

GYNLEA at WYLDER

Pro Shop and Cart Barn

Port St Lucie, FL

Architect:

Basham & Lucas Design Group, Inc.

Structural Engineers:

Lowe Structures, Inc.

Mechanical & Plumbing Engineers:

Ci-Mech Engineering, Inc.

Electrical Engineers:

Shaffer Engineering Group, Inc.

Interior Designer:

Micamy Design Studio

September, 2023

Job No. 22-04

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SECTION 011100 - SUMMARY OF WORK

1.1 GENERAL

- A. The project consists of a new Pro Shop and Cart Barn

The clubhouse is constructed of masonry exterior walls with brick and fiber cement finish. Windows are storefront units with insulated glazing. The interior and exterior doors consist of aluminum & glass and fiberglass doors. Interior partitions are wood stud framing. The roof construction is a standing seam metal roofing system on sheathing over pre-engineered roof trusses.

- B. Contract Documents were prepared for the Project by: Basham & Lucas Design Group, Inc., Lowe Structures, Inc., Ci-Mech Engineering, Inc., Shaffer Engineering Group, Inc., and Micamy Design Studio, LLC.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION (Not Applicable)

END OF SECTION 011100

SECTION 012000 - APPLICATIONS FOR PAYMENT

1.1 GENERAL

- A. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
- B. Schedule of Values: Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's Construction Schedule.
 - b. Application for Payment forms, including Continuation Sheets.
 - c. List of subcontractors.
 - d. List of products.
 - e. List of principal suppliers and fabricators.
 - f. Schedule of submittals.
 - 2. Submit the Schedule of Values at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Applications for Payment or as required by the Construction Contract.
- C. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Include the following Project identification:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - h. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate evaluation of Applications for Payment. Break subcontract amounts down into several line items. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
 4. Provide a separate line item for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
 5. Provide separate line items for initial cost of the materials, for each subsequent stage of completion, and for total installed value.
 6. Show line items for indirect costs and margins on costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.
 - a. Temporary facilities and items that are not direct cost of work-in-place may be shown as separate line items or distributed as general overhead expense.
 7. Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives change the Contract Sum.
- D. Applications for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
- E. Payment-Application Times: Payment dates are indicated in the Contract. The period covered by each application is the period indicated in the Contract.
- F. Payment-Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the form for Applications for Payment.
- G. Application Preparation: Complete every entry, including notarization and execution by a person authorized to sign on behalf of the Contractor. The Architect will return incomplete applications without action.
1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- H. Transmittal: Submit 3 executed original copies of each Application for Payment to the Architect within 24 hours. Submit email copy of payments to Owner Representative. One copy shall be complete, including waivers of lien and similar attachments.
1. Transmit each copy with a transmittal listing attachments and recording appropriate information related to the application.
- I. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of lien from every entity who may file a lien arising out of the Contract and related to the Work covered by the payment in form required by the Contract.
1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.

2. When an application shows completion of an item, submit final or full waivers.
 3. Submit each Application for Payment with Contractor's waiver of lien for the period of construction covered by the application.
 - a. Submit final Applications for Payment with final waivers from every entity involved with performance of the Work covered by the application who may file a lien.
 4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.
- J. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment or as required by the Contract include the following:
1. List of subcontractors.
 2. List of principal suppliers and fabricators.
 3. Schedule of Values.
 4. Contractor's Construction Schedule (preliminary if not final).
 5. Submittal Schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. Copies of building permits.
 8. Copies of licenses from governing authorities.
 9. Certificates of insurance and insurance policies.
 10. Performance and payment bonds.
- K. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
1. Administrative actions and submittals that shall precede or coincide with this application include the following:
 - a. Occupancy permits.
 - b. Warranties and maintenance agreements.
 - c. Test/adjust/balance records.
 - d. Maintenance instructions.
 - e. Meter readings.
 - f. Changeover information related to Owner's occupancy.
 - g. Final cleaning.
 - h. Application for reduction of retainage and consent of surety.
- L. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
1. Completion of Project closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Transmittal of Project construction records to the Owner.
 4. Certified property survey.

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APPLICATIONS FOR PAYMENT
SECTION 012000

5. Proof that taxes, fees, and similar obligations were paid.
6. Removal of temporary facilities and services.
7. Change of door locks to Owner's access.
8. Provide Final Affidavit, Waiver and Release of Lien in form required by Contract.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION (Not Applicable)

END OF SECTION 012000

SECTION 012300 - ALTERNATES

1.1 GENERAL

- A. An alternate is an amount proposed by bidders and stated on the Bid Form for certain work that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.
- B. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.
- C. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION (Not Applicable)

END OF SECTION 012300

SECTION 013300 - SUBMITTALS

1.1 GENERAL

- A. Submittal Procedures: Coordinate submittal preparation with construction, fabrication, other submittals, and activities that require sequential operations. Transmit in advance of construction operations to avoid delay.
1. Coordinate submittals for related operations to avoid delay because of the need to review submittals concurrently for coordination. The Architect reserves the right to withhold action on a submittal requiring coordination until related submittals are received.
 2. Processing: Allow 2 weeks for initial review. Allow more time if the Architect must delay processing to permit coordination. Allow 2 weeks for reprocessing.
 - a. No extension of Contract Time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.
 3. Submittal Preparation: Place a permanent label on each submittal for identification. Provide a 4- by 5-inch (100- by 125-mm) space on the label or beside title block to record review and approval markings and action taken. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of the Architect.
 - d. Name and address of the Contractor.
 - e. Name and address of the subcontractor.
 - f. Name and address of the supplier.
 - g. Name of the manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 4. Submittal Transmittal: Package each submittal appropriately. Transmit with a transmittal form. The Architect will not accept submittals from sources other than the Contractor.
 5. Transmittal Form: Use AIA Document G810. On the form, record requests for data and deviations from requirements. Include Contractor's certification that information complies with requirements.
- B. Contractor's Construction Schedule: Prepare a horizontal bar-chart-type, contractor's construction schedule. Provide a separate time bar for each activity and a vertical line to identify the first working day of each week. Use the same breakdown of Work indicated in the "Schedule of Values." Indicate estimated completion in 10 percent increments. As Work progresses, mark each bar to indicate actual completion.
1. Submit within 30 days of the date established for "Commencement of the Work."
 2. Prepare the schedule on stable transparency, or other reproducible media, of width to show data for the entire construction period.

3. Secure performance commitments from parties involved. Coordinate each element with other activities; include minor elements involved in the Work. Show each activity in proper sequence. Indicate sequences necessary for completion of related Work.
 4. Coordinate with the Schedule of Values, list of subcontracts, Submittal Schedule, payment requests, and other schedules.
 5. Indicate completion in advance of Substantial Completion. Indicate Substantial Completion to allow time for the Architect's procedures necessary for certification of Substantial Completion.
 6. Work Stages: Indicate important stages for each portion of the Work.
 7. Area Separations: Provide a separate time bar to identify each construction area for each portion of the Work. Indicate where each element must be sequenced with other activities.
- C. Submittal Schedule: After developing the Contractor's Construction Schedule, prepare a schedule of submittals. Submit within 10 days of submittal of the Construction Schedule.
1. Coordinate with list of subcontracts, Schedule of Values, list of products, and the Contractor's Construction Schedule.
 2. Prepare the schedule in chronological order. Provide the following information:
 - a. Date for first submittal.
 - b. Related Section number.
 - c. Submittal category (Shop Drawings, Product Data, or Samples).
 - d. Name of the subcontractor.
 - e. Description of the Work covered.
 - f. Date for the Architect's final approval.
 3. Schedule Distribution: Distribute copies of the Contractor's Construction Schedule and the Submittal Schedule to the Architect, Owner, subcontractors, and parties required to comply with submittal dates. Post copies in the field office.
 - a. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their Work and are no longer involved in construction activities.
 - b. Updating: Revise the schedule after each meeting or activity where revisions have been made. Issue the updated schedule concurrently with the report of each meeting.
- D. Daily Construction Reports: Prepare a daily report recording events at the site. Submit duplicate copies to the Architect at weekly intervals. Include the following information:
1. List of subcontractors at the site.
 2. High and low temperatures, general weather conditions.
 3. Accidents and unusual events.
 4. Stoppages, delays, shortages, and losses.
 5. Meter readings and similar recordings.
 6. Emergency procedures.
 7. Orders and requests of governing authorities.
 8. Services connected, disconnected.
 9. Equipment or system tests and startups.

10. Substantial Completions authorized.

Shop Drawings: Submit newly prepared information drawn to scale. Indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information. Include the following information:

1. Dimensions.
2. Identification of products and materials included by sheet and detail number.
3. Compliance with standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.
6. Sheet Size: Except for templates and full-size Drawings, submit one correctable, reproducible print and one blue- or black-line print on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 36 by 48 inches (890 by 1220 mm). The Architect will return the reproducible print.
 - a. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

F. Product Data: Collect Product Data into a single submittal for each element of construction. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, mark copies to indicate applicable information.

1. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
2. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required.
3. Submittals: Submit 2 copies; submit 4 copies where required for maintenance manuals. The Architect will retain one and return the other marked with action taken.
 - a. Unless noncompliance with Contract Documents is observed, the submittal serves as the final submittal.
4. Distribution: Furnish copies to installers, subcontractors, suppliers, and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
 - a. Do not use unmarked Product Data for construction.

G. Samples: Submit full-size Samples cured and finished as specified and identical with the material proposed. Mount Samples to facilitate review of qualities.

1. Include the following:

- a. Specification Section number and reference.
 - b. Generic description of the Sample.
 - c. Sample source.
 - d. Product name or name of the manufacturer.
 - e. Compliance with recognized standards.
 - f. Availability and delivery time.
 2. Submit Samples for review of size, kind, color, pattern, and texture, for a check of these characteristics, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed. Where variations are inherent in the material, submit at least 3 units that show limits of the variations.
 - a. Refer to other Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar characteristics.
 - b. Refer to other Sections for Samples to be incorporated in the Work. Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
 - c. Samples not incorporated into the Work, or designated as the Owner's property, are the Contractor's property and shall be removed from the site.
 3. Preliminary Submittals: Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from standard choices. The Architect will review and return submittals indicating selection and other action.
 4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. One set will be returned marked with the action taken. Maintain sets of Samples, at the Project Site, for quality comparison.
 - a. Unless noncompliance with Contract Documents is observed, the submittal may serve as the final submittal.
 - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
 5. Distribution of Samples: Distribute additional sets to subcontractors, manufacturers, and others as required for performance of the Work. Show distribution on transmittal forms.
- H. Quality Assurance Submittals: Submit quality-control submittals, including design data, certifications, manufacturer's instructions, and manufacturer's field reports required under other Sections of the Specifications.
1. Certifications: Where certification that a product or installation complies with specified requirements is required, submit a notarized certification from the manufacturer certifying compliance.
 - a. Signature: Certification shall be signed by an officer authorized to sign documents on behalf of the company.

- I. Architect's Action: Except for submittals for the record or information, where action and return are required, the Architect will review each submittal, mark to indicate action taken, and return. Compliance with specified characteristics is the Contractor's responsibility.

1. Action Stamp: The Architect will stamp each submittal with an action stamp. The Architect will mark the stamp appropriately to indicate the action taken.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION (Not Applicable)

END OF SECTION 013300

SECTION 014500 - QUALITY CONTROL

1.1 GENERAL

- A. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by the Architect.
- B. Contractor Responsibilities: Unless they are the responsibility of another entity, Contractor shall provide inspections and tests specified elsewhere and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
 - 1. Where inspections and tests are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform these services. Costs for these services are included in the Contract Sum.
 - 2. Where inspections and tests are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services.
- C. Retesting: The Contractor is responsible for retesting where results of inspections and tests prove unsatisfactory and indicate noncompliance with requirements.
 - 1. The cost of retesting is the Contractor's responsibility where tests performed indicated noncompliance with requirements.
- D. Auxiliary Services: Cooperate with agencies performing inspections and tests. Provide auxiliary services as requested. Notify the agency in advance of operations to permit assignment of personnel. Auxiliary services include the following:
 - 1. Providing access to the Work.
 - 2. Furnishing incidental labor and facilities to assist inspections and tests.
 - 3. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 - 4. Providing facilities for storage and curing of test samples.
 - 5. Delivering samples to testing laboratories.
 - 6. Providing preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 - 7. Providing security and protection of samples and test equipment.
- E. Duties of the Testing Agency: The testing agency shall cooperate with the Architect and the Contractor in performing its duties. The agency shall provide qualified personnel to perform inspections and tests.
 - 1. The agency shall notify the Architect and the Contractor of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. The agency shall not release, revoke, alter, or enlarge requirements or approve or accept any portion of the Work.
 - 3. The agency shall not perform duties of the Contractor.

- F. Coordination: Coordinate activities to accommodate services with a minimum of delay. Avoid removing and replacing construction to accommodate inspections and tests.
1. The Contractor is responsible for scheduling inspections, tests, taking samples, and similar activities.
- G. Submittals: The testing agency shall submit a certified written report, in duplicate, of each inspection and test to the Architect. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection or test through the Contractor.
1. Submit additional copies of each report to the governing authority, when the authority so directs.
 2. Report Data: Reports of each inspection, test, or similar service include, but are not limited to, the following:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address, and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product and Specification Section.
 - h. Complete inspection or test data.
 - i. Test results and an interpretation of test results.
 - j. Ambient conditions at the time of sample taking and testing.
 - k. Comments or professional opinion on whether inspected or tested Work complies with requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on retesting.
- H. Qualifications for Service Agencies: Engage inspection and testing service agencies that are prequalified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.
1. Each agency shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION

- A. Repair and Protection: Upon completion of inspection, testing, and sample taking, repair damaged construction. Restore substrates and finishes. Comply with Project Specifications, Division 1, Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.

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QUALITY CONTROL
SECTION 014500

- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for inspection and testing.

END OF SECTION 014500

SECTION 017700 - CONTRACT CLOSEOUT

1.1 GENERAL

- A. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16 of Project Specifications.
- B. Substantial Completion: Before requesting inspection for certification of Substantial Completion, complete the following:
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the Work claimed as substantially complete.
 - a. Include supporting documentation for completion and an accounting of changes to the Contract Sum.
 - 2. Advise the Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 4. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys, and similar final record information.
 - 5. Deliver tools, spare parts, extra stock, and similar items.
 - 6. Changeover locks and transmit keys to the Owner.
 - 7. Complete startup testing of systems and instruction of operation and maintenance personnel. Remove temporary facilities, mockups, construction tools, and similar elements.
 - 8. Complete final cleanup requirements, including touchup painting.
 - 9. Touch up and repair and restore marred, exposed finishes.
- C. Inspection Procedures: On receipt of a request for inspection, the Architect will proceed or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
 - 1. The Architect will repeat inspection when requested and assured that the Work is substantially complete.
 - 2. Results of the completed inspection will form the basis of requirements for final acceptance.
- D. Final Acceptance: Before requesting inspection for certification of final acceptance and final payment, complete the following:
 - 1. Final payment request with releases and supporting documentation. Include insurance certificates where required.
 - 2. Submit a statement, accounting for changes to the Contract Sum.
 - 3. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance.

4. Submit final meter readings for utilities, a record of stored fuel, and similar data as of the date of Substantial Completion.
 5. Submit consent of surety to final payment.
 6. Submit a final settlement statement.
 7. Submit evidence of continuing insurance coverage complying with insurance requirements.
 8. Submit Final Affidavit, Waiver and Release of Lien in form required by Contract.
- E. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect.
1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance. If the Work is incomplete, the Architect will advise the Contractor of Work that is incomplete or obligations that have not been fulfilled but are required.
 2. If necessary, reinspection will be repeated.
- F. Record Document Submittals: Do not use record documents for construction. Protect from loss in a secure location. Provide access to record documents for the Architect's reference.
- G. Record Drawings: Maintain a set of prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark the drawing most capable of showing conditions fully and accurately. Give attention to concealed elements.
1. Mark sets with red pencil. Use other colors to distinguish between variations in separate categories of the Work.
 2. Organize record drawing sheets into manageable sets. Bind with durable-paper cover sheets; print titles, dates, and other identification on the cover of each set.
- H. Record Specifications: Maintain one copy of the Project Manual, including addenda. Mark to show variations in Work performed in comparison with the text of the Project Specifications and modifications. Give attention to substitutions and selection of options and information on concealed construction. Note related record drawing information and Product Data.
1. Upon completion of the Work, submit record Project Specifications to the Architect for the Owner's records.
- I. Maintenance Manuals: Organize operation and maintenance data into sets of manageable size. Bind in individual, heavy-duty, 2-inch (51-mm), 3-ring, binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following information:
1. Emergency instructions.
 2. Spare parts list.
 3. Copies of warranties.
 4. Wiring diagrams.
 5. Shop Drawings and Product Data.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION

- A. Operation and Maintenance Instructions: Arrange for each Installer of equipment that requires maintenance to provide instruction in proper operation and maintenance. Include a detailed review of the following items:
1. Maintenance manuals.
 2. Spare parts, tools, and materials.
 3. Lubricants and fuels.
 4. Identification systems.
 5. Control sequences.
 6. Hazards.
 7. Warranties and bonds.
 8. Maintenance agreements and similar continuing commitments.
- B. As part of instruction for operating equipment, demonstrate the following:
1. Startup and shutdown.
 2. Emergency operations and safety procedures.
 3. Noise and vibration adjustments.
- C. Final Cleaning: Employ experienced cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Complete the following operations before requesting inspection for certification of Substantial Completion.
1. Remove labels that are not permanent labels.
 2. Clean transparent materials, including mirrors and glass. Remove glazing compounds. Replace chipped or broken glass.
 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures and lamps.
 5. Clean the site of rubbish, litter, and foreign substances. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.
- D. Pest Control: Engage a licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests.
- E. Removal of Protection: Remove temporary protection and facilities.
- F. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not discharge volatile, harmful, and dangerous materials into drainage materials into drainage systems. Remove waste materials from site, and dispose of lawfully.

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CONTRACT CLOSEOUT
SECTION 017700

END OF SECTION 017700

SECTION 042113 - BRICK MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Brick.
2. Mortar.
3. Miscellaneous masonry accessories.

1.2 SUBMITTALS

A. Product Data: For products indicated.

B. Samples for Verification:

1. Brick.
2. Colored mortar.

1.3 QUALITY ASSURANCE

- A. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.5 PROJECT CONDITIONS

- A. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed. Immediately remove grout, mortar, and soil that come in contact with such masonry.
- B. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- C. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

2.2 BRICK

- A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units.
- B. Brick: Complying with ASTM C 216.
 - 1. Brick: Match Architect's samples.

2.3 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.

- C. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979. Use only pigments with a record of satisfactory performance in masonry mortar.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Davis Colors; True Tone Mortar Colors.
 - b. Solomon Colors, Inc; SGS Mortar Colors.
- D. Aggregate for Mortar: ASTM C 144.
- E. Mortar Color: Match Architect's samples.

2.4 MISCELLANEOUS MASONRY ACCESSORIES

- A. Adjustable Masonry Veneer Anchors: Double pintle tie.
 - 1. Manufacturer – Basis of Design: Heckmann Building Products Inc.
 - 2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating.

2.5 MASONRY CLEANERS

- A. General: Comply with BIA Technical Notes for cleaning brick.
- B. Cleaning Materials: Cleaning agent of detergent or solvent only. Acid solutions shall not be used.

2.6 MORTAR MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar.
- B. Mortar Type: Type N.
- C. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION, GENERAL

- A. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- B. Install masonry accessories in accordance with manufacturer's instructions and recommendations.

3.3 LAYING MASONRY WALLS

- A. Bond Pattern for Exposed Masonry: As indicated.
- B. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

3.4 MORTAR BEDDING AND JOINTING FOR VERTICAL BRICK WALL AREAS

- A. Lay hollow brick as follows:
 - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 - 2. With entire units, including areas under cells, fully bedded in mortar at starting course on footings.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Exposed Joints: Concave, unless otherwise indicated on the Drawings.

3.5 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 5. Clean brick by bucket-and-brush hand-cleaning method described in "BIA Technical Notes 20."

3.6 MASONRY WASTE DISPOSAL

- A. Excess Masonry Waste: Remove excess clean masonry waste and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042113

SECTION 047250 - CAST STONE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast stone.

1.2 SUBMITTALS

A. Product Data: For products indicated.

1. For cast stone units, include data on physical properties, material descriptions, and finish.

B. Shop Drawings: Show installation details for cast-stone units. Include cast stone dimensions and indication of finished faces.

C. Samples for Verification:

1. For cast stone required.

PART 2 - PRODUCTS

2.1 CAST STONE

A. Product and Manufacturer: Match Architect's sample.

1. Shapes and Profiles: As indicated on the Drawings.
2. Color: Match Architect's samples.
3. Faces and Edges: Match Architect's sample.

2.2 BRACKETS

A. Product and Manufacturer: Match Architect's sample.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Waterproofing: Install waterproofing in accordance with manufacturer's installation instructions and recommendations.

- B. Cast Stone: Set cast stone as indicated on Drawings. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances.
 - 1. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place.
 - 2. Set units in full bed of mortar.
 - 3. Rake out joints for pointing with mortar. Rake joints to uniform depths with square bottoms and clean sides. Remove excess mortar.
 - 4. Point mortar joints. Tool exposed joints slightly concave.

3.2 ADJUSTING AND CLEANING

- A. Remove and replace stained and otherwise damaged units and units not matching approved Samples. Cast stone may be repaired if methods and results are approved by Architect.
- B. Replace units in a manner that results in cast stone matching approved Samples, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean cast stone as work progresses.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed cast stone in accordance with manufacturer's instructions and recommendations.

END OF SECTION 047200

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Wood blocking and nailers.

1.2 SUBMITTALS

A. Product Data: For the following.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

1.3 DEFINITIONS

- A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise indicated.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
1. SPIB - Southern Pine Inspection Bureau.
 2. WWPA - Western Wood Products Association.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 2. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPAC2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPAC31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - 3. Wood framing members that are less than 18 inches above the ground in unexcavated areas.

2.3 DIMENSION LUMBER FRAMING

- A. Wood Framing: Construction or No. 2 grade.
 - 1. Species: Any of the following.
 - a. Mixed southern pine; SPIB.

- b. Spruce-pine-fir; NLGA.
- c. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

2.4 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including the following:
 - 1. Blocking and nailers.
- B. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
 - 1. Mixed southern pine, No. 2 grade; SPIB.
 - 2. Spruce-pine-fir (south) or Spruce-pine-fir, Construction or 2 Common Standard or 3 Common grade; NELMA, NLGA, WCLIB, or WWPA.
- C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- D. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153 or Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.

2.6 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4-inch-thick, selected from manufacturer's standard widths to suit width of sill members indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with American Forest & Paper Association (F&PA) WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- E. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- F. Securely attach rough carpentry work to substrate by anchoring and fastening as required for a complete installation.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.

3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

3.4 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Provide bottom plate and top plates using members of sizes indicated Fasten plates to supporting construction unless otherwise indicated.

3.5 PROTECTION

- A. Protect rough carpentry from damage.

END OF SECTION 061000

SECTION 062013 - EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior carpentry.

1.2 SUBMITTALS

- A. Product Data: For products specified indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber, flat with spacers between each bundle to provide air circulation. Protect materials from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 T & G CEILING

- A. Wood Species: As indicated on the Drawings.

1. Grade: As indicated on the Drawings.
2. Finish: Stained; colors to match Architect's samples.

2.2 VERTICAL WEATHERED SHIPLAP SIDING

- A. Wood Species and Grade: Match Architect's sample.

1. Finish: Match Architect's sample.

2.3 FIBER CEMENT BOARD AND BATTEN SIDING

- A. Product and Manufacturer - Basis of Design: HardiePanel Vertical Siding; James Hardie Building Products, Inc.

1. Surface: To be selected by the Architect.
2. Finish: Primed.

2.4 FIBER CEMENT TRIM AND FASCIA

- A. Product and Manufacturer - Basis of Design: HardieTrim; James Hardie Building Products, Inc.
 - 1. Thickness: As indicated on the Drawings.
 - 2. Surface: Smooth.
 - 3. Finish: Primed.

2.5 FIBER CEMENT SOFFIT

- A. Product and Manufacturer - Basis of Design: HardieSoffit; James Hardie Building Products, Inc.
 - 1. Surface: As indicated on the Drawings; if not indicated to be selected by the Architect.
 - 2. Venting: As indicated on the Drawings.
 - 3. Finish: Primed.

2.6 PRESSURE TREATED WOOD

- A. Product and Manufacturer – Basis of Design: YellaWood; Great Southern Wood Preserving Inc.
 - 1. Finish: Painted.

2.7 PVC TRIM AND COLUMN WRAP

- A. Product and Manufacturer - Basis of Design: CertaTrim; Certainteed
 - 1. Exposed Surface Texture: To be selected by the Architect.
 - 2. Finish: Primed.

2.8 MISCELLANEOUS MATERIALS

- A. Rainscreen:
 - 1. Product and Manufacturer - Basis of Design: Slicker Classic Rainscreen; Benjamin Obdyke Inc.
- B. Fasteners for Exterior Finish Carpentry:
 - 1. Nails and Screws: Type 316 stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Prime lumber and moldings to be painted, including both faces and edges, unless factory primed. Cut to required lengths and prime ends. Comply with requirements in Section 099100 "Painting."

3.3 INSTALLATION, GENERAL

- A. Comply with manufacturer's instructions and recommendations for items materials indicated.
- B. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
- C. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining exterior finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.
 - 3. Coordinate exterior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.

3.4 ADJUSTING

- A. Replace exterior finish carpentry that is damaged or does not comply with requirements. Exterior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.5 CLEANING

- A. Clean exterior finish carpentry on exposed and semi exposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.6 PROTECTION

- A. Protect installed products from damage from weather and other causes during construction.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 062013

SECTION 062023 – INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standing and running trim.
2. Ornamental mouldings.
3. Decorative wood truss.

1.2 SUBMITTALS

A. Product Data:

1. For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Wood Trim:

1. Wood Species: As indicated on the Drawings.
2. Finish: As indicated on the Drawings.

B. Ornamental Mouldings:

1. Product and Manufacturer: As indicated on the Drawings.
2. Finish: As indicated on the Drawings.

C. Decorative Wood Truss:

1. Wood Species: As indicated on the Drawings.
2. Finish: Match Architect's samples.

2.2 MISCELLANEOUS MATERIALS

A. Fasteners for Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches into wood substrate.

1. Nails and Screws: 300 Series stainless steel.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

3.2 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
- B. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.
 - 3. Coordinate finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate finish carpentry.

3.3 ADJUSTING

- A. Replace interior finish carpentry that is damaged or does not comply with requirements. Interior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.4 CLEANING

- A. Clean interior finish carpentry on exposed and semi exposed surfaces. Restore damaged or soiled areas and touch up finishes.

3.5 PROTECTION

- A. Protect installed products from damage from weather and other causes during construction.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

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SECTION 062023

2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 062023

SECTION 064116 - ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Custom cabinets.

1.2 SUBMITTALS

A. Product Data: For products indicated.

B. Shop Drawings:

1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
2. Show locations and sizes of cutouts and holes for electrical switches and outlets and other items installed in architectural plastic-laminate cabinets.

C. Samples for Verification: For cabinet materials indicated; 8 by 10 inches, for each color, pattern, and surface finish, with one sample applied to core material.

1.3 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 ARCHITECTURAL CABINETS

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of plastic-laminate-faced architectural cabinets indicated for construction, finishes, installation, and other requirements.

B. Cabinet Grade: As indicated on the Drawings.

C. Type of Construction: As indicated on the Drawings.

D. Cabinet Style: As indicated on the Drawings.

2.2 CABINET VENEER MATERIALS

- A. Cabinet Veneers: As indicated on the Drawings.

2.3 WOOD MATERIALS

- A. General: Provide materials that comply with requirements of referenced quality standard for woodwork and quality grade specified.
- B. Cabinet Grade Plywood: APA Grade A-C; HPVA HP-1, made with adhesive containing no urea formaldehyde.
 - 1. Thickness: As indicated on the Drawings.
- C. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
 - 1. Particleboard (Medium Density): ANSI A208.1, Grade M2 or better.

2.4 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.
- B. Hinges:
 - 1. Product and Manufacturer – Basis of Design: Concealed, self-close with soft-close; 110-degree swing; Hafele America Co.
- C. Pulls: As indicated on the Drawings.
- D. Shelf Supports/ Shelf Rests: Plastic two-pin type with shelf hold-down clip.
 - 1. Product and Manufacturer – Basis of Design: Item No. 282.47.402 Shelf Support, Heavy-Duty, Double Pin, transparent plastic; Hafele America, Archdale, NC
- E. Attachment Hardware: Types recommended by the manufacturer for installation indicated.
 - 1. Finish: Match installed hardware.

2.5 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.

- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
- C. Adhesives: Do not use adhesives that contain urea formaldehyde.

2.6 FABRICATION

- A. General: Fabricate cabinets and shelves to dimensions, profiles, and details indicated.
 - 1. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 2. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
- B. Veneer Core Substrate: Cabinet grade plywood or particleboard.
- C. Shelves: Unless otherwise indicated provide 3/4-inch plywood core with high pressure laminate all sides and edges.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.
- B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.

3.2 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.
- C. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- D. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

- E. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.
 - 1. Use filler matching finish of items being installed.
- F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
- G. Hardware and Accessories: Install in accordance with manufacturer's instructions and recommendations.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean cabinets on exposed and semi-exposed surfaces.

END OF SECTION 064116

SECTION 071416 – FLUID APPLIED WATERPROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fluid applied waterproofing.

1.2 SUBMITTALS

A. Product Data: For products indicated.

1. Include material descriptions and tested physical and performance properties of waterproofing.
2. Include manufacturer's written instructions for evaluating, preparing, and treating substrates.

1.3 FIELD CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended in writing by waterproofing manufacturer.
- B. Maintain adequate ventilation during application and curing of waterproofing materials.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Source Limitations for Waterproofing System: Obtain waterproofing materials from single source from single manufacturer.

2.2 FLUID APPLIED WATERPROOFING

- A. One-Part Modified Polyurethane Waterproofing: ASTM C 836 and coal-tar free.

1. Products and Manufacturers: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to, the following:
 - a. TREMproof 250GC; Tremco Incorporated

2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials, including termination bars and sealants, recommended in writing by materials manufacturer for intended use and compatible with one another and with waterproofing.
- B. Protection Course: Tremco 2450 Protection Board

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
 - 1. Verify substrates are acceptable for application of materials in accordance with waterproofing manufacturer's requirements.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for materials application.
- B. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, acid residues, and other penetrating contaminants or film-forming coatings from concrete.
- C. Remove fins, ridges, and other projections, and fill honeycomb, aggregate pockets, holes, and other voids.

3.3 PREPARATION AT TERMINATIONS, PENETRATIONS, AND CORNERS

- A. Prepare surfaces at terminations and penetrations through waterproofing according to materials manufacturer's written instructions and to recommendations.

3.4 JOINT AND CRACK TREATMENT

- A. Prepare, treat, rout, and fill joints and cracks in substrate according to manufacturer's written instructions and to recommendations. Before coating surfaces, remove dust and dirt from joints and cracks.

3.5 APPLICATION

- A. Apply materials according to manufacturer's written instructions and to recommendations.
- B. Cure materials, taking care to prevent contamination and damage during application and curing.
- C. Install protection board with butted joints over waterproofing before starting subsequent construction operations.

3.6 PROTECTION

- A. Protect waterproofing from damage during remainder of construction period.
- B. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply materials.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION 071416

SECTION 072100 - BUILDING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Insulation.

1.2 SUBMITTALS

- A. Product Data: Each type of insulation product indicated.

1.3 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Insulation materials shall be identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated, by a testing agency acceptable to authorities having jurisdiction.

1. Surface Burning Characteristics: ASTM E-84
2. Combustion Characteristics: ASTM E-136

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

1. Batt Insulation and Sound Batt Insulation:
 - a. CertainTeed Saint-Gobain
 - b. Knauf Insulation
 - c. Owens-Corning

2. Rigid Insulation:
 - a. Atlas Roofing Corporation
 - b. Rmax – A Sika Brand

2.2 MATERIALS

- A. Batt Insulation: Glass-fiber blanket, unfaced; ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
 1. R-Value: As indicated on the Drawings.
- B. Sound Batt Insulation: ASTM C 665, Type I (blankets without membrane facing) with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics, produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 1. Thickness: As indicated on the Drawings.
- C. Rigid Insulation: Polyisocyanurate board insulation; ASTM C 1289, Type I, Grade 3 (25 psi), Class A per ASTM E 84.
 1. Facer Sheet for Interior Application: Manufacturer's standard for applications indicated.
- D. Z-Shaped Furring: Galvanized steel with slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-steel thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation or that interfere with insulation attachment.

3.2 INSTALLATION OF INSULATION - GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to exterior environment at any time.
- C. Insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

- D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.3 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 072129 – SPRAY-APPLIED INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Spray foam insulation.

1.2 SUBMITTALS

A. Product Data: Submit product data for insulation specified.

1. Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties.

B. Product Test Reports: For tests performed by a qualified testing agency.

C. Qualification Data: For Installer.

D. Field Test Reports: Submit field quality control test reports.

1.3 QUALITY ASSURANCE

A. Pre-installation Meeting: Prior to commencement of application of spray foam insulation review and document methods and procedures related to installation, including the following:

1. Review wall framing assemblies for interference and conflicts and coordinate layout and support provisions for interfacing work.
2. Review application methods and procedures including manufacturer's installation guidelines.
3. Review field quality control procedures.

B. Installer Qualifications: Spray foam insulation installer shall be certified in writing by spray foam insulation manufacturer.

C. Single-Source Responsibility for Insulation Products: Obtain insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work.

1.4 MOCKUPS

- A. General: Construct mockup illustrating typical conditions incorporating backup wall construction, window corner condition, door corner condition, outside and inside corner conditions, penetrations, and terminations at top and bottom.
 - 1. Size: Minimum 100 square feet.
- B. Testing: Conduct the following tests to verify the following criteria:
 - 1. Core density.
 - 2. Adhesion between transition sheet membrane and substrate.
 - 3. Cohesion or adhesion between sprayed insulation and substrate.
- C. Verification of Installed Material: Verify results comply with manufacturer's recommendations.
- D. Do not commence work until mockup has been accepted.
- E. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
- F. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in original packaging, bearing manufacturer's name, quantity, expiration date, lot number, and other technical indicators and references.
- B. Store and handle materials in accordance with manufacturer's instructions and recommendations.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's instructions, requirements, and recommendations regarding substrate conditions and environmental requirements.
 - 1. Protect substrates from environmental conditions that affect performance of installed insulation

PART 2 - PRODUCTS

2.1 SPRAY FOAM INSULATION

- A. Products and Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. ICYNENE Classic (LD-C-50), open cell, Spray Foam Insulation; Huntsman Building Solutions.
 - a. Thermal Resistance (for 1 inch of material) (R-Value/inch @75 deg F): ASTM C 518; 3.7 hr.sq ft.degree F/BTU
 - b. R-Value: As indicated on the Drawings.
 - c. Air Permeance (for 2 inches of material): ASTM E 283: <0.02 L/s.m² @75 Pa
 - d. Water Vapor Transmission (for 5.5 inches of material): ASTM E 96; 11 perms
 - e. Flame Spread and Smoke Developed Rating: ASTM E 84
 - 1) Flame Spread: Less than 20
 - 2) Smoke Development: Less than 400
 - 3) Oxygen Index: 23 percent
 - f. Bacterial and Fungal Growth and Food Value: Texas Tech. University; not a source of food for mold (no growth)
- B. Primers: Types recommended by the manufacturer for applications indicated.
- C. Ignition Barrier: DC-315; provide where required by Code.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with material manufacturer's requirements. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation in accordance with manufacturer's instructions and recommendations.
- B. Prior to the application of insulation test surfaces that will be in contact with insulation, in accordance with manufacturer's requirements, to insure proper adhesion of insulation material.
- C. Prepare all areas in accordance with manufacturer's recommendations and instructions.

- D. Verify that items required to penetrate sprayed insulation are installed prior to installation of sprayed insulation.
- E. Do not begin work until unsatisfactory conditions have been corrected to the satisfaction of the applicator.

3.3 INSTALLATION

- A. Insulation: Apply spray-applied insulation according to manufacturer's written instructions and recommendations.
 - 1. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked.
 - 2. After insulation is applied, make flush with face of studs by using method recommended by insulation manufacturer.
- B. Ignition Barrier: Apply according to manufacturer's written instructions and recommendations.
- C. Installation Tolerance:
 - 1. Maximum Variation in Applied Thickness: Comply with manufacturer's requirements.

3.4 FIELD QUALITY CONTROL

- A. Field Quality Control Procedures:
 - 1. Conduct field inspection and testing in accordance with manufacturer's instructions and recommendations.
 - 2. Test completed application daily for core density and cohesion/adhesion to substrates. Record results.

3.5 CLEANING

- A. Remove overspray from non-prescribed surfaces without causing damage to surfaces in accordance with manufacturer's instructions and recommendations.
- B. Remove protective covers from adjacent surfaces.

GLYNLEA GOLF CLUB
PRO SHOP AND GOLF CART BARN
Port St. Lucie, Florida

SPRAY APPLIED INSULATION
SECTION 072129

3.6 PROTECTION

- A. General: Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072129

SECTION 072500 - WEATHER BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Weather barrier.

1.2 SUBMITTALS

A. Product Data: For materials indicated; include manufacturer's product data.

B. Reports: Field quality control reports for the following.

1. Observation of weather barrier installation.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain weather barrier materials and accessories from single source from single manufacturer.

B. Preinstallation Conference: Conduct conference at Project site.

C. Reports: Field quality control reports for the following.

1. Observation of weather barrier installation.

1.4 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with manufacturer's instructions and recommendations.

1.5 PROJECT CONDITIONS

A. General: Comply with manufacturer's instructions and recommendations.

1.6 WARRANTY

- A. Manufacturer's Warranty Requirements: Submit manufacturer's written warranty stating that installed weather barrier materials are watertight, free from defects in material and workmanship, and agreeing to replace defective materials and components.

1. Warranty period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 WEATHER BARRIER

- A. Products and Manufacturers: Provide one of the following. NO SUBSTITUTIONS.

1. Prosoco R-Guard Cat 5 Air & Water Resistive Barrier System; PROSOCO, Inc.

- a. System Components:

- 1) PROSOCO R-Guard PorousPrep
- 2) PROSOCO R-GUARD Joint & Seam Filler
- 3) PROSOCO R-GUARD FastFlash
- 4) PROSOCO R-GUARD CAT-5
- 5) PROSOCO R-GUARD AirDam sealant

- b. Backer Rod: Compressible, closed cell rod stock as recommended by weather barrier system materials manufacturer for compatibility with AirDam sealant.
- c. Weather Barrier Sealant: R-GUARD AirDam.

2. Manufacturer: E.I du Pont de Nemours and Company

- a. System Description: DuPont Tyvek Fluid Applied WB+

- 1) Provide all materials and components for a complete weather barrier system.

- B. Accessories: Provide accessory materials recommended by weather barrier materials manufacturer to produce a complete weather barrier assembly. All accessory materials shall be compatible with primary weather barrier materials.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Apply weather barrier system components in accordance with manufacturer's application instructions, guidelines and recommendations.

3.2 FIELD QUALITY CONTROL

- A. On-Site Testing: The weather barrier material manufacturer's authorized representative shall perform tests as required to confirm the weather barrier materials have been installed in accordance with material manufacturer's instructions and written recommendations.
- B. Observation of Weather Barrier Installation: The barrier material manufacturer's authorized representative shall observe installation of materials.
- C. Material application will be considered defective if it does not pass on-site testing and site observations.
 - 1. Apply additional barrier material, according to manufacturer's written instructions, where testing and observation results indicate insufficient thickness.
 - 2. Remove and replace deficient barrier components for retesting in accordance with manufacturer's instructions and recommendations.
- D. Repair damage to barriers caused by testing; follow manufacturer's written instructions.

END OF SECTION 072500

SECTION 074113 – STANDING-SEAM METAL ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standing seam metal roof.

1.2 SUBMITTALS

A. Product Approval Certification: Submit current Product Approval certification indicating compliance with the Florida Building Code.

B. Product Data: For products indicated.

C. Shop Drawings: Include detailed roofing shop drawings showing profile and gauge of exterior sheets, location and type of fasteners, location, gauges, shape and method of attachment of all trim locations and type of sealants, and any other details as may be required for a weather-tight installation.

1. Show fabrication and installation layouts of metal roof panels, metal wall panels or metal soffit panels, details of edge conditions, side-seam joints, panel profiles, corners, anchorages, trim, flashings, closures and accessories, and special details. Distinguish between factory and field-assembled work.
2. Shop drawings shall be reviewed and approved in writing by the roofing system manufacturer.

D. Samples: For exposed finish required.

E. Product Test Reports: For tests performed by a qualified testing agency.

F. Sample Warranties: For warranties indicated.

1.3 WARRANTY

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

1. Warranty Period: Two years from date of Substantial Completion.

- B. Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: Minimum 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 STANDING SEAM METAL ROOF

- A. Model and Manufacturer – Basis of Design: PAC-150 180 Double Lock; Peterson Aluminum Corp.
1. Florida Product Approval: FL24423.4
 2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A 653, G90 coating designation.
 - a. Nominal Thickness: 24-gauge minimum.
 - b. Exterior Finish: Two-coat fluoropolymer.
 - 1) Color: Matte Black to match Architect's sample.
 - c. Interior (concealed) Finish: Manufacturer's standard paint coating system manufacturer's standard color.
 3. Panel Width: 16-inches on center.
 4. Clips: Manufacturer's standard.
 5. Panel Finish: Smooth.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.
1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.
- B. Wind Loads: As indicated on Drawings.
- C. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance.
1. Uplift Rating: As required to meet wind loads indicated.

- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): Local ambient for material surfaces.

2.3 PANEL MATERIALS

- A. Panel Sealants: Manufacturer's standard.
- B. Trim: Trim shall be fabricated of the same material and finish to match roof panels.
- C. Closures: Use composition or metal profiled closures at top of each elevation to close ends of the panels. Metal closures to be made in the same material and finish as face sheet.

2.4 FLASHING AND TRIM

- A. Exposed Flashing and Trim: All exposed adjacent flashing and trim shall be of the same material and finish as roof panel system.

2.5 AUXILIARY ROOFING MATERIALS

- A. Underlayment: High-temperature sheet 30 to 40 mils thick minimum, consisting of slip-resisting, polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

2.6 ACCESSORIES

- A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fascia, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

- B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- C. Panel Fasteners: Provide fasteners of types approved by roof panel manufacturer and as required for a complete metal roof panel assembly.
- D. Sealants: Exterior grade sealants recommended by the manufacturer for installations indicated.

2.7 FABRICATION

- A. Comply with dimensions, profile limitations, gauges and fabrication details shown and if not shown and, if not shown, provide manufacturer's standard product fabrication.
- B. Fabricate components of the system in factory, ready for field assembly.
- C. Fabricate components and assemble units to comply with fire and performance requirements specified.
- D. Apply specified finishes in conformance with manufacturer's standards, and according to manufacturer's instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal roof panel supports, and other conditions affecting performance of the Work.
- B. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
- C. Examine roughing-in for components and systems penetrating metal roof panels to verify actual locations of penetrations relative to seam locations of metal roof panels before metal roof panel installation.
- D. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.

3.3 UNDERLAYMENT INSTALLATION

- A. General: Install in accordance with manufacturer's instructions and recommendations.

3.4 METAL ROOF PANEL INSTALLATION

- A. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.
 - 1. Panels shall be installed plumb and true in proper alignment and relation to the structural framing.
 - 2. Install metal panels, fasteners, trim and related sealants in accordance with approved shop drawings and as may be required for a weather-tight installation.
 - 3. Remove all strippable coating and provide a dry wipe-down cleaning of the panels as they are erected.

3.5 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 - 1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

- C. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.6 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal roof panel units within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.7 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect metal roof panel installation, including accessories. Report results in writing.
- B. Remove and replace applications of metal roof panels where inspections indicate that they do not comply with specified requirements.
- C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare inspection reports.

3.8 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

3.9 DAMAGED MATERIAL

- A. Repair or replace damaged metal panels and trim to the satisfaction of the Architect and Owner.

END OF SECTION 074113

SECTION 075419 – MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Single-ply membrane roofing.

1.2 SUBMITTALS

- A. Product Approval Certification: Submit current Product Approval certification indicating compliance with the Florida Building Code.
- B. Product Data: For products indicated.
- C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work, including the following:
1. Layout and thickness of insulation.
 2. Base flashings and membrane terminations.
 3. Tapered insulation, including slopes.
 4. Insulation attachment for corner, perimeter, and field-of-roof locations.
- D. Qualification Data: For qualified Installer.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.
- F. Reports: Field quality-control reports.
- G. Warranties: Sample of warranties.
- H. Maintenance Data: For membrane roofing system to include in maintenance manuals.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.5 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.6 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard or customized form, without monetary limitation (No Dollar Limit), in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Warranty includes membrane roofing, insulation, fasteners, roofing accessories, and other components of membrane roofing system.
 - 2. Warranty Period: Minimum 20 years from date of Substantial Completion.
- B. Installer's Warranty: Installer's customized form, without monetary limitation (No Dollar Limit), in which Installer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Minimum 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SINGLE-PLY MEMBRANE ROOFING

- A. Product and Manufacturer – Basis of Design: Sure-Flex PVC KEE Roofing System; Carlisle SynTec Systems
 - 1. Florida Product Approval Number: FL14165.1
 - 2. Assembly System Number: As required for assembly indicated.
 - 3. Membrane Thickness: 60 mils, nominal.
 - 4. Color: White.

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
- B. Prefabricated Accessories: Provide prefabricated boots for pipes and vents.
- C. Cover Board:
 - 1. Product and Manufacturer – Basis of Design: Type complying with Florida Product Approval and recommended by the membrane roofing manufacturer for installation indicated.

2.3 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 3 (25 psi), felt or glass-fiber mat facer on both major surfaces.
 - 1. R-Value: As indicated on the Drawings.

2.4 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with Florida Product Approval requirement and designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.0 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction. Do not exceed 2-inches in thickness for each layer of insulation required.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
 - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

3.4 MEMBRANE ROOFING INSTALLATION

- A. General: Comply with manufacturer's instructions and recommendations.
- B. Seams: Comply with manufacturer's written instructions to ensure a watertight seam installation.
- C. Flashing: Install flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

3.5 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- B. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

3.6 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Final cleaning shall include light pressure washing in accordance with the manufacturer's published recommendations.

END OF SECTION 075419

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sheet metal flashing and trim.
 - 2. Formed roof-drainage sheet metal fabrications.

1.2 SUBMITTALS

- A. Product Data: For metal finish indicated.
- B. Warranty: Sample finish warranty.

1.3 WARRANTY

- A. Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Wind Loads:
 - 1. Design Wind Speed: As indicated on the Drawings.
- C. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressures indicated.

2.2 SHEET METALS

- A. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated and with not less than the strength and durability of alloy and temper designated below:
 - 1. Factory-Painted Aluminum Sheet: ASTM B 209, 3003-H14, with a minimum thickness of 0.040 inch, unless otherwise indicated.
 - 2. Extruded Aluminum: ASTM B 221, alloy 6063-T52, with a minimum thickness of 0.080 inch for primary legs of extrusions, unless otherwise indicated.

2.3 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.
- B. Elastomeric Sealant: Silicone sealant as specified in Division 07 Section "Joint Sealants."
- C. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.
- D. Underlayment: Self-adhering, high-temperature sheet; minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Carlisle Coatings & Waterproofing Inc.; CCW WIP 300HT.
 - b. Grace Construction Products, a unit of W. R. Grace & Co.; Ultra.
 - c. Henry Company; Blueskin PE200 HT.
- E. Fasteners: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where fasteners are used in or come in contact with pressure treated wood, fasteners shall be Type 316 stainless steel.
 - 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
- F. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

2.4 SHEET METAL FABRICATIONS

- A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.
- B. Flashing and Trim: Fabricate from the following material:
 - 1. Fabricate from the following materials:
 - a. Aluminum: 0.040 inch thick.

2.5 ROOF-DRAINAGE SHEET METAL FABRICATIONS

- A. Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch- long sections. Furnish flat-stock gutter brackets and gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard but with thickness not less than twice the gutter thickness. Fabricate expansion joints, and gutter accessories from same metal as gutters.
 - 1. Gutters with Girth up to 20 Inches: Fabricate from the following materials:
 - a. Aluminum: 0.040 inch thick.
 - b. Profile: As indicated.
- B. Downspouts: Fabricate downspouts to profiles and dimensions indicated, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors.
 - 1. Fabricate from the following materials:
 - a. Aluminum: 0.032 inch thick.
 - b. Profile: As indicated.

2.6 ALUMINUM FINISHES

- A. General: Comply with Aluminum Association's (AA) "Designation System for Aluminum Finishes" for finish designations and application recommendations.
- B. High-Performance Organic Finish: Two-coat, thermocured system containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.
 - 1. Color: Match Architect's samples.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual."
- B. Underlayment: Install self-adhering sheet underlayment in accordance with manufacturer's instructions and recommendations.

3.2 ROOF-DRAINAGE SYSTEM INSTALLATION

- A. General: Install sheet metal roof-drainage items to produce complete roof-drainage system according to cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.
- B. Hanging Gutters: Join sections with riveted and soldered joints. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchor them in position. Provide end closures and seal watertight with sealant. Slope to downspouts.
 - 1. Anchor gutter with gutter brackets spaced not more than 24 inches apart to roof deck, unless otherwise indicated, and loosely lock to front gutter bead.
 - 2. Install continuous gutter screens on gutters with noncorrosive fasteners, removable for cleaning gutters.
- C. Downspouts: Join sections with telescoping joints.
 - 1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches on center.
 - 2. Provide elbows at base of downspout to direct water away from building, unless otherwise indicated.
 - 3. Provide boots of size required to transition to drainage system.

END OF SECTION 076200

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sealants for interior and exterior applications.

1.2 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Sealant Schedule: Provide Sealant Schedule indicating sealant types for each condition of use; format Schedule to include entry for color selections by the Architect.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
 - 2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 degrees F.
 - 3. When joint substrates are wet.
- B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

- A. Products: Provide the following products for each application listed. Substitutions for exterior building joint sealants shall be listed on the Validated Products list published by the Sealant, Waterproofing, and Restoration Institute (SWRI).
 - 1. Joint-Sealant: One-part neutral cure silicone sealant; elongation of 800%, joint movement capability of plus-or-minus 25% and Shore A durometer hardness of 45.
 - a. Applications: Air sealing between a sheet applied weather resistant barrier and fenestration element; edge lap seal for weather resistant barriers; sealing penetrations in weather resistant barriers.
 - b. Joint Location: Surfaces common in sheet or peel and stick weather resistant barriers.
 - 1) Product and Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a) Dowsil 758 Silicone Weather Barrier Sealant; Dow Inc.

2. Silicone Sealant - One-Part: For poured-in-place concrete, and concrete-to-concrete and concrete-to-masonry; one-part silicone sealant, having a joint movement capability of plus-or-minus 100% elongation, minus 50% compression, and Shore A durometer hardness of 15.
 - a. Product and Manufacturer:
 - 1) Dowsil 790 Silicone Building Sealant; Dow Inc.
3. Silicone Sealant - One-Part: For masonry-to-aluminum, steel-to-aluminum, concrete-to-aluminum, steel-to-steel, and other metal-to-metal joints (including KYNAR coatings); one-part silicone sealant having a joint movement capability of plus-or-minus 50% elongation, and Shore A durometer hardness of 30.
 - a. Product and Manufacturer:
 - 1) Dowsil 795 Silicone Sealant; Dow Inc.
4. Two-Part, Self-Leveling, Traffic-Grade Polyurethane Sealant: For horizontal joints, exterior and interior; provide joint sealant with a joint movement capability of plus-or-minus 25%.
 - a. Products and Manufacturers: Provide one of the following.
 - 1) Vulkem 245; Tremco, Inc.
 - 2) Urexpam NR200; Pecora Corp.
 - 3) Sikaflex 2c SL; Sika Corp.
 - 4) THC-900; Tremco, Inc.
5. One-Part Silicone - Sanitary Sealant: For Interior use at plumbing fixtures in toilets and janitor closets, and horizontal and vertical joints of dissimilar materials in toilets and other wet areas.
 - a. Products and Manufacturers: Provide one of the following.
 - 1) Dowsil 786 Silicone Sealant; Dow Inc.
 - 2) SCS1700 Sanitary; General Electric Co.
 - 3) Pecora 898NST Silicone Mildew Resistant Silicone Sealant; Pecora Corp.
 - 4) Tremsil 200; Tremco, Inc.
6. Latex Sealant:
 - a. Applications: For interior use for horizontal and vertical joints around door frames, and joints between dissimilar materials

b. Products and Manufacturers: Provide one of the following.

- 1) AC-20 + Silicone; Pecora Corp.
- 2) Tremflex 834; Tremco, Inc.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.3 JOINT-SEALANT BACKING/ BACKER ROD

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Backer Rod (Joint Fillers, Compressible Filler):
 1. Available Products: Subject to compliance with requirements, materials that may be incorporated into the Work include, but are not limited to the following:
 - a. Product and Manufacturer - Basis of Design: Sof Rod; Nomaco, Inc., Zebulon, NC.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.4 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates, unless otherwise recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.
 - 1. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
 - 1. Install sealants by proven techniques and at the same time backings are installed.
 - 2. Place sealants so they directly contact and fully wet joint substrates.
 - 3. Completely fill recesses provided for each joint configuration.
 - 4. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- B. Backing Materials: Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

- C. Bond-Breaker Tape: Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- D. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealants from surfaces adjacent to joint.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.4 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Hollow metal doors.
2. Hollow metal door frames.

1.2 PERFORMANCE REQUIREMENTS

- A. General: Provide exterior steel doors and frames capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified.
- B. Codes Compliance: Comply with requirements of the Florida Building Code for wind and impact resistance.
- C. Wind Loads: As indicated on Drawings.

1.3 DEFINITIONS

- A. Steel Sheet Thickness: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.4 SUBMITTALS

- A. Product Approval: Submit current Product Approval in accordance with the Florida Building Code for the following:
1. Exterior hollow metal doors and frames.
- B. Engineering Responsibility: Prepare engineering data for exterior steel doors and frames including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project signed and sealed by a professional engineer registered in the state of Florida.
- C. Testing and Labeling: Comply with the Florida Building Code. Submit manufacturer's certification indicating compliance.

D. Product Data:

1. Doors and Frames: Include construction details, material descriptions, core descriptions, and finishes.
2. Grout and Frame Back Coating: Manufacturer's product data including installation requirements.

E. Shop Drawings: SDI-106 Recommended Standard Door Type Nomenclature and SD-111 Recommended Standard Details for Steel Doors & Frames shall be used as a guide in the development of Schedules and Shop Drawings.

1. Show the following:
 - a. Elevations of each door design.
 - b. Indicate location, size, door and frame types, rating and hand of each door.
 - c. Indicate door construction, details and methods of assembling sections, hardware locations, anchorage & fastening methods and finish requirements.
 - d. Include anchoring details engineered to meet wind load requirements to comply with the Code.
 - e. Utilize same designation as Architect's door mark.

F. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

G. Samples:

1. Submit sample of typical mitered, welded doorframe corner for quality verification.
2. Samples shall be specifically required for non-specified manufacturer's products submitted as a Substitution.

H. Product Certificates: Product certificates shall be required by manufacturers of non-named products certifying that each product furnished meets the Specifications and with individual project requirements for the purpose intended. Certificates shall be submitted with Shop Drawings.

1.5 QUALITY ASSURANCE

A. Steel Door and Frame Standard: Comply with requirements contained in SDI 100 Recommended Specifications for Standard Steel Doors and Frames unless more stringent requirements are indicated.

B. Preparation/Field Verification

1. Verify doorframes are in proper location and have been properly anchored in accordance with Specifications and SDI 105 Recommended Erection Instruction for Steel Frames.

2. Verify that frames comply with indicated requirements for type, size, location and swing characteristics. Verify that frames have been installed with plumb jambs and level heads.
 3. Verify that Shop Drawings have been successfully submitted, reviewed and returned.
- C. Frame Tolerances: Utilize UNF Frame Tolerance Check List Report for each opening to verify proper installation.
1. Initiate reports after installation of frame and prior to installation of adjacent walls or construction. Re-verify report during and after completion of adjacent construction.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage.
- B. Doors shall be individually wrapped, protected and packaged as standard of manufacturer.
- C. Each door shall be marked on top and bottom rail with same opening number used on Shop Drawings.
- D. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.
- E. Store doors and frames at building site under cover. Place units on minimum 4-inch-high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to permit air circulation.

1.7 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Steel Doors and Frames:
 - a. Amweld Building Products a division of ARK II Manufacturing, LLC

- b. Ceco/AADG, Inc.
- c. Steelcraft/Allegion

2.2 MATERIALS

- A. Hot-Rolled Steel Sheets: ASTM A 569, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- B. Cold-Rolled Steel Sheets: ASTM A 366, Commercial Steel (CS), or ASTM A 620, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.
- C. Grout for Door Frames: Chemically curing mortar grout in accordance with ASTM C476-20.
 - 1. Minimum Compressive Strength: In accordance with Florida Product Approval requirements.
 - 2. Maximum Slump: 4 inches.
- D. Frame Back Coating for Grouted Door Frames:
 - 1. Product and Manufacturer – Basis of Design: Barrier Bond rubberized undercoating; TCP Global, San Diego, CA
 - 2. Minimum Thickness: 2-coats; manufacturer's WFT (wet film thickness) recommended for applications indicated.

2.3 STANDARD HOLLOW METAL DOORS AND FRAMES

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces, unless otherwise indicated. Comply with ANSI A250.8.
 - 1. Design: As indicated.
 - 2. Thickness: As indicated.
 - 3. Core Construction: Manufacturer's standard foamed-in-place polyurethane core that produces doors complying with ANSI A250.8.
 - a. Insulated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 6.0 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.
 - 1) Locations: Exterior and interior doors.
 - 4. Vertical Edges for Single-Acting Doors: Beveled edge.
 - a. Beveled Edge: 1/8 inch in 2 inches.
 - 5. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick end closures or channels of same material as face sheets.

6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

2.4 EXTERIOR DOORS AND FRAMES

- A. Exterior Flush Steel Doors and Frames Requiring Florida Product Approval:
 1. Product and Manufacturer – Basis of Design: Steelcraft Steel Doors; Allegion
 - a. Florida Product Approval: Provide current approval certification.
- B. Exterior Service and Maintenance Doors not Requiring Product Approval: Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:
 1. Minimum SDI Level and Physical Performance: Level 4 and Physical Performance Level A (Maximum Duty), Model 2 (Seamless).
- C. Frames: ANSI A250.8 and with details indicated for type and profile.
 1. Exterior Door Frame Gauge: 14 gauge minimum for all door frames.

2.5 INTERIOR STEEL DOORS AND FRAMES

- A. General: Provide doors of sizes, thickness, and designs indicated.
- B. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level:
 1. Minimum SDI Level and Physical Performance: Level 2 and Physical Performance Level B (Heavy Duty), Model 2 (Seamless).
- C. Frames: ANSI A250.8 and with details indicated for type and profile.
 1. Interior Door Frame Gauge: 16 gauge minimum for all door frames.

2.6 ACCESSORIES

- A. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.
- B. Supports and Anchors: Fabricated from not less than 0.042-inch-thick, electrolytic zinc-coated or metallic-coated steel sheet.
 1. Wall Anchors in Masonry Construction: 0.177-inch-diameter, steel wire complying with ASTM A 510 may be used in place of steel sheet.

- C. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.
- D. Ceiling Struts: Minimum 1/4-inch-thick by 1-inch-wide steel.

2.7 FABRICATION

- A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.
- B. Interior Door Faces: Fabricate exposed faces of doors, including stiles and rails from the following material:
 - 1. Face sheets shall be minimum 18 gauge (0.042 in) cold-rolled steel sheets conforming to ASTM A366, Commercial Steel (CS) or ASTM A620, Drawing Steel (DS), Type B.
- C. Core Construction: Manufacturer's factory installed core materials that produce a door complying with SDI standards:
 - 1. Interior Doors: Insulated; polyurethane or polystyrene core.
- D. Clearances for Doors: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between pairs of doors. Not more than 3/4 inch at bottom.
- E. Single Acting, Door-Edge Profile: Beveled edge.
- F. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- G. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- H. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- I. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
- J. Exposed Steel Door Frame Construction: Fabricate frames to shape shown.
 - 1. Frames shall be welded construction type and have mitered or butted corners with welded and finished frame faces (seamless). The remaining elements of the frame profile, i.e., rabbet and stop, shall not be continuously welded.
 - 2. Frames shall be provided with temporary spreader bars for shipping and handling purposes.

3. Interior frames shall be provided with a minimum of three anchors per jamb suitable for the adjoining wall construction. Anchors shall be minimum 18-gauge steel or minimum 7-gauge wire. Frames over 7'-6" shall be provided with additional wall anchors as required.
4. In addition, frames shall be provided with minimum 18-gauge base anchor. For existing masonry wall conditions that will not accept base anchor, an additional jamb anchor shall be provided.

K. Hardware Preparation:

1. Provide minimum hardware reinforcing gauges as required in ANSI A250.6.
2. Doors and frames shall be reinforced, drilled and tapped to receive mortised hinges, locks, latches, flush bolts, etc, as required in ANSI A115 and ANSI A250.6.
3. Doors shall be reinforced for specified surface-mounted hardware. Drilling and tapping may be completed at the job site by the installers.
4. Hardware shall be located in accordance with locations prescribed in ANSI A250.8/SDI 100.

2.8 FINISHES

- A. Finish: Manufacturer's standard universal primer; refer to Section 099100 Painting for final finish.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - 4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11.
 - 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - b. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - 2. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 - 3. Grouted Frames: Comply with product manufacturer's instructions and recommendations for application of Frame Back Coating and mixing and installation of grout.
 - 4. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 - 5. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.

6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction. Provide adjustable wedged or bolted anchorage to frame jamb members.
7. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified by the manufacturer for door types indicated.

3.4 PROTECTION DURING CONSTRUCTION

- A. Steel doors shall be protected at all times during construction. After installation, take appropriate measures to protect doors from abuse.
- B. Replace doors and frames that are damaged or do not comply with requirements. Doors and frames may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

3.5 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 081113

SECTION 081416 - INTERIOR WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior wood doors.

1.2 SUBMITTALS

A. Product Data: For products indicated.

B. Warranty: Sample of warranty.

1.3 PROJECT CONDITIONS

A. Environmental Limitations: Comply with manufacturer's instructions and recommendations.

1.4 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Manufacturer's standard from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 INTERIOR WOOD DOORS

A. Product and Manufacturer – Basis of Design: Cendura Standard Painted Doors; Masonite International Corporation

1. Description: Particle board core; non-rated; bonded construction.
2. Face Veneer: Paint grade birch; smooth sanded surface.
3. Finish: Factory primed.

2.2 FABRICATION

A. Machining for Door Hardware: All doors shall be machined for specified hardware that is not surface applied.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install doors to comply with manufacturer's written instructions and recommendations.

3.2 ADJUSTING AND PROTECTION

- A. Adjustment: At completion of job, adjust doors and hardware as required and leave in proper operating condition.
- B. Protection: Protect installed wood doors from damages or deterioration until acceptance of entire project.
- C. Replacement: Refinish or replace doors damaged during installation to the satisfaction of the Architect.

END OF SECTION 081416

SECTION 083113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Access doors and frames.

1.2 SUBMITTALS

A. Product Data: For each type of access door assembly specified, including details of construction relative to materials, individual components, profiles, and finishes.

1. Include complete schedule, including types, general locations, sizes, wall and ceiling construction details, latching or locking provisions, and other data pertinent to installation.

B. Shop Drawings: Showing fabrication and installation of customized access doors and frames, including details of each frame type, elevations of door design types, anchorage, and accessory items.

1.3 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain access doors for entire Project from one source and by a single manufacturer.

B. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units, which may vary slightly from sizes indicated.

1.4 COORDINATION

A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment and indicate on schedule specified under "Submittals" Article.

PART 2 - PRODUCTS

2.1 ACCESS DOORS AND FRAMES

A. Model and Manufacturer – Basis of Design: DCS-214M; Karp Associates, Inc.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's instructions for installing access doors.
 - 1. Set units accurately in position and attach securely to supports with plane of face panels aligned with adjacent finished surfaces.
 - 2. Paint exposed surface of access doors and frames to match adjacent surface finish.
- B. Remove and replace units that are warped, bowed, or otherwise damaged.

END OF SECTION 083113

SECTION 083613 – OVERHEAD SECTIONAL DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Overhead sectional doors.

1.2 CODE COMPLIANCE

A. Exterior Overhead door systems shall meet the requirements of the Florida Building Code.

1. Provide product evaluations and installation requirements indicating compliance with Code requirements.

1.3 SUBMITTALS

- A. Product Approval: Submit current Product Approval documentation in accordance with the Florida Building Code.
- B. Product Data: For doors indicated.
- C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, accessories and anchors, jamb details, connection details, anchorage spacing, hardware locations, operation description, and installation details.
- D. Samples for Verification: Manufacturer's standard samples for finish and color indicated.
- E. Sample Warranties: For manufacturer's warranty.
- F. Maintenance Data: For doors to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Approved by manufacturer.

1.5 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of sectional doors that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Manufacturer's standard.
- B. Finish Warranty Period: Manufacturer's standard.

PART 2 - PRODUCTS

2.1 OVERHEAD SECTIONAL DOORS

- A. Model and Manufacturer – Basis of Design: Model 521 Aluminum Glass Door; Overhead Door Corp.
 - 1. Florida Product Approval Number: FL17629.1
 - 2. Glazing: Polycarbonate, clear; comply with Florida Product Approval.
 - 3. Panel Thickness: Manufacturer's standard for doors indicated.
 - 4. Operation: Chain hoist.
- B. Brackets and Tracks: Manufacturer's standard for door type indicated.
- C. Hardware: Manufacturer's standard for door type indicated.
- D. Locking: Manufacturer's standard for door type indicated.
- E. Weather Seals: Manufacturer's standard for door type indicated.

2.2 FINISH

- A. Finish: Fluoropolymer; 70% Kynar two coat coating system; AAMA 2605.
 - 1. Color: RAL Colorchart: RAL 7021 Black Gray

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION

- A. General: Install doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and recommendations.

3.3 ADJUSTING AND CLEANING

- A. General: Comply with manufacturer's instructions and recommendations.
 - 1. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
 - 2. Lubricate bearings and sliding parts as recommended by manufacturer.
 - 3. Clean glass and frames.
 - 4. Remove temporary labels and visible markings.
- B. Touch-up Painting: Comply with manufacturer's instructions and recommendations.

END OF SECTION 083613

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Storefront doors; exterior.
2. Storefront windows; exterior.
3. Storefront transom and sidelights; exterior.
4. Storefront window; interior.

1.2 PERFORMANCE REQUIREMENTS

- A. Performance Requirements: Provide exterior storefront and entrance systems capable of withstanding loads and thermal and structural movement requirements indicated without failure, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Glazing Systems: Provide glazing systems capable of withstanding normal thermal movement and wind without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- C. Wind Loads: As indicated on Drawings.
- D. Dimensional Tolerances: Provide glazing systems that accommodate dimensional tolerances of building frame and other adjacent construction.
- E. Water Infiltration: No uncontrolled water when tested in accordance with ASTM E 331 at test pressure differential of: 10 PSF (or when required, field tested in accordance with AAMA 503). Fastener Heads must be seated and sealed against Sill Flashing on any fasteners that penetrate through the Sill Flashing.
- F. Thermal Movement: Provide for thermal movement caused by 180 degrees F. surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.

1.3 SUBMITTALS

- A. Product Approval: Submit current Product Approval documentation in accordance with the Florida Building Code.

- B. Engineering Responsibility: Prepare engineering data, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project as prepared by a professional engineer registered in the state of Florida.
- C. Testing and Labeling: Comply with the Building Code. Submit manufacturer's certification indicating compliance.
- D. Product Data: For each product specified. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- E. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.
 - 1. Engineering Responsibility: Prepare engineering data for storefront and entrance systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project as prepared by a professional engineer registered in the state of Florida.
 - a. Include structural analysis data signed and sealed by professional engineer registered in the state of Florida responsible for their preparation.
 - b. Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.
 - c. Include all drawings and installation details required to insure the elements installed on this Project will be installed in the same manner as they were tested and approved.
- F. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- G. Samples:
 - 1. Aluminum Framing: Of exposed metal finish selected in manufacturer's standard sizes.
 - 2. Glass: Glass products, in the form of 12-inch-square Samples for glass type indicated.
- H. Test Reports: Provide certified test reports indicating compliance with the Building Code.
- I. Warranties: Warranties specified in this Section.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer to assume engineering responsibility and perform work of this Section who has specialized in installing glazing systems similar to those required for this Project and who is acceptable to manufacturer.
 - 1. Engineering Responsibility: Preparation of engineering data including the following:
 - a. Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 - b. Shop Drawings, pre-construction testing program development, and comprehensive engineering analysis by a qualified professional engineer registered in the state of Florida.

1.5 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Manufacturer's standard from date of Substantial Completion.
- B. Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Warranty Period: Minimum 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 STOREFRONT WINDOWS, SIDELIGHTS, AND TRANSOM; EXTERIOR

- A. Product and Manufacturer – Basis of Design: YHS 50 TU; YKK AP America
 - 1. Florida Product Approval: FL14218.13
- B. Glass: 1-5/16-inch insulated, laminated glass with interlayer; Low-E glass.
 - 1. Product and Manufacturer – Basis of Design: 1-5/16" VE1-42 Insulating Laminated Coated Glass; Viracon
 - 2. Makeup:
 - a. Exterior Glass Ply:
 - 1) 1/4-inch thick fully tempered glass, clear.

- 2) Coating: VE-42 Low-E on #2 surface.
 - 3) Airspace: 1/2-inch thick VTS black spacer; Argon gas.
 - 4) Silicone: Black.
 - b. Interior Laminated Glass Ply: Laminated; makeup as follows.
 - 1) First Lite: 1/4-thick heat treated glass, clear.
 - 2) Interlayer: In accordance with Florida Product Approval; color shall be clear.
 - 3) Second Lite: 1/4-thick heat strengthened glass, clear.
3. Performance:
 - a. Visible Light Transmittance: 36%
 - b. Exterior Reflectance: 19%
 - c. Winter U-Value: 0.26
 - d. Summer U-Value: 0.24
 - e. Solar Heat Gain Coefficient: 0.30
 - f. Light to Solar Gain Ratio: 1.20
4. Glass Color: Blue/Gray tone matching Viracon glass specified.
- C. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.

2.2 STOREFRONT DOORS; EXTERIOR

- A. Product and Manufacturer – Basis of Design: 35HL Medium Stile Door; YKK AP America
 1. Florida Product Approval: FL16981.2
- B. Glass: 1-inch insulated, laminated glass.
 1. Makeup, Color, and Performance: Match Storefront.
- C. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.

2.3 STOREFRONT WINDOWS; INTERIOR

- A. Product and Manufacturer – Basis of Design: YES 45 FS; YKK AP America
- B. Glass: 1-inch thick insulated, fully tempered, clear.

2.4 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of standards indicated below.
 - 1. Sheet and Plate: ASTM B 209.
 - 2. Extruded Bars, Rods, Shapes, and Tubes: ASTM B 221.
 - 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 - 4. Bars, Rods, and Wire: ASTM B 211.
 - 5. Welding Rods and Bare Electrodes: AWS A5.10.
- B. Steel Reinforcement: Complying with ASTM A 36 for structural shapes, plates, and bars; ASTM A 611 for cold-rolled sheet and strip; or ASTM A 570 for hot-rolled sheet and strip.
- C. Glazing Gaskets: As required to comply with system performance requirements. Provide gasket assemblies that have corners sealed with sealant recommended by gasket manufacturer.
- D. Spacers, Setting Blocks, Gaskets, and Bond Breakers: Manufacturer's standard permanent, nonmigrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system performance requirements.
- E. Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.

2.5 COMPONENTS

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Reinforce members as required to retain fastener threads.
 - 2. Do not use exposed fasteners, except for hardware application. For hardware application, use countersunk Phillips flat-head machine screws finished to match framing members or hardware being fastened, unless otherwise indicated.
- B. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123 or ASTM A 153 requirements.

2.6 ENTRANCE DOOR HARDWARE

- A. General: Provide entrance door hardware for each entrance door to comply with requirements in this Section.
 - 1. Entrance Door Hardware Sets: Refer to Section 087100 Door Hardware; and provide the following.
 - a. Weather Stripping: Manufacturer's standard replaceable components.
 - b. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.

2.7 FABRICATION

- A. General: Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.
 - 1. Fabricate components for screw-spline (concealed fastener) frame construction.
 - 2. Forming: Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
 - 3. Prepare components to receive concealed fasteners and anchor and connection devices.
 - 4. Fabricate components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.
- B. Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Glazing Channels: Provide minimum clearances for thickness and type of glass indicated according to FGMA's "Glazing Manual."
- D. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

2.8 ALUMINUM FINISHES

- A. Aluminum Finish: Fluoropolymer; 70% Kynar two coat coating system; AAMA 2605.
 - 1. Color: RAL Colorchart: RAL 7021 Black Gray

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of glazing systems. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for protecting, handling, and installing glazing systems. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints. Seal joints watertight.
- B. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install the system plumb and true in alignment with established lines and grades without warp or rack. Lubricate operating hardware and other moving parts according to hardware manufacturers' written instructions.
- D. Install glazing to comply with requirements of Division 08 Section "Glazing," unless otherwise indicated.
- E. Install perimeter sealant to comply with requirements of Division 07 Section "Joint Sealants," unless otherwise indicated.

3.3 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure glazing systems are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 084113

SECTION 085625 – FOLDING WINDOW SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Folding window system.

1.2 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles and finishes for wood windows.
- B. Shop Drawings: Include plans, elevations, sections, and details of installation, including anchor, flashing, and sealant installation.
- C. Samples: For the following:
 1. Aluminum finish.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.

1.4 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of aluminum clad wood windows that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Manufacturer's standard warranty from date of Substantial Completion.
- B. Finish Warranty: Manufacturer's standard agreement within specified warranty period
 1. Warranty Period: Manufacturer's standard from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 FOLDING WINDOW SYSTEM

- A. Model and Manufacturer – Basis of Design: Architect Series Traditional Reserve; Pella Corporation
 - 1. Florida Product Approval Number: FL29150
- B. Glass:
 - 1. Vision Glass: Insulated, Low-E, fully tempered glass; SunDefense.
- C. Interior Wood Surfaces: Unfinished.
 - 1. Wood Species: Pine.
- D. Exterior Aluminum Finish: Two-coat fluoropolymer; EnduraClad.
 - 1. Color: Match Architect's samples.
- E. Operating Hardware: To be selected by the Architect from manufacturer's full line.
- F. Fasteners: Noncorrosive and compatible with door construction, trim, anchors, and other components.
 - 1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible.

2.2 FABRICATION

- A. General: Fabricate aluminum windows, in sizes and configurations indicated. Include a complete system for assembling components and anchoring windows.
- B. Glazing: Manufacturer's standard fabrication.

2.3 INSTALLATION ACCESSORIES

- A. General: Provide installation accessories required for a complete installation.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install windows in accordance with manufacturer's instructions and recommendations and level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
 - 1. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

3.2 CLEANING

- A. Glass: Clean glass immediately after installing windows. Comply with manufacturer's written recommendations for cleaning and maintenance. Remove nonpermanent labels and clean surfaces.
 - 1. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- B. Window Frames: Clean window frames and glass in accordance with manufacturer's instructions and recommendations.
- C. Labels and Markings: Remove labels and visible markings.

3.3 PROTECTION

- A. Protect installed windows to ensure that, except for normal weathering, windows will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 085213

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Sliding doors.
 - 3. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 06 Section "Rough Carpentry".
 - 2. Division 08 Section "Operations and Maintenance".
 - 3. Division 08 Section "Door Schedule".
 - 4. Division 08 Section "Hollow Metal Doors and Frames".
 - 5. Division 08 Section "Flush Wood Doors".
 - 6. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
 - 3. ICC/IBC - International Building Code.
 - 4. NFPA 70 - National Electrical Code.
 - 5. NFPA 80 - Fire Doors and Windows.
 - 6. NFPA 101 - Life Safety Code.
 - 7. NFPA 105 - Installation of Smoke Door Assemblies.
 - 8. TAS-203-94 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
 - 9. State Building Codes, Local Amendments.

- E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Proof of Qualification: Provide copy of manufacturer(s) Factory Trained Installer documentation indicating proof of status as a qualified installer of tornado or hurricane storm shelter assemblies.

- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
 - 1. Hurricane Resistant Openings (State of Florida): Within the State of Florida, provide copy of current State of Florida Product Approval as proof of compliance that doors, frames and hardware for exterior opening assemblies have been tested and approved for use at the wind load and design pressure and debris impact resistance level requirements specified for the Project.
 - a. Hurricane Resistant Components (State of Florida): Within the State of Florida, provide copy of independent, third party certified listing to ANSI A250.13.
 - 2. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).
- C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

- E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
- F. Hurricane Resistant Exterior Openings (State of Florida including the High Velocity Hurricane Zone (HVHZ)): Provide exterior door hardware as complete and tested assemblies, or component assemblies, including approved doors and frames specified under Section 081113 "Hollow Metal Doors and Frames", to meet the design pressures, debris impact resistance, and glass and glazing requirements as detailed in the current State of Florida building code sections applicable to the Project.
 - 1. Each unit to bear third party permanent label in accordance with the Florida Building Code requirements.
- G. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.
- H. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- I. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 - 3. Review sequence of operation narratives for each unique access controlled opening.
 - 4. Review and finalize construction schedule and verify availability of materials.
 - 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- J. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Please note that ASSA ABLOY is transitioning the Yale Commercial brand to Arrow. This affects only the brand name; the products and product numbers will remain unchanged. The brand transition is expected to be complete in or about May of 2024, and products shipping after that time will be branded Arrow.
- D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 BUTT HINGES

- A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.

- b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
- 4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
- 5. Manufacturers:
 - a. Hager Companies (HA) - BB Series, 5 knuckle.
 - b. McKinney (MK) - TA/T4A Series, 5 knuckle.
 - c. dormakaba Best (ST) - F/FBB Series, 5 knuckle.

2.3 CONTINUOUS HINGES

- A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
 - 1. Manufacturers:.
 - a. Hager Companies (HA).
 - b. Pemko (PE).
 - c. Dormakaba Best (ST).

2.4 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
 - 1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
 - 2. Furnish dust proof strikes for bottom bolts.
 - 3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
 - 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
 - 5. Manufacturers:
 - a. Rockwood (RO).
- B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls, where applicable, shall be provided with a 10" clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
6. Manufacturers:
 - a. Rockwood (RO).

2.5 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
 1. Manufacturers:
 - a. Arrow, formerly known as Yale (YA).
 - b. Corbin Russwin Hardware (RU).
 - c. Sargent Manufacturing (SA).
- B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
 1. Threaded mortise cylinders with rings and cams to suit hardware application.
 2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
 4. Tubular deadlocks and other auxiliary locks.
 5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 6. Keyway: Manufacturer's Standard.
- C. Keying System: Each type of lock and cylinders to be factory keyed.
 1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. New System: Key locks to a new key system as directed by the Owner.
- D. Key Quantity: Provide the following minimum number of keys:
 1. Change Keys per Cylinder: Two (2)
 2. Master Keys (per Master Key Level/Group): Five (5).

3. Construction Keys (where required): Ten (10).

E. Construction Keying: Provide construction master keyed cylinders.

F. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

1. Manufacturers:

- a. Lund Equipment (LU).
- b. MMF Industries (MM).
- c. Telkee (TK).

2.7 MORTISE LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): Provide ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed mortise locksets. Listed manufacturers shall meet all features and functionality as specified herein.

1. Provide locksets with functions and features as follows:

- a. Heavy duty 12-gauge wrought steel case.
- b. Stainless steel 3/4" one-piece anti-friction reversible latchbolt with a one-piece hardened stainless steel 1" projection deadbolt.
- c. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
- d. Meets UL Certification Directory ZHLL.R21744 for products used in windstorm rated assemblies.
- e. Status indicators inside, outside, or on both sides of doors as specified; available with wording for "locked/unlocked", "vacant/occupied" or custom wording options. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status.
- f. Ten-year limited warranty for mechanical functions.

2. Manufacturers:

- a. Arrow, formerly known as Yale (YA) - 8800FL Series.
- b. Corbin Russwin Hardware (RU) - ML2000 Series.
- c. Sargent Manufacturing (SA) - 8200 Series.

2.8 CYLINDRICAL LOCKS AND LATCHING DEVICES

- A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed.

1. Manufacturers:

- a. Arrow, formerly known as Yale (YA) - 5400LN Series.
- b. Corbin Russwin Hardware (RU) - CLX3300 Series.
- c. Sargent Manufacturing (SA) - 10X Line.

2.9 AUXILIARY LOCKS

- A. Mortise Deadlocks, Large Case: ANSI/BHMA A156.13 Grade 1 Certified Products Directory (CPD) listed large case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. One piece stainless steel bolts with a 1" throw. Deadlocks to be products of the same source manufacturer and keyway as other locksets.

1. Manufacturers:

- a. Arrow, formerly known as Yale (YA) - 8800 Series.
- b. Corbin Russwin Hardware (RU) - ML2000 Series.
- c. Sargent Manufacturing (SA) - 8200 Series.

2.10 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

- B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.11 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. Exit devices shall have a five-year warranty.
 2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
 3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
 5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
 7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
 8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
 9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
 12. Hurricane and Storm Shelter Compliance: Devices to be U.L. listed for windstorm assemblies where applicable. Provide the appropriate hurricane or storm shelter products that have been independently third party tested, certified, and labeled to meet state and local windstorm building codes applicable to project.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Manufacturers:
 - a. Arrow, formerly known as Yale (YA) - 7000 Series.
 - b. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
 - c. Sargent Manufacturing (SA) - 80 Series.

2.12 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Commercial Duty): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, institutional grade door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide non-handed units standard.

1. Manufacturers:
 - a. Arrow, formerly known as Yale (YA) - 3500 Series.
 - b. Corbin Russwin Hardware (RU) - DC6000 Series.
 - c. Norton Rixson (NO) - 8500 Series.
 - d. Sargent Manufacturing (SA) - 1431 Series.

C. Door Closers, Surface Mounted (Standard Duty): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, institutional grade door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide non-handed units standard.

1. Manufacturers:
 - a. Arrow, formerly known as Yale (YA) - 2700 Series.
 - b. Corbin Russwin Hardware (RU) - DC3000 Series.
 - c. Sargent Manufacturing (SA) - 1331 Series.
 - d. Norton Rixson (NO) - 210 Series

2.13 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Hager Companies (HA).
 - b. Hiawatha, Inc. (HI).
 - c. Rockwood (RO).

2.14 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 1. Manufacturers:
 - a. Hager Companies (HA).
 - b. Hiawatha, Inc. (HI).
 - c. Rockwood (RO).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:

- a. Norton Rixson (RF).
- b. Rockwood (RO).
- c. Sargent Manufacturing (SA).

2.15 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 1. National Guard Products (NG).
 2. Pemko (PE).
 3. Reese Enterprises, Inc. (RE).

2.16 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.17 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."

4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
 1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
1. Quantities listed are for each pair of doors, or for each single door.
 2. The supplier is responsible for handling and sizing all products.
 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

- B. Manufacturer's Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. RO - Rockwood
4. AD - Adams Rite
5. YA - Arrow, formerly known as Yale
6. RF - Rixson
7. OT - Other

Hardware Sets

Set: 1.0

Doors: E100

Description: EXT PR - ALUM - PRO SHOP

2 Continuous Hinge	CFM_SLF-HD1		PE
1 Flush Bolt	MS1880	682	AD
1 Threshold Bolt	4015-18-IB	603	AD
1 Header Bolt	4016		AD

1 Mortise Deadlock	MS1850SN	628	AD
1 Mortise Cylinder	2153	630	YA
4 Door Pull	RM3310-36 Mtg-Type 11XHD	US32D	RO
2 Drop Plate / Spacer	as required	689	YA
2 Surface Closer	3521	689	YA
1 Perimeter Seals	By door & frame manufacturer		OT
2 Sweep	315CN		PE
1 Threshold	2005AV MSES25SS		PE

Notes: Hardware listed for design criteria, confirm with specific door manufacturer the hardware requirements to meet specified windstorn rating. Provide 3rd party test results for confirmation.

Set: 2.0

Doors: E101, E103, E104, E105, E110

Description: EXT SGL - ALUM - PROSHOP, RESTROOM

1 Continuous Hinge	CFM_SLF-HD1		PE
1 Flush Bolt	MS1880	682	AD
1 Mortise Deadlock	MS1850SN	628	AD
1 Mortise Cylinder	2153	630	YA
2 Door Pull	RM3310-36 Mtg-Type 11XHD	US32D	RO
1 Drop Plate / Spacer	as required	689	YA
1 Surface Closer	3521	689	YA
1 Perimeter Seals	By door & frame manufacturer		OT
1 Sweep	315CN		PE
1 Threshold	2005AV MSES25SS		PE

Notes: Hardware listed for design criteria, confirm with specific door manufacturer the hardware requirements to meet specified windstorn rating. Provide 3rd party test results for confirmation.

Set: 3.0

Doors: E109

Description: EXT SGL - CART STORAGE

3 Hinge, Full Mortise	TA2314 NRP 4-1/2" x 4-1/2"	US32D	MK
1 Storeroom Lock	AUCN 8840FL	630	YA
1 Surface Closer	3501	689	YA
1 Wall Stop	409 or 446 as required	US26D	RO
1 Gasketing	303AV		PE

1 Rain Guard	346C	PE
1 Sweep	315CN	PE
1 Threshold	2005AV MSES25SS	PE

Notes: Hardware listed for design criteria, confirm with specific door manufacturer the hardware requirements to meet specified windstorn rating. Provide 3rd party test results for confirmation.

Set: 4.0

Doors: 108

Description: PR - MECH

6 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Flush Bolt	555	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Storeroom or Closet Lock	AU 5405LN	626	YA
2 Surf Overhead Stop	10-x36	689	RF
2 Silencer	608-RKW		RO

Set: 5.0

Doors: 112A, 112B

Description: PR - STORAGE

6 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Flush Bolt	555	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Storeroom or Closet Lock	AU 5405LN	626	YA
2 Wall Stop	409 or 446 as required	US26D	RO
2 Silencer	608-RKW		RO

Set: 6.0

Doors: 113

Description: SGL - CORRIDOR

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom or Closet Lock	AU 5405LN	626	YA
1 Surface Closer	2701	689	YA
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Wall Stop	409 or 446 as required	US26D	RO
1 Gasketing	303AV		PE

1 Sweep	315CN	PE
1 Threshold	171A	PE

Set: 7.0

Doors: 104C

Description: SGL - CLOSET

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom or Closet Lock	AU 5405LN	626	YA
1 Surf Overhead Stop	10-x36	689	RF
3 Silencer	608-RKW		RO

Set: 8.0

Doors: 103, 104A

Description: SGL - WORKROOM

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Entry Lock	AU 5407LN	626	YA
1 Wall Stop	409 or 446 as required	US26D	RO
3 Silencer	608-RKW		RO

Set: 9.0

Doors: 104B

Description: SGL - WORK ROOM

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Entry Lock	AU 5407LN	626	YA
1 Surface Closer	2721	689	YA
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Gasketing	303AV		PE
1 Sweep	315CN		PE
1 Threshold	171A		PE

Set: 10.0

Doors: 105A, 110A

Description: SGL - RESTROOM

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Passage Latch	AU 5401LN	626	YA
1 Surface Closer	2701	689	YA

1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Wall Stop	409 or 446 as required	US26D	RO
3 Silencer	608-RKW		RO

Set: 11.0

Doors: 105B, 105C, 105D, 110B

Description: SGL - RESTROOM STALL

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Privacy Lock	AU 5402LN	626	YA
1 Wall Stop	409 or 446 as required	US26D	RO
3 Silencer	608-RKW		RO
1 Coat Hook	RM805	US26D	RO

Set: 12.0

Doors: 106

Description: SGL - EMPLOYEE RESTROOM

3 Hinge, Full Mortise	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Privacy Lock	AU 5402LN	626	YA
1 Surface Closer	2701	689	YA
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Wall Stop	409 or 446 as required	US26D	RO
1 Gasketing	303AV		PE
1 Sweep	315CN		PE
1 Threshold	171A		PE

Set: 13.0

Doors: E108

Description: OVERHEAD DOOR

1 Balance of Hardware	By door manufacturer	OT
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Set: 14.0

Doors: E102

Description: EXT SGL - FIXED

1 Balance of Hardware	None required	OT
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Notes: Fixed panel, no hardware required.

Set: 15.0

Doors: E106, E107

Description: EXT - BARN DOOR

1 Balance of Hardware

By door manufacturer

OT

Notes: Hardware listed for design criteria, confirm with specific door manufacturer the hardware requirements to meet specified windstorn rating. Provide 3rd party test results for confirmation.

END OF SECTION 087100

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Glass.

1.2 PERFORMANCE REQUIREMENTS

- A. Glass Design: Glass thickness indicated is minimums and is for detailing only. Confirm glass thickness by analyzing Project wind loads for exterior glass and in-service conditions for exterior and interior glass.

1.3 SUBMITTALS

- A. Product Data: For glass indicated.

1.4 QUALITY ASSURANCE

- A. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.

1. Subject to compliance with requirements, permanently mark safety glass with certification label of Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.

- B. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: GANA'S "Glazing Manual".

- C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 degrees F.

1.7 WARRANTY

- A. Manufacturer's Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
1. Warranty Period: Manufacturer's standard warranty from date of Substantial Completion.
- B. Manufacturer's Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period.
1. Warranty Period: Manufacturer's standard warranty from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 HEAT TREATED GLASS

- A. Fabrication Process: By vertical (tong-held) or horizontal (roller-hearth) process, at manufacturer's option, except provide horizontal process where indicated as tongless or free of tong marks.
- B. Fully Tempered Float Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated), Type I, Class 1 (clear), Quality-Q3.
1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
 2. Thickness: As indicated on the Drawings.
 3. Color: Match Architect's samples.
 4. Labeling: Provide safety glazing labeling.
- C. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

2.2 LAMINATED GLASS

- A. Windborne-Debris-Impact-Resistant Laminated Glass: ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation and comply with the following:
 - 1. Construction: Laminate glass with polyvinyl butyral interlayer to comply with Code requirements.
 - 2. Interlayer Thickness: Provide thickness not less than needed to comply with Code requirements.
 - 3. Interlayer Color: Clear.

2.3 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.
 - 1. Sealing System: Manufacturer's standard.
 - 2. Spacer: Manufacturer's standard spacer material and construction.
 - 3. Interspace Content: Argon gas.

2.4 ELASTOMERIC GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
 - 1. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - 2. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.5 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide glazing materials, required for a complete installation for application indicated, and with proven record of compatibility with surfaces contacted in installation.

2.6 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.

PART 3 - EXECUTION

3.1 GLAZING, GENERAL

- A. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- B. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- C. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- D. Provide edge blocking where needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- E. Tool exposed surfaces of sealants to provide a substantial wash away from glass.
- F. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.
- G. Clean glass on both exposed surfaces using methods recommended by glass manufacturer.

END OF SECTION 088000

SECTION 089119 – LOUVERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aluminum louver.

1.2 SUBMITTALS

A. Product Data: For louvers indicated.

B. Samples: For metal finish color required.

1.3 WARRANTY

A. Manufacturer's Warranty: Submit manufacturer's standard warranty document executed by an authorized company official.

1. Warranty Period: Manufacturer's standard from date of Substantial Completion.

B. Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Warranty Period: Manufacturer's standard from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ALUMINUM LOUVERS

A. Model and Manufacturer – Basis of Design: ELF375DXD; Ruskin Company

1. Florida Product Approval Number: FL21829.2
2. Louver Screen: Stainless steel; type as indicated.
3. Finish: High-performance organic coating.

B. Fasteners: Of same basic metal and alloy as fastened metal or Type 316 stainless steel. Do not use metals that are incompatible with joined materials.

2.2 ALUMINUM MATERIALS

- A. Aluminum Extrusions: ASTM B 221, alloy 6063-T5.
- B. Aluminum Sheet: ASTM B 209, alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.

2.3 ALUMINUM FINISHES

- A. High-Performance Organic Coating: 2-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Colors: Match Architect's samples.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.3 INSTALLATION

- A. Locate and place louvers level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Division 07 Section "Joint Sealants" for sealants applied during louver installation.

3.4 ADJUSTING AND CLEANING

- A. Clean exposed surfaces of louvers and vents that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Restore louvers damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 089119

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Gypsum board.

1.2 SUBMITTALS

A. Product Data: For products indicated.

1.3 STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Georgia-Pacific (GP) Gypsum Products

2. National Gypsum Company.
3. USG Corporation.

2.3 GYPSUM BOARD

- A. General: Complying with ASTM C 36, ASTM C 1178, ASTM C 1396, or ASTM D 3274, as applicable to type of gypsum board indicated and whichever is more stringent.
- B. Regular Type:
 1. Thickness: As indicated on the Drawings.
 2. Long Edges: Tapered.
- C. Water Resistant Gypsum Board:
 1. Product and Manufacturer – Basis of Design: USG Durock Brand Glass-Mat Tile Backerboard.
 2. Thickness: 5/8-inch, unless otherwise indicated.

2.4 TRIM ACCESSORIES

- A. Trim: ASTM C 1047.
 1. Material: Paper-faced galvanized steel sheet.
 2. Shapes: As indicated.

2.5 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape: Paper.
- C. Joint Compound: For each coat use formulation recommended by the panel manufacturer for applications indicated and that is compatible with other compounds applied on previous or for successive coats.

2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION AND FINISHING OF PANELS, GENERAL

- A. General: Comply with ASTM C840.
- B. Install panels in accordance with manufacturer's installation instructions and recommendations and with the referenced Standard.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Fit gypsum panels around ducts, pipes, and conduits.
 - 2. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

- H. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

3.3 APPLYING GYPSUM BOARD

A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing) or horizontally (perpendicular to framing) and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING GYPSUM BOARD TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 in specific locations identified, where approved by Architect, as indicated on the Drawings, and as follows:
 1. Ceilings: Unless otherwise indicated install control joints as follows:
 - a. Install control joints in areas exceeding 2500 sq. ft.
 - b. Space control joints not more than 50 feet on center.
 - c. Install control joints where ceiling framing or furring changes direction.
 2. Partitions and Furring: Unless otherwise indicated install control joints as follows:
 - a. Install control joints in partitions and wall furring runs exceeding 30 feet.
- C. Space control joints not more than 30 feet on center.

3.5 FINISHING GYPSUM BOARD

- A. General: Finish according to manufacturer's written instructions. Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
 - 1. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- B. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 3: Ceiling plenum areas and concealed areas.
 - 2. Level 4: All other areas.

3.6 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Tile.

1.2 SUBMITTALS

A. Product Data: For products indicated.

B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

C. Samples for Verification:

1. Tile: Full size sample of each tile type indicated.
2. Grout: Grout samples for grout colors indicated.

1.3 QUALITY ASSURANCE

A. Source Limitations for Tile: Obtain each tile type from one source or producer.

1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Tile:

1. Product and Manufacture: As indicated on the Drawings.

2.2 SETTING MATERIALS

- A. Product and Manufacturer – Basis of Design: Granirapid; MAPEI Corporation

2.3 GROUT

- A. Product and Manufacturer – Basis of Design: Ultracolor Plus FA; MAPEI Corporation

- 1. Grout Colors: As indicated on the Drawings.

2.4 WATERPROOFING AND CRACK-ISOLATION MEMBRANE FOR FLOOR TILE

- A. Product and Manufacturer – Basis of Design: Mapelastic AquaDefense; Mapei Corp.

2.5 ELASTOMERIC SEALANTS

- A. Manufacturer – Basis of Design: Mapei Corp.
- B. Types: As recommended by the manufacturer for applications indicated.
- C. Colors: To be selected by the Architect from manufacturer's full line.

2.6 MISCELLANEOUS MATERIALS

- A. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.7 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
 - 2. Verify that concrete substrates for tile floors installed with adhesives, bonded mortar bed, or thin-set mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
 - 3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
 - 4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with adhesives or thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- C. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- D. Preparing the Surface:
 - 1. All substrate preparation shall be in accordance with the Tile Council of North America's Handbook latest edition for ceramic tile installations.

3.3 INSPECTION

- A. Installer shall examine all areas and conditions under which work is to be installed and shall notify General Contractor, in writing, of any conditions detrimental to proper and timely completion of his work. Do not proceed with this work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
- B. Prior to commencing with the installation verify that the concrete floors to receive the floor tile meet the requirements for vapor emission and alkalinity required.
 - 1. Installer shall not commence with the installation until the moisture vapor transmission and the alkalinity of the floor slab have been verified to be within the tolerances allowed by the tile setting materials manufacturer.
 - a. Testing to confirm compliance shall be performed by an independent and recognized testing laboratory that has at least five years of satisfactory experience in performing tests of this type.
- C. Commencement of the work will be construed as Installer's acceptance of surfaces and conditions.

3.4 WATERPROOFING INSTALLATION

- A. Install material to comply with manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.
- B. Do not install tile or setting materials until membrane has cured and been tested to determine that it is fully cured and watertight.

3.5 EXPANSION AND CONTRACTION JOINT INSTALLATION

- A. General: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Provide tile expansion/contraction joints at a maximum of 20 to 25 feet on center in the floor and at intersection of floor tile with wall tile in accordance with requirements of Tile Council of North America, latest edition, for the "Movement Joint Design Essentials" EJ171.
 - 2. Joints shall be clean and dry.
 - 3. Movement Joints:
 - a. Provide 1/4" wide pre-manufactured movement joints at tile expansion and contraction joints.
 - b. Movement joints shall have perforated stainless steel flanges for embedment in the tile adhesive.

- c. The depth of the profile is to suit the depth of the tiles and cannot be greater than the total depth of the tile and the adhesive.

3.6 TILE INSTALLATION METHODS

- A. General: Comply with TCA's "Handbook for Ceramic Tile Installation" latest edition for TCA installation methods indicated. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods indicated and apply to types of setting and grouting materials used.
 1. Comply with the installation specifications for grout in accordance with manufacturer's instructions and recommendations and ANSI A108.10.
- B. Interior Tile:
 1. Tile Installation Method: Applicable TCNA installation using mortar and grout for substrates indicated.
- C. Joint Width: As indicated on the Drawings; where not indicated joint width will be identified by the Architect.
- D. Install tile in patterns shown on the Drawings and the approved Shop Drawings. Perimeter tile is to be at least a half tile in width. Chipped, cracked tiles, split tiles, and otherwise damaged tiles are not acceptable.
- E. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- F. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.
- G. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.
- H. Grouting:
 1. Verify joints are free of dirt, debris or tile spacers. Follow manufacturer's recommendations for minimum cure time prior to grouting. Pack joints full and free of voids/pits with rubber grouting float. Remove excess grout from face of tile with edge of rubber float. Hardened grout should be removed within 24 hours with a detergent wash.

3.7 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 1. Remove grout residue from tile as soon as possible.

2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
 3. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.
- B. Protect installed tile work during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile areas.

END OF SECTION 093013

SECTION 095400 - SPECIALTY CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Acoustical Woodgrain Plank.

1.2 SUBMITTALS

- A. Product Data: For ceilings indicated.
- B. Samples for Verification: Manufacturer's standard samples for ceilings indicated.
- C. Maintenance Data: For ceilings indicated.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install specialty ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.5 COORDINATION

- A. Coordinate layout and installation with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 SPECIALTY CEILINGS

- A. Acoustical Woodgrain Plank: As indicated on the Drawings.
 - 1. Finishes and Colors: As indicated on the Drawings.
- B. Installation Material: As recommended by the Manufacturer for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which specialty ceilings attach or abut for compliance with requirements that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install specialty ceilings in accordance with manufacturer's instructions and recommendations.

3.3 CLEANING

- A. Clean exposed surfaces of specialty ceilings. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095400

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Vinyl base.

1.2 SUBMITTALS

A. Product Data: For products indicated.

B. Samples for Verification: For base indicated; manufacturer's standard-size Samples, but not less than 12 inches long.

1.3 MAINTENANCE MATERIALS

A. Provide maintenance materials as indicated by the Architect.

PART 2 - PRODUCTS

2.1 VINYL BASE

A. Products and Manufactures: As indicated on the Drawings.

2.2 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- C. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- D. Do not stretch resilient base during installation.
- E. On irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- F. Preformed Corners: Install preformed corners before installing straight pieces.

G. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Form without producing discoloration (whitening) at bends.
2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Miter or cope corners to minimize open joints.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
 1. Remove adhesive and other blemishes from exposed surfaces.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION 096513

SECTION 096519 - RESILIENT FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient flooring.

1.2 SUBMITTALS

- A. Product Data: For products indicated.
- B. Samples: Samples of each color and pattern of resilient floor material required.
- C. Care and Maintenance Instructions: For resilient flooring.

1.3 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 degrees F or more than 95 degrees F, in spaces to receive flooring materials during the following time periods:
1. 48 hours before installation.
 2. During installation.
 3. 48 hours after installation.
- B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 degrees F or more than 95 degrees F.
- C. Close spaces to traffic during floor covering installation.
- D. Close spaces to traffic for 48 hours after floor covering installation.
- E. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 VINYL FLOORING

- A. Products and Manufactures: As indicated on the Drawings.

2.2 RUBBER FLOORING

- A. Products and Manufactures: As indicated on the Drawings.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement-based formulation provided or approved by resilient product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - 3. Moisture Testing:
 - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours or as required by the materials manufacturer.
 - b. Alkali Testing - Allowable PH Reading: 5-9 or as required by the materials manufacturer.
 - c. Perform additional tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
- C. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.
- E. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
 - 1. Do not install resilient products until they are same temperature as space where they are to be installed.

- F. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install materials in accordance with manufacturer's instructions and recommendations.
- B. Scribe, cut, and fit flooring material to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, and thresholds.
- C. Extend flooring material into toe spaces, door reveals, closets, and similar openings.
- D. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on flooring as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.
- E. Adhere flooring to substrates using adhesive to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- F. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Clean surfaces to remove marks and soil.
- G. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 096519

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Carpet tile.

1.2 SUBMITTALS

- A. Product Data: Submit product data for each carpet material and installation accessory required. Submit written data on physical characteristics, durability, resistance to fading, and flame resistance characteristics.
- B. Samples: For the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
1. Carpet Tile: Full-size Sample.
- C. Product Schedule: For carpet tile. Use same designations indicated on Drawings.
- D. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.
- E. Warranty: Warranty specified.

1.3 PROJECT CONDITIONS

- A. Comply with manufacturer's requirements for temperature and humidity.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.
- C. Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

- D. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

1.4 WARRANTY

- A. Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
 - 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 - 2. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, excess static discharge, loss of tuft bind strength, loss of face fiber, and delamination.
 - 3. Warranty Period: Minimum 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. Products and Manufacturers: As indicated on the Drawings.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.

- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 - 2. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
 - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider and protrusions more than 1/32 inch, unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with manufacturer's instructions and recommendations for carpet installation.
- B. Maintain dye lot integrity. Do not mix dye lots in same area.
- C. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- D. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.

- F. Install pattern parallel to walls and borders.
- G. Stagger joints of carpet tiles so carpet tile grid is offset from access flooring panel grid. Do not fill seams of access flooring panels with carpet adhesive; keep seams free of adhesive.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104 "Protection of Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 097200 - WALL COVERINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wall covering.

1.2 SUBMITTALS

- A. Product Data: For each product indicated. Include data on physical characteristics, durability, fade resistance, and flame-resistance characteristics.
- B. Shop Drawings: Show location and extent of each wall-covering type. Indicate pattern placement, veneer matching, seams and termination points.
- C. Samples for Verification: Full width by 36-inch- long section of wall covering.
1. Sample from same print run or dye lot to be used for the Work. Show complete pattern repeat. Mark top and face of fabric.
- D. Maintenance Data: For wall coverings.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Wallcovering:
1. Products and Manufactures: As indicated on the Drawings.
- B. Adhesive: Mildew-resistant, non-staining adhesive, for use with specific wall covering and substrate application as recommended in writing by wall-covering manufacturer.
- C. Primer/Sealer: Mildew resistant recommended in writing by wall-covering manufacturer for intended substrate.
- D. Seam Tape: As recommended in writing by wall-covering manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for levelness, wall plumbness, maximum moisture content, and other conditions affecting performance of the Work.
- B. Verify that substrate is a material listed as an acceptable substrate by the wall covering material manufacturer.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, mildew, and incompatible primers.
- C. Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.
- D. Check painted surfaces for pigment bleeding. Sand gloss, semigloss, and eggshell finish with fine sandpaper.
- E. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.
- F. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

3.3 INSTALLATION

- A. General: Comply with manufacturers' written installation instructions applicable to products and applications indicated except where more stringent requirements apply.
 - 1. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.
- B. Wall Covering:
 - 1. Install wall covering with no gaps or overlaps, no lifted or curling edges, and no visible shrinkage.
 - 2. Install wall covering seams vertical and plumb at least 6 inches from outside corners and 6 inches from inside corners unless a change of pattern or color exists at corner. No horizontal seams are permitted.

3. Fully bond wall covering to substrate. Remove air bubbles, wrinkles, blisters, and other defects.
4. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without any overlay or spacing between strips.
5. Remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces.
6. Use cleaning methods recommended in writing by wall-covering manufacturer.
7. Replace strips that cannot be cleaned.

END OF SECTION 097200

SECTION 099100 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Painting.

1.2 SUBMITTALS

A. Product Data: Submit product data for each exterior paint system specified.

B. Exterior Paint Samples: Submit samples for initial color selection in the form of manufacturer's color charts.

1. After color selection, the Architect will furnish color chips for surfaces to be coated.

C. Exterior Paint Samples for Verification Purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.

1. Provide stepped samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.
2. Provide a list of material and application for each coat of each sample. Label each sample as to location and application.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 degrees F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

1. Comply with manufacturer's instructions and recommendations regarding the storage and handling of paint materials.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: One gallon of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

- A. General: Naming of manufacturers and model numbers is to indicate type and quality of items required and is not intended to limit competition. Paints produced by other listed manufacturers, that meet or exceed the properties of the specified products may be proposed for use on this project.
- B. Manufacturers Specified:
 - 1. Paint: Sherwin-Williams
- C. Other Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Paint:
 - a. Benjamin Moore & Co.
 - b. Florida Paints
 - c. PPG Architectural Finishes, Inc.
- D. Paint Colors: As indicated on the drawings; where not indicated colors are to be selected by the Architect from manufacturer's full line.

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.
- B. Material Quality: Provide the manufacturer's best-quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.
- C. Colors: To be selected by the Architect from manufacturer's full line, unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. General: Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.
 - 1. Inspect all exterior surfaces indicated to be painted, including steel doors and frames, exterior structural steel, and all other surfaces. Comply with coating system manufacturer's instructions and recommendations for surface preparation, application of primers and top coats, and protection of painted finishes. Do not proceed with the work until all unsatisfactory conditions have been resolved to the satisfaction of the paint system applicator and Architect.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Undercoats shall have slightly different tints than final coats and shall be inspected by the Architect prior to application of the next coat.

- B. Minimum Coating Thickness: Unless otherwise indicated, apply materials no thinner than the manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- C. Mechanical and Electrical Work: Painting mechanical and electrical work is limited to items exposed in mechanical equipment rooms and in occupied spaces.

3.4 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to the Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
 - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINT SCHEDULE

- A. Gypsum Drywall - Walls:
 - 1. Paint System, Application, and Finish: Two finish coats over primer.
 - a. Primer: Interior Latex Low Odor Primer
 - b. Finish Coat: Promar 200 Zero VOC Interior Acrylic Latex Paint
 - c. Sheen Level: As indicated on the Drawings.
- B. Gypsum Drywall – Ceilings:
 - 1. Paint System, Application, and Finish: Two finish coats over primer.
 - a. First Coat: Interior Latex Low Odor Primer
 - b. Finish Coat: Promar 200 Zero VOC Interior Acrylic Latex Paint
 - c. Sheen Level: As indicated on the Drawings.
- C. Wood Trim - Painted:
 - 1. Paint System, Application and Finish: Two finish coats over primer.
 - a. Primer: Interior Wood Primer
 - b. Finish: Proclassic Waterborne Interior Acrylic
 - c. Sheen Level: Refer to the Finish Legend.

- D. Ferrous Metal: Includes steel door frames.
 - 1. Paint System, Application and Finish:
 - a. Primer: Kem Kromik Universal Metal Primer
 - b. Finish Coats: ProIndustrial Urethane Alkyd Enamel
 - c. Sheen Level: Match Architect's sample.
- E. Sealed Concrete:
 - 1. Coating System: As indicated on the Drawings.

3.6 EXTERIOR PAINT SCHEDULE

- A. Fiber Cement - Painted:
 - 1. Paint System, Application and Finish: Two finish coats over primer.
 - a. Primer: Loxon Conditioner or Loxon Concrete & Masonry Primer
 - b. Finish: Loxon XP
 - c. Sheen Level: To be selected by the Architect.
- B. Zinc Coated (Galvanized) Metal, Primed and Unprimed:
 - 1. Paint System, Application and Finish: Two finish coats over prime coat. Re-prime pre-primed surfaces.
 - a. Primer: Pro Industrial Pro-Cryl Universal Primer
 - b. Finish: Fast Clad HB Acrylic Semi-Gloss
 - c. Application: Two finish coats over prepared substrate.
 - d. Finish: Low gloss.
- C. Parge Coat:
 - 1. Paint System, Application and Finish: Two finish coats over prepared substrates.
 - a. Finish Coat: MasterProtect HB 400; BASF
 - b. Film Thickness: Total DFT 12-16 mils.
 - c. Texture: Smooth.

END OF SECTION 099100

SECTION 102813 – TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Toilet accessories.

1.2 SUBMITTALS

A. Product Data: For products indicated.

B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify products using designations indicated.

C. Maintenance Data: For toilet accessories.

1.3 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

PART 2 - PRODUCTS

2.1 TOILET ACCESSORIES

A. Products and Manufacturers: As indicated on the Drawings.

2.2 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.

B. Steel Sheet: ASTM A 1008, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.

- C. Galvanized-Steel Sheet: ASTM A 653, with G60 hot-dip zinc coating.
- D. Galvanized-Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

2.3 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 102813

SECTION 104400 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Portable fire extinguishers.
2. Fire extinguisher cabinets.

1.2 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection cabinets.

1. Fire Extinguisher Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.
2. Fire Extinguishers: For types indicated. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.

1.3 QUALITY ASSURANCE

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

2.2 PORTABLE FIRE EXTINGUISHERS

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Amerex Corporation
 - 2. Badger Fire Protection
- B. Fire Extinguishers:
 - 1. Types and Sizes: As indicated on the Drawings.
- C. Mounting Brackets for Wall Mounted Fire Extinguishers: Manufacturer's standard type to suit fire extinguisher indicated.

2.3 FIRE EXTINGUISHER CABINETS

- A. Manufacturers: Subject to compliance with requirements, manufacturers producing products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Architectural Series; Larsen's Manufacturing Company.
 - 2. JL Industries, Inc.
 - 3. Potter Roemer; Div. of Smith Industries, Inc.
- B. Cabinet Type and Mounting: As indicated on the Drawings.
- C. Cabinet Construction: Manufacturer's standard for cabinet type indicated.
 - 1. Trim: Manufacturer's standard.
- D. Cabinet Trim Material: Painted steel; white baked enamel finish.
- E. Door Material: Painted steel; white baked enamel finish.
- F. Box Material: Heavy duty gauge steel sheet; white baked enamel finish.
- G. Door Style: As indicated on the Drawings; provide with frame.
- H. Door Glazing: Clear acrylic sheet.
- I. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
 - 1. Latch: Manufacturer's standard.
 - 2. Hinge: Concealed hinge permitting door to open 180 degrees.

J. Accessories:

1. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated.
 - a. Identify fire extinguisher as indicated.
 - 1) Location: As indicated.
 - 2) Application Process: As indicated.
 - 3) Lettering Color: As indicated.
 - 4) Orientation: As indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where cabinets will be installed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare recesses for fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. General: Install fire-protection specialties in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
- B. Fire Extinguisher Cabinets: Fasten fire-protection cabinets to structure, square and plumb.

3.4 ADJUSTING AND CLEANING

- A. Adjust fire-protection cabinet doors to operate easily without binding.
- B. On completion of fire extinguisher cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- C. Replace fire extinguisher cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104400

SECTION 105113 - LOCKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Lockers.

1.2 SUBMITTALS

A. Product Data: For lockers.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Samples for Verification: For lockers, in manufacturer's standard size:

C. Warranty: For warranty indicated.

1.3 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of lockers that fail in materials or workmanship, excluding finish, within specified warranty period.

1. Warranty Period for Lockers: Manufacturer's standard from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LOCKERS

A. Product and Manufacturer: As indicated on the Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install lockers level, plumb, and true; shim as required, using concealed shims.

1. Anchor locker runs at ends and at intervals recommended by manufacturer using concealed fasteners. Install anchors through backup reinforcing plates, channels, or blocking as required to prevent distortion.

END OF SECTION 105113

SECTION 119000 – MISCELLANEOUS EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Refrigerator.

1.2 SUBMITTALS

A. Product Data: For products indicated.

1.3 COORDINATION

- A. Coordinate equipment locations with other work to prevent interference proper installation, adjustment, operation, cleaning, and servicing.

PART 2 - PRODUCTS

2.1 REFRIGERATOR

- A. Product and Manufacturer: As indicated on the Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

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

END OF SECTION 119000

SECTION 123600 – COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Countertops.

1.2 SUBMITTALS

A. Product Data: For countertop materials required.

B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.

C. Samples for Verification: For the following:

1. Countertop material, 6 inches square.

1.3 PROJECT CONDITIONS

A. Field Measurements: Verify dimensions of countertops by field measurements before countertop fabrication is complete.

PART 2 - PRODUCTS

2.1 COUNTERTOPS

A. Products and Manufactures: As indicated on the Drawings.

B. Configuration: As indicated on the Drawings.

C. Fabrication: Fabricate tops in one piece, unless otherwise indicated. Comply with material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

D. Adhesives: Types recommended by the manufacturer for applications indicated. Adhesives shall not contain urea formaldehyde.

GLYNLEA GOLF CLUB
PRO SHOP AND GOLF CART BARN
Port St. Lucie, Florida

COUNTERTOPS
SECTION 123600

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fasten countertops securely. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

END OF SECTION 123600

SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Soil treatment.

1.2 DEFINITIONS

- A. EPA: Environmental Protection Agency.
- B. PCO: Pest control operator.

1.3 SUBMITTALS

- A. Product Data: Treatments and application instructions, including EPA-Registered Label.
- B. Product Certificates: Signed by manufacturers of termite control products certifying that treatments furnished comply with requirements.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's record information, including the following as applicable:
1. Date and time of application.
 2. Moisture content of soil before application.
 3. Brand name and manufacturer of termiticide.
 4. Quantity of undiluted termiticide used.
 5. Dilutions, methods, volumes, and rates of application used.
 6. Areas of application.
 7. Water source for application.
- E. Warranties: Warranties specified in this Section.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: A PCO who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment in jurisdiction where Project is located and who is experienced and has completed termite control treatment similar to that indicated for this Project and whose work has a record of successful in-service performance.
- B. Regulatory Requirements: Formulate and apply termiticides, and label with a Federal registration number, to comply with EPA regulations and authorities having jurisdiction.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with EPA-Registered Label requirements and requirements of authorities having jurisdiction.

1.6 COORDINATION

- A. Coordinate soil treatment application with excavating, filling, and grading and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs, before construction.

1.7 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty: Written warranty, signed by applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.
 - 1. A warranty for subterranean termites, of five (5) years from the date of Substantial Completion.
 - 2. Provide a "no dollar limit" warranty for the total cost to repair termite damage to structure and contents per occurrence.
 - 3. Retreatment of the area(s) of reinfestation at no additional cost.
 - 4. Annual re-inspection and treatment, as necessary, of the property treated.
 - a. In the event of damage during the guarantee period, the Contractor shall make repairs to structurally damaged surfaces to a dollar value based on the size of the building. An independent testing laboratory shall certify that the treatment meets the requirements of the Specifications.

5. Provisions to allow the Owner, at his option, to renew the guarantee at the end of the annual (each year) warranty period.

1.8 MAINTENANCE SERVICE

- A. Continuing Service: Provide a proposal for continuing service, including monitoring, inspection, and retreatment for occurrences of termite activity, from applicator to Owner, in the form of a standard yearly (or other period) continuing service agreement, starting on the date of Substantial Completion. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT

- A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in a soluble or emulsible, concentrated formulation that dilutes with water or foaming agent, and formulated to prevent termite infestation. Use only soil treatment solutions that are not harmful to plants. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to the product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of the soil, interfaces with earthwork, slab and foundation work, landscaping, and other conditions affecting performance of termite control. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparing substrate. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended by termiticide manufacturer.
- C. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

3.3 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

3.4 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute the treatment evenly.
- B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- D. Post warning signs in areas of application.
- E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116