWFA instructions; predrill and blind nail to subfloor.
   2. Lay flooring parallel to length of room areas. Verify alignment as work progresses.
   3. Arrange flooring with end matched grain set flush and tight.
   4. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar; provide divider strips and transition strips in accordance with flooring manufacturer's recommendations and as indicated.
   5. Install edge strips at unprotected or exposed edges, and where flooring terminates.
   6. Secure edge strips before installation of flooring with stainless steel screws.
   7. Install flooring tight to floor access covers.
   8. Provide [1/32" per foot of run] inch ([____]) expansion space at fixed walls and other interruptions.

C. Install base at floor perimeter to cover expansion space in accordance with manufacturer's instructions. Miter inside and outside corners.

D. Finishing: Specified in Section to match existing.

3.04 CLEANING

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

3.05 PROTECTION

A. Prohibit traffic on floor finish for 48 hours after installation.

B. Place protective coverings over finished floors; do not remove coverings until Date of Substantial Completion.

END OF SECTION

SECTION 096516.13
LINOLEUM SHEET FLOORING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This section includes Linoleum Sheet Flooring for installation on the first floor in all areas besides the elevator cab.

B. Sections related to this section include:
   1. Concrete: Refer to Division 3 Concrete Sections for cast-in-place concrete, concrete toppings, and cementitious underlayments.
   2. Finishes: Refer to Division 9 Finishes Section for maintenance of flooring.
   3. Resilient Flooring Accessories: Refer to Division 9 Finishes Sections for resilient wall bases, reducer strips, metal edge strips and other resilient flooring accessories.

1.03 REFERENCES

Refer to the latest version of all documents listed in this section.

A. Forbo Technical Data Sheets

B. Forbo Installation Guidelines

C. Forbo Floor Care Guidelines

D. Safety Data Sheets (MSDS or SDS)

E. American Society for Testing and Materials (ASTM):
   1. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials
   2. ASTM E 492 – Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine
   3. ASTM E 648 – Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
   4. ASTM E 662 – Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
   5. ASTM E 989 – Standard Classification for Determination of Impact Insulation Class (IIC)
   6. ASTM E 1745 – Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
   7. ASTM F 141 – Standard Terminology Relating to Resilient Floor Coverings
   8. ASTM F 710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
   9. ASTM F 1482 – Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
   10. ASTM F 1861 – Standard Specification for Resilient Wall Base
   11. ASTM F 1869 – Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
   12. ASTM F 2034 – Standard Specification for Linoleum Sheet Floor Covering

13. ASTM F 2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
14. ASTM F 2419 – Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring
15. ASTM F 3191 – Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring

F. National Fire Protection Association (NFPA):
1. NFPA 253 – Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
2. NFPA 258 – Test Method for Specific Optical Density of Smoke Generated by Solid Materials

G. Standards Council of Canada:
1. CAN/ULC S102.2 – Standard Test Method for Flame Spread Rating and Smoke Development of Flooring Materials
2. CAN/ULS S102 – Standard Test Method for Flame Spread Rating and Smoke Development of Wall Materials

2.02 SUBMITTALS

A. General: Submit each item in this Article according to the "Conditions of the Contract" and Division 1 Specification Sections.

B. Samples: Submit three (3) sets of samples of each type, color and finish of flooring and accessory products specified, with an indication of full range of color, pattern and texture variation. Provide samples with a minimum size of 6” x 9” for flooring products and 6” in length for accessories.

C. Quality Assurance Submittals:
1. Submit three (3) copies of the manufacturer’s Product Technical Data Sheet, specifying performance characteristics, criteria and physical requirements.
2. Submit three (3) copies of the manufacturer's written installation recommendations.

D. Closeout Submittals:
1. Submit three (3) copies of the maintenance and operations data. This should include methods for maintaining the installed products and any precautions against cleaning materials or methods that are detrimental to the product and their performance.
2. Submit three (3) copies of the warranty as specified herein.

2.03 QUALITY ASSURANCE

A. Manufacturer: Whenever possible, provide each type of flooring as provided by a single manufacturer, including recommended primers, adhesives, sealants, patching and leveling compounds.

B. Pre-Installation Testing: Conduct and document pre-installation testing as specified by manufacturer in accordance with the latest version of the specified test methods.
1. pH testing: ASTM F 710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
2. In-situ Relative Humidity Testing: ASTM F 2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
3. Calcium Chloride Testing: ASTM F 1869 – Standard Test Method for Measuring Moisture Vapor Emissions Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

4. Surface Moisture Testing: ASTM F 2659 – Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and other Floor Slabs and Screeds Using a Non- Destructive Electronic Moisture Meter.

C. Flooring Contractor Qualifications:
   1. The Awarded Flooring Contractor shall be an established firm, experienced in the installation of the specified product and shall have access to all manufacturer's required specifications, technical, installation and maintenance related documents.

D. Installer Qualifications:
   1. An installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

2.04 WARRANTY

A. Project Warranty: Comply with requirements according to the "Conditions of the Contract" in Division 1 Closeout Submittals Warranty Section for project warranty provisions.

B. Manufacturer's Warranty: Submit the manufacturer's standard warranty document executed by authorized company official for Owner's acceptance. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
   1. Warranty Period: Thirty (30) year limited warranty commencing on Date of Original Purchase from manufacturer.
      a. Installation Warranty: Submit the flooring contractor's installation warranty signed by the General Contractor and Installer for Owner's Acceptance, agreeing to repair or replace work which has failed a as result of defects in workmanship. Failure shall include, but not limited to, tearing, cracking, separation, deterioration or loosening from substrate, seam failure, ripples, bubbling or puckering. Upon notification of such installation deficiencies, within the warranty period, make necessary repairs or replacement at the convenience of the Owner. Other guaranties or warranties may not be substituted by the Contractor for the terms of this warranty. Installation warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents
   2. Warranty Period: Two (2) year limited warranty commencing on Date of Substantial Completion from flooring contractor.

2.05 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with the Division 1 Product Requirements Sections.

B. Ordering: Comply with the manufacturer's ordering instructions and lead time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
   1. Flooring materials must be ordered a minimum of sixty (60) days prior to the scheduled start of installation.

D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
   1. All materials (flooring, adhesives, weld rod and accessories) should be stored in areas that are fully enclosed and weathertight. The permanent HVAC should be fully operational and controlled and set at a minimum temperature 65° F (18.3° C). If this is not possible, the areas should be acclimated and controlled by means of temporary HVAC to the service level conditions expected during occupancy. The temperature and humidity should range from 75° F ± 10°F (23.9° C ± 5.5° C) with a 50% ± 10% ambient relative humidity.

2. Store rolls standing upright, labels up, and ensure that the color, roll and batch numbers can be easily read.
3. Comply with the manufacturer's recommendation for the acclimation of all materials in the space where they will be installed for at least 48 hours prior to the installation unless longer conditioning periods are required by the manufacturer.

2.06 PROJECT CONDITIONS

A. Environmental Requirements/Conditions:
   1. Areas to receive material should be clean, fully enclosed and weather tight. The permanent HVAC should be fully operational and controlled and set at a minimum temperature 65° F (18.3° C). If this is not possible, the areas should be acclimated and controlled by means of temporary HVAC to the service level conditions expected during occupancy. The temperature and humidity should range from 75° F ± 10°F (23.9° C ± 5.5° C) with a 50% ± 10% ambient relative humidity. These conditions MUST be established at least seven days prior to beginning the installation, maintained during the installation, and continued for at least seven days following the installation.
   2. The flooring material should be conditioned in the same manner for at least 48 hours prior to the installation.
   3. Substrate evaluation and preparation should not begin until a stable, conditioned environment has been established as described in this section.
   4. Areas to receive flooring must have adequate lighting to allow for proper inspection and preparation of the substrate, installation of the flooring and final inspection.

B. Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during, and after installation as recommended by manufacturer.
   1. Temperature Conditions: 65° F (18.3° C) for at least seven days prior to beginning the installation, maintained during the installation, and continued for at least seven days following the installation.

C. Substrate Conditions:
   1. Concrete Curing: Do not install flooring over concrete substrates until substrates have cured and are dry to bond with adhesive as determined by the concrete and flooring manufacturer's recommendations.
   2. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by the manufacturer.
   3. Installation should not begin until the work of all other trades has been completed, especially overhead trades.

D. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

PART 2 PRODUCTS

3.01 LINOLEUM SHEET FLOORING – FORBO FLOORING SYSTEMS

A. Manufacturer Address:
   1. US Headquarters
      a. 8 Maplewood Dr.
      b. Hazleton, PA 18202
      c. Phone: 1-800-842-7839
      d. forboflooringNA.com

B. Proprietary Product Information:

1. Material Name: Marmoleum
2. Description: Homogeneous linoleum sheet made primarily of natural materials consisting of linseed oil, wood flour, and rosin binders, mixed and calendared onto natural jute backing. Pattern and color shall extend throughout total thickness of material.
3. Finish: Topshield2™ applied during the manufacturing process
4. Width: 2 Meters (79")
5. Length: 32 Meters (105 Linear Feet)
6. Gauge: 2.5mm (1/10”)
7. Backing: Jute
8. Color and Pattern: Colors and patterns shall be selected by Architect
9. Adhesive: as recommended by the manufacturer for the installation
10. Conventional Fit Seams: All Marmoleum sheet products shall be installed utilizing conventional fit seams.

3.02 ACCESSORIES

A. Metal Edge Strips: Strips shall be of width shown and of required thickness to protect the exposed edge of the flooring with units in maximum length available to minimize the number of joints.

3.03 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

3.04 RELATED MATERIALS

A. Related Materials: Refer to other sections for related materials as follows.
   1. Concrete: Refer to Division 3 Concrete Sections for cast-in-place concrete, concrete toppings, and cementitious underlayments.
   2. Finishes: Refer to Division 9 Finishes Section for maintenance of flooring.
   3. Resilient Flooring Accessories: Refer to Division 9 Finishes Sections for resilient wall bases, reducer strips, metal edge strips and other resilient flooring accessories.

3.05 SOURCE QUALITY

A. Source Quality: Obtain flooring product materials from a single manufacturer.

PART 3 EXECUTION

4.01 MANUFACTURER'S RECOMMENDATIONS

A. Compliance: Comply with manufacturer's product technical data, including product technical bulletins, installation recommendations and floor care recommendations.

4.02 INSPECTION

A. Site Verification of Conditions: The Flooring Contractor and Installer shall examine and verify conditions previously described in other sections under which flooring and accessories are to be installed to be in accordance with the manufacturer’s installation recommendations and must notify the General Contractor in writing of conditions detrimental to proper and timely completion of work. Work shall not proceed until all unsatisfactory conditions are corrected to acceptable conditions to the Owner and Architect.

B. Material Inspection: Visually inspect all materials prior to installation in accordance with the manufacturer’s installation recommendations. Material with visual defects shall not be installed and shall not be considered as a legitimate claim if they are installed.

4.03 PREPARATION

A. General: Comply with manufacturer's written installation recommendations for preparing substrates indicated to receive flooring products and accessories.

B. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

C. Surface Preparation:
   1. General: Prepare substrate in accordance with manufacturer's recommendations and ASTM industry standards. Work shall not proceed until all unsatisfactory conditions are corrected to acceptable conditions to the Owner and Architect.
   2. Concrete Substrate: Concrete substrates shall be cured per the concrete manufacturer's recommendations. They must have a minimum compressive strength of 3,000 psi and a minimum dry density of 150 pounds per cubic foot. Refer to Division 3 Concrete Sections for patching, repairing crack materials and leveling compounds with Portland cement based compounds.
      a. Refer to Division 3 Concrete Sections for cast-in-place concrete, concrete toppings, and cementitious underlayments.
      b. Reference Standard: Comply with the latest version of ASTM F 710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

D. Substrate Testing: Before beginning the installation, all testing requirements must be conducted: moisture testing, concrete porosity, pH and bond testing.

4.04 INSTALLATION

A. Material Installation: Measure the area to be installed and determine the direction in which the material will be installed and seam placement. Seams should be a minimum of 6" away from underlayment and concrete joints, saw cuts, etc. Cut the required length for the first sheet off of the roll, adding approximately 3" - 6" for extra trimming. Fit the first sheet along the main (long) wall and at the ends using standard fitting methods. Position the fitted sheet in place against the main wall. The factory edge must be trimmed in order to produce a clean edge suitable for seaming. The Forbo Seam & Strip Cutter has been developed to efficiently and effectively trim the factory edge. In lieu of the Forbo Seam & Strip Cutter, a straight edge, utility knife and hooked blade knife may also be used. Position the straight edge approximately 1/2" - 3/4" from the factory edge and score the material using the utility knife along the straight edge. After scoring, complete the cut using a hooked blade knife following the score line. Hold the blade at a slight angle to the surface of the material so the seam edge will have a slight undercut. After trimming the seam edge, draw a pencil line on the substrate lengthwise along the trimmed edge. This line will serve as a spread line when applying the adhesive. Do not reverse the sheets. Install all Marmoleum® sheets in the same direction. Immediately roll the flooring in all directions using a 100 lb. roller to ensure proper adhesive transfer. Additional rolling is required during adhesive setup to ensure that the material is flat and fully adhered. The use of a three-section wall roller or steel seam roller is required at walls, under toe kicks or anywhere the full weight of a 100 lb. roller cannot access or be applied.

B. Seaming: The entire area can be covered with a single sheet. No seaming is permitted.

C. Installation Techniques:
   1. Scribe, cut, fit flooring to butt tightly to vertical surfaces, permanent fixtures and built-in furniture, including pipes, outlets, edgings, thresholds, nosings, and cabinets.
   2. Extend flooring into toe spaces, door reveals, closets, and similar openings.
   3. Adhere resilient flooring to substrate without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed installation.

a. Use adhesive applied to the substrate in compliance with the flooring manufacturer's recommendations, including those for proper spreading of the adhesive, adhesive missing and adhesive open and working times.

4. Immediately roll the flooring in all directions using a 100 lb. roller to ensure proper adhesive transfer. Additional rolling is required during adhesive setup to ensure that the material is flat and fully adhered. The use of a three-section wall roller or steel seam roller is required at walls, under toe kicks or anywhere the full weight of a 100 lb. roller cannot access or be applied.

END OF SECTION

SECTION 099000

PAINTING AND COATINGS

PART 1 GENERAL

2.01 SECTION INCLUDES

A. Surface preparation.

B. Interior painting and coating systems.

C. Exterior painting and coating systems.

D. Scope:

1. Finish surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
    a. Exterior:
        1) Metal, Miscellaneous: Iron, ornamental iron, structural iron and steel, ferrous metal.
        2) Wood: Siding, trim, shutters, sashes, and hardboard-bare/primed.
    b. Interior:
        1) Metal: Structural steel columns, joists, trusses, beams, miscellaneous and ornamental iron, structural iron, and ferrous metal.
        2) Wood: Walls, ceilings, doors, and trim.
        3) Drywall: Walls, ceilings, gypsum board, and similar items.

2.02 RELATED REQUIREMENTS

A. Section 055000 - Metal Fabrications: Shop-primed items.

2.03 REFERENCE STANDARDS

A. SCAQMD 1113 - Architectural Coatings 1977, with Amendment (2016).

B. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).

C. SSPC-SP 6 - Commercial Blast Cleaning 2007.

2.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:

1. Product characteristics.
2. Surface preparation instructions and recommendations.
3. Primer requirements and finish specification.
4. Storage and handling requirements and recommendations.
5. Application methods.
6. Clean-up information.

C. Applicator's qualification statement.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 016000 - 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 manufacturer's label.

2.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

2.06 MOCK-UPs

A. See Section 014000 - Quality Requirements for general requirements for mock-ups.

B. Provide one accent wall as directed by Architect to demonstrate color and finish.

C. Locate where directed by Architect.

D. Mock-up may remain as part of the work.

2.07 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, product name, product code, color designation, VOC content, batch date, environmental handling, surface preparation, application, and use instructions.

C. Paint Materials: Store at a minimum 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.

D. Handling: Maintain a clean, dry storage area to prevent contamination or damage to materials.

2.08 FIELD CONDITIONS

A. Do not apply materials when environmental conditions are outside the ranges required by manufacturer.

B. Follow manufacturer's recommended procedures for producing the best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

PART 2 PRODUCTS

3.01 MANUFACTURERS

A. Basis of Design Products: Subject to compliance with requirements, provide Sherwin-Williams Company (The) products indicated; www.sherwin-williams.com

B. Vapor permeable sealer for interior exposed brick: MasterProtect H 185 by Master Builders Solutions. High-performance, breathable, water-based, silane/siloxane blended water-repellent sealer

3.02 PAINTINGS AND COATINGS

A. General:

1. Provide factory-mixed coatings unless otherwise indicated.
2. Do not reduce, thin, or dilute coatings or add materials to coatings unless specifically indicated in manufacturer's instructions.

B. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

3.03 PAINT SYSTEMS - EXTERIOR

A. Metal, Miscellaneous: Iron, ornamental iron, structural iron and steel, ferrous metal.
   1. Latex Systems:
      a. Semi-Gloss Finish:
         1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.
            (a) 5 to 10 mils wet, 1.8 to 3.6 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Acrylic Semi-Gloss, B66-650 Series: www.sherwin-williams.com/#sle.
            (a) 2 to 4 mils dry per coat.

B. Wood: Trim, sashes, and hardboard-bare/primed.
   1. Latex Systems:
      a. Semi-Gloss Finish:
         1) 1st Coat: Sherwin-Williams Latex Wood Primer, B42W8041: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.4 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Acrylic Semi-Gloss, B66-650 Series: www.sherwin-williams.com/#sle.
            (a) 2 to 4 mils dry per coat.

C. CMU: walls
   1. Latex Systems:
      a. Low Sheen Finish:
         1) Primer: Loxon® Block Surfacer, A24W200
         2) 1st coat: A-100® Exterior Latex Low Sheen, A12 series
         3) 2nd coat: A-100® Exterior Latex Low Sheen, A12 series

3.04 PAINT SYSTEMS - INTERIOR

A. Metal: Structural steel columns, joists, trusses, beams, miscellaneous and ornamental iron, structural iron, and ferrous metal.
   1. Latex Systems:
      a. Semi-Gloss High Performance:
         1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.
            (a) 5 mils wet, 2 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Acrylic Semi-Gloss, B66-650 Series: www.sherwin-williams.com/#sle.
            (a) 2 to 4 mils dry per coat.

B. Doors, and trim.
   1. Latex Systems:
      a. Semi-Gloss Finish:
         1) 1st Coat: Sherwin-Williams Premium Wall and Wood Primer, B28W8111: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.8 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams ProClassic Waterborne Acrylic Semi-Gloss, B31 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.3 mils dry per coat.

C. Drywall: Walls, ceilings, gypsum board, and similar items.
   1. Latex Systems:
      a. Egg-Shel Finish High Performance (HP):
         1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.5 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 HP Zero VOC Eg-Shel, B20-1950 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.7 mils dry per coat.
      b. Flat Finish:
         1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.5 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 Zero VOC Latex Flat, B30-2600 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.6 mils dry per coat.

PART 3 EXECUTION

4.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

5.01 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. For exposed interior brick, brush with stiff bristle brush (not wire) all surfaces to remove lose paint, mortar, and spalling brick faces. Repoint with matching mortar joints that are erroded more than 1/8". Allow mortar to cure for 7 days prior to application of sealer.

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

D. Gypsum Board: Fill minor defects with filler compound; sand smooth and remove dust prior to painting.

E. Plaster: Fill hairline cracks, small holes, and imperfections with patching plaster. Make smooth and flush with adjacent surfaces. Treat textured, soft, porous, or powdery surfaces in accordance with manufacturer's instructions.

F. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Prime bare steel surfaces.
   3. Remove rust, loose mill scale, and other foreign substances using methods recommended by paint manufacturer and blast cleaning according to SSPC-SP 6. Protect from corrosion until coated.

G. Wood: Remove dust, grit, and foreign matter. Scrape, sand, and spot prime knots and pitch streaks. Fill nail holes and imperfections with wood filler and sand smooth.

5.02 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions.

C. Apply coatings at spread rate required to achieve manufacturer's recommended dry film thickness.

D. Regardless of number of coats specified, apply additional coats until complete hide is achieved.

5.03 PRIMING

A. Apply primer to all surfaces unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

B. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to top coat manufacturers.

5.04 CLEANING

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

B. Clean surfaces immediately of overspray, splatter, and excess material.

C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

5.05 PROTECTION

A. Protect finished coatings from damage until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION