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CLEMONS, RUTHERFORD
& ASSOCIATES, INC.

ARCHITECTS
PLANNERS
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CONSTRUCTION MANAGERS

2027 THOMASVILLE ROAD
TALLAHASSEE, FLORIDA 32308

PHONE: 850.385.6153
FAX: 850.386.8420

www.craarchitects.com

TECHNICAL MANUAL

FISH AND WILDLIFE RESEARCH INSTITUTE
BUILDING F – WINDOW REPLACEMENT

ST PETERSBURG, FLORIDA

CRA PROJECT NUMBER 18074

January 30, 2019
(100% CONSTRUCTION DOCUMENTS)

SET NUMBER:

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BUILDING F – WINDOW REPLACEMENT

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SECTION 011000 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 PROJECT DESCRIPTION

A. The Project shall consist of a **Window and Door Replacement** for the **FWRI Building F** and as indicated on drawings.

1. Project Location: **100 8th Avenue SE, St. Petersburg, FL**

2. Owner: **Fish and Wildlife Research Institute**

B. Contract Documents dated **January 30, 2019** (100% Construction Documents) were prepared for the Project by Clemons Rutherford and Associates, 2027 Thomasville Road, Tallahassee, Florida.

C. The work consists of:

1. Removing existing windows, mullions, doors & associated accessories.

2. Installing new storefront windows, doors and hardware.

D. Work Sequence: The work will be conducted in such a sequence to minimize interference to Owner's normal activities.

E. Applicable Codes: All work shall be completed in accordance with the following codes where applicable:

Florida Building Code, Building (FBC,B)	6th Edition
Florida Building Code, Existing Building (FBC,EB)	6th Edition
Florida Building Code, Energy Conservation (FBC,EC)	6th Edition
Florida Building Code, Mechanical (FBC,M)	6th Edition
Florida Building Code, Fuel Gas (FBC,FG)	6th Edition
Florida Building Code, Plumbing (FBC.P)	6th Edition
Florida Fire Prevention Code (FFPC)	6th Edition
National Electric Code (NEC)	2014 Edition.

F. Product Approval Contractor shall be responsible for providing Florida Product Approval Numbers, Miami-Dade Notice of Acceptance OR certify that products installed conform to the Florida Building Code 6th Edition, for each product installed in the building envelope.

1.03 CONTRACTOR USE OF PREMISES

A. General: During the construction period, the contractor shall have limited use of the premises for construction activities in areas indicated or agreed upon by the Owner. Existing buildings shall remain operational and be occupied throughout the duration of construction.

1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

2. Keep surrounding driveways, sidewalks, and entrances serving the premises clear and available to the Owner and Visitors at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

B. Construction Safeguards: The contractor shall construct safeguards to protect personnel and visitors from the construction areas and areas where materials are stored. Limits of the construction safeguards shall be determined by the Owner.

Note: Construction area, including building and buildings being renovated, shall remain accessible to handicap during entire construction process. Contractor is responsible for providing temporary access to building where needed. This includes temporary ramps, walkways, handrails and all other necessary items required. Contractor shall be responsible for inspecting construction site to determine the extent of temporary access needed. (These items are not necessarily shown on drawings). Contractor shall comply with all ADA requirements.

C. Facilities, or portions of facilities, shall not be occupied during construction unless exits, fire detection and early warning systems, fire protection, and safety barriers are continuously maintained and clearly marked at all times.

1.04 DRESS CODE AND CONDUCT: All workmen on the construction site shall wear a shirt at all times. No workmen shall engage in any verbal expressions or physical gestures directed towards all visitors, employees of Owner, or any other person at this construction site which may be considered sexual harassment. Any person found engaging in any offensive conduct will be banned from this construction site.

PART 2 - PRODUCTS (Not applicable).

PART 3 - EXECUTION

3.01 LAYOUT OF THE WORK: Dimensions and elevations indicated on the drawings shall be verified by the Contractor prior to commencement of work. Discrepancies between drawings, specifications, and existing conditions shall be referred to the Architect for adjustment before affected work is performed. Failure to make such notification shall place responsibility upon the Contractor to carry out the work in a satisfactory and workmanlike manner at no additional cost to the Owner.

3.02 RESTORATION

A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work and do not disturb any ducts, plumbing, steam, gas or electric work without approval. All existing walls to remain shall be patched/repaired to match adjacent surfaces.

B. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to Architect before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.

C. Upon completion of contract, deliver work complete and undamaged. Damage that may be caused by Contractor or his workmen to existing structures, grounds, and utilities or work done by others shall be repaired by him at no additional cost to the Owner and left in as good condition as existed prior to damaging.

D. At his own expense, Contractor shall immediately restore to service and repair any damage he may cause to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems which are not scheduled for discontinuance or abandonment. Contractor shall employ appropriate parties for repair work.

3.03 CLEANING UP

A. At completion of the work, the Contractor shall remove from the building and site all tools, appliances, surplus materials, debris, temporary structures and facilities, scaffolding, and equipment; sweep clean the building thoroughly and remove all marks, stains, fingerprints, dust, dirt, paint drippings, and the like from all surfaces; clean tile work, windows, plumbing, and other fixtures and surfaces.

B. All hardware and other unpainted metals shall be cleaned and polished, and all equipment and paint or decorated work shall be cleaned and touched up, if necessary. Surfaces that are waxed shall be polished. Remove all temporary labels, tags, and paper covering throughout the building.

C. The exterior of the buildings, the grounds, approaches, equipment, pavement, sidewalks, etc., shall be cleaned similar to interior of buildings and left in good order at the time of final acceptance, with paint surfaces clean and unbroken, hardware clean and polished, all repair work accomplished and dirt areas scraped and cleared of weed growth.

D. Cleaning, polishing, sealing, waxing, and all other finish operations indicated on the drawings, or required in the specifications, shall mean that this is the required condition at the time of acceptance of all work under the contract.

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.01 AN ALTERNATE is a separate piece of work proposed by Bidders and stated on the Bid Form for certain items that may be added to or deducted from Base Bid amount, which the Owner may or may not decide 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 Contract Documents.

The Owner shall have the right to accept Alternates in any order and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

1.02 COORDINATION: Contractor shall coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted alternate is complete and fully integrated into the Project.

1.03 NOTIFICATION: Immediately following Contract award, the Architect shall prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates.

1.04 SCHEDULE: A "Schedule of Alternates" is included below. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each alternate.

Include as part of each alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

1.05 SCHEDULE OF ALTERNATES

Alternate No. 1 – Remove and replace windows on the North side of Building F.

Alternate No. 2: Remove and replace windows on the South and East sides of Building F.

END OF SECTION 012300

SECTION 012900 - APPLICATION FOR PAYMENT

PART 1 - GENERAL

1.01 SCHEDULE OF VALUES: Coordinate preparation of the Schedule of Values with the Contractor's Construction Schedule. Correlate line items in the Schedule of Values for each phase with other schedules and forms, including:

Contractor's Construction Schedule.
Application for Payment form.
List of subcontractors.
List of products.
Schedule of submittals.

Submit the Schedule of Values to the Architect at the earliest date, but no later than 7 days before the date scheduled for submittal of the initial Application for Payment.

Format and Content: Use the Project Manual Table of Contents as a guide to establish the format.

Identification: Include the following identification:

Project name and location.
Name of the Architect.
Project number.
Contractor's name and address.
Date of submittal.

Format: Use AIA Document G703 Continuation Sheet.

Break down each Division that is listed in enough detail to facilitate evaluation of Application for Payments. Round amounts off to the nearest dollar; the total shall equal the Contract Sum.

Each item in the Applications for Payment and Continuation Sheet shall be complete including total cost and share of overhead and profit. 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.

Update and resubmit the schedule when Change Orders change the Contract Sum.

1.02 APPLICATIONS FOR PAYMENT: Applications for Payment shall be submitted by the 25th of the month and will be paid by the 10th of the following month. Applications for Payment not received by the 25th of the month will be paid not later than 15 days after the date received. The period covered by each Application for Payment is one month. A retainage of 10% of the amount earned and stored will be withheld from each payment.

A. Payment Application Times: Payment dates are indicated in the Agreement. The period covered by each application is the period indicated.

B. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703, 1992 edition, as the form for the application.

C. Application Preparation: Complete every entry, including notarization and execution by person authorized to sign on behalf of the Contractor. Incomplete applications will be returned without action. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made. Include amounts of Change Orders

issued prior to the last day of the period covered by the application.

D. Transmittal: Submit 4 executed copies of each application to the Architect within 24 hours; two copies shall be complete, including waivers of lien where required and similar attachments. Transmit each copy with a transmittal listing attachments, and recording information related to the application.

E. Waivers of Lien: With final application, submit waivers of lien from every entity who has performed work, provided labor or supplied materials, constituting 2% or more of the overall contract amount. Waivers of Lien are to be provided by, but not limited to the following material suppliers and subcontractors. This list is for illustration only, not necessarily complete.

Concrete	Masonry	Paving
Steel	Site Work	Landscaping
Finish Carpentry	Roofing	Doors
Windows	Finish Hardware	Gypsum Wallboard
Flooring	Painting	Ceilings
Signage	Toilet & Bath Accessories	Elevators
Mechanical	Plumbing	Electrical

F. Waiver Forms: Submit waivers of lien on AIA Document G706A, "Contractor's Affidavit Of Release Of Liens".

1.03 INITIAL APPLICATION FOR PAYMENT: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include:

Fully executed Contract.
List of subcontractors.
List of suppliers and fabricators.
Schedule of Values.
Contractor's Construction Schedule (preliminary if not final).
Submittal Schedule (preliminary if not final).
List of Contractor's staff assignments.
Copies of building permits (if required).
Copies of licenses from governing authorities.
Certificates of insurance and insurance policies.
Performance and payment bonds.

1.04 PARTIAL RETAINAGE RELEASE FORMS: Use AIA Document G707A, "Consent Of Surety To Reduction in Or Partial Release Of Retainage".

1.05 APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions. Administrative actions and submittals that precede or coincide with this application include:

Occupancy permits.
Test/adjust/balance records (preliminary).
Operation and Maintenance instructions.
Meter readings.
Change-over information related to Owner's occupancy.

1.06 FINAL PAYMENT APPLICATION: Administrative actions and submittals which must precede or coincide with submittal of the final payment application include:

Completion of Project closeout requirements. Refer to Section 017700 - Project Closeout.
Warranties and maintenance agreements.
Completion of all items specified for completion after Substantial Completion.
Transmittal of required Project construction records to Architect.
Final cleaning.
AIA Document G706, "Contractor's Affidavit Of Payment Of Debts and Claims".
Change of door locks to Owner's access.
AIA Document G707, “Consent Of Surety To Final Payment".

END OF SECTION 012900

CONTINUATION SHEET

AIA DOCUMENT G703 (Instructions on reverse side) PAGE OF PAGES

AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, containing Contractor's signed Certification, is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO.:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO.:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED: FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED: THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C − G)	RETAINAGE (IF VARIABLE) RATE)

Contractor's Affidavit of Release of Liens

AIA Document G706A - Electronic Format

OWNER	[ ]
ARCHITECT	[ ]
CONTRACTOR	[ ]
SURETY	[ ]
OTHER	[ ]

THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION. AUTHENTICATION OF THIS ELECTRONICALLY DRAFTED AIA DOCUMENT MAY BE MADE BY USING AIA DOCUMENT D401.

TO OWNER:
(Name and address)

ARCHITECT'S PROJECT NO.:

CONTRACT FOR:

PROJECT:
(Name and address)

CONTRACT DATED:

STATE OF:
COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above:

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR:
(Name and address)

BY: _____
(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date: _____

Notary Public: _____

My Commission Expires: _____

Contractor's Affidavit of Payment of Debts and Claims

AIA Document G706 - Electronic Format

OWNER	[ ]
ARCHITECT	[ ]
CONTRACTOR	[ ]
SURETY	[ ]
OTHER	[ ]

THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION. AUTHENTICATION OF THIS ELECTRONICALLY DRAFTED AIA DOCUMENT MAY BE MADE BY USING AIA DOCUMENT D401.

TO OWNER:
(Name and address)

ARCHITECT'S PROJECT NO.:

CONTRACT FOR:

PROJECT:
(Name and address)

CONTRACT DATED:

STATE OF:
COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered. against any property of the Owner arising in any manner out of the performance of the Contract referenced above:

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose.

   Indicate attachment: [ ] yes [ ] no

The following supporting documents should be attached hereto if required by the Owner:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.
3. Contractor's Affidavit of Release of Liens (AIA Document G706A).

CONTRACTOR:
(Name and address)

BY:_____
(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date: _____

Notary Public:_____

My Commission Expires:_____

Consent of Surety to Reduction in or Partial Release of Retainage

AIA Document G707A - Electronic Format

OWNER	[ ]
ARCHITECT	[ ]
CONTRACTOR	[ ]
SURETY	[ ]
OTHER	[]

THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION. AUTHENTICATION OF THIS ELECTRONICALLY DRAFTED AIA DOCUMENT MAY BE MADE BY USING AIA DOCUMENT D401.

TO OWNER:
(Name and address)

ARCHITECT'S PROJECT NO.:

CONTRACT FOR:

PROJECT:
(Name and address)

CONTRACT DATED:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(Insert name and address of Surety)

, SURETY,

on bond of
(Insert name and address of Contractor)

, CONTRACTOR,

hereby approves the reduction in or partial release of retainage to the Contractor as follows:

The Surety agrees that such reduction in or partial release of retainage to the Contractor shall not relieve the Surety of any of its obligations to
(Insert name and address of Owner)

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(Insert in writing the month followed by the numeric date and year.)

Attest:
(Seal):

(Surety)

(Printed name and title)

(Signature of authorized representative)

SECTION 013100 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 THIS SECTION specifies requirements for project coordination including:

Coordination with other Contractors.
Administrative and supervisory personnel.
General installation provisions.
Cleaning and protection.

1.02 COORDINATION: Coordinate activities included in various Sections to assure efficient and orderly installation of each component. Coordinate operations included under different Sections that are dependent on each other for proper installation and operation.

Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain the best results.

Where space is limited, coordinate installation of different components to assure maximum accessibility for maintenance, service and repair.

Make provisions to accommodate items scheduled for later installation.

Prepare memoranda for distribution to each party involved outlining required coordination procedures. Include required notices, reports, and attendance at meetings.

Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

1.03 ADMINISTRATIVE PROCEDURES: Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:

Preparation of schedules.
Power and utility shutdowns.
Installation and removal of temporary facilities.
Delivery and processing of submittals.
Progress meetings.
Project closeout activities.

1.04 COORDINATION DRAWINGS: Prepare Coordination Drawings where close coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space necessitates maximum utilization of space for efficient installation of different components.

Show relationship of components shown on separate Shop Drawings.
Indicate required installation sequences.

1.05 STAFF NAMES: Within 15 days of Notice to Proceed, submit a list of Contractor's staff assignments, including Superintendent and personnel at the site; identify individuals, their duties and responsibilities, addresses and telephone numbers.

Post copies in the Project meeting room, the field office, and at each temporary telephone.

1.06 INSPECTION OF CONDITIONS: The Installer of each component shall inspect the substrate and all other conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.

1.07 MANUFACTURER'S INSTRUCTIONS: Comply with manufacturer's installation instructions and recommendations, to the extent that they are more stringent than requirements in Contract Documents.

1.08 INSPECT material immediately upon delivery and again prior to installation. Reject damaged and defective items.

1.09 PROVIDE ATTACHMENT and connection devices and methods necessary for securing each construction element. Secure each construction element true to line and level. Allow for expansion and building movement.

1.10 VISUAL EFFECTS: Provide uniform joint widths in exposed Work. Arrange joints to obtain the best effect. Refer questionable choices to the Architect for decision.

1.11 RECHECK MEASUREMENTS and dimensions, including elevations, before starting installation.

1.12 INSTALL EACH COMPONENT during weather conditions and project status that will ensure the best results. Isolate each part from incompatible material as necessary to prevent deterioration.

1.13 COORDINATE TEMPORARY ENCLOSURES with inspections and tests, to minimize uncovering completed construction for that purpose.

1.14 MOUNTING HEIGHTS: Where mounting heights are not indicated, install components at standard heights for the application indicated or refer to the Architect.

1.15 CLEANING AND PROTECTION: During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

Clean and maintain completed construction as often as necessary through the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

Limiting Exposures: Supervise operations to ensure that no part of construction, completed or in progress, is subject to harmful or deleterious exposure. Such exposures include, but are not limited to the following:

Excessive static or dynamic loading.
Excessive internal or external pressures.
Excessive weathering.
Excessively high or low temperatures or humidity.
Air contamination or pollution.
Water or ice.
Chemicals or solvents.
Heavy traffic, soiling, staining and corrosion.
Rodent and insect infestation.
Unusual wear or other misuse.
Contact between incompatible materials.
Theft or vandalism.

END OF SECTION 013100

SECTION 013200 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 SUMMARY: This Section specifies requirements for Project meetings including:

Pre-Construction Conference.
Progress Meetings.

1.02 PRE-CONSTRUCTION CONFERENCE: Architect shall conduct a pre-construction conference after execution of the Agreement and prior to commencement of construction activities. Review responsibilities and personnel assignments.

Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, subcontractors, suppliers, manufacturers, and other concerned parties shall be represented by persons authorized to conclude matters relating to the Work.

Agenda: Discuss significant items that could affect progress, including the tentative construction schedule, critical sequencing, use of the premises, procedures for processing Change Orders and equipment deliveries.

Review progress of other activities and preparations for the activity under consideration at each conference, including time schedules, manufacturer's recommendations, weather limitations, substrate acceptability, compatibility problems and inspection and testing requirements.

Record significant discussions, agreements and disagreements of each conference, along with the approved schedule. Distribute the meeting record to everyone concerned, promptly, including the Owner and Architect.

Do not proceed if the conference cannot be successfully concluded. Initiate necessary actions to resolve impediments and reconvene the conference at the earliest feasible date.

1.03 PROGRESS MEETINGS: Conduct progress meetings as required and agreed by all parties. Notify the Owner and Architect of scheduled dates. Coordinate meeting dates with preparation of the payment request.

Attendees: The Owner and Architect, each subcontractor, supplier or other entity concerned with progress or involved in planning, coordination or performance of future activities shall be represented by persons familiar with the Project and authorized to conclude matters relating to progress.

Agenda: Review minutes of the previous progress meeting. review significant items that could affect progress. Include topics appropriate to the current status of the Project including:

RFIs	Change Orders
Scheduling	Submittals

Reporting: Distribute copies of the minutes of the meeting to each party present and to parties who should have been present.

1.04 CONTRACTOR'S CONSTRUCTION SCHEDULE: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

Review the present and future needs of each entity present, including such items as:

Time.
Sequences.
Deliveries.
Off-site fabrication problems.
Site utilization.
Temporary facilities and services.
Hazards and risks.
Quality and Work standards.
Change Orders.
Documentation of information for payment requests.

END OF SECTION 013200

SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.01 GENERAL PROCEDURES

A. Coordinate submittal preparation with performance of construction activities, and with purchasing or fabrication, delivery, other submittals and related activities. Transmit in advance of performance of related activities to avoid delay.

B. Coordinate transmittal of different submittals for related elements so processing will not be delayed by the need to review concurrently for coordination. The Architect reserves the right to withhold action on a submittal requiring coordination until related submittals are received.

1.02 PROCESSING: Allow two weeks for initial review. Allow more time if processing must be delayed for coordination with other submittals. The Architect will notify the Contractor when a submittal must be delayed for coordination. Allow two weeks for reprocessing each submittal.

No extension of time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.

1.03 SUBMITTAL PREPARATION: Place a label or title block on each submittal for identification. Provide two 4" x 5" spaces on the label or beside the title block on Shop Drawings to record Contractor's review and approval markings and action taken. Include the following information on the label for processing and recording action taken. Submittals received without a signed Contractor's Approval Stamp will be returned for resubmittal with no action taken.

Project name.
Date.
Name and address of Contractor.
Name and address of supplier.
Name of manufacturer.
Number and title of appropriate Specification Section.
Drawing sheet number and detail references, as required.

1.04 SUBMITTAL TRANSMITTAL: Package submittals appropriately for transmittal and handling. Transmit with a transmittal form. Submittals received from other than the Contractor will be returned without action.

Transmittal Form: Use AIA Document G 810 or other form acceptable to Architect. On the form record requests for data, and deviations from Contract Documents. Include Contractor's certification that information complies with Contract Documents.

1.05 CONTRACTOR'S CONSTRUCTION SCHEDULE: Submit a fully developed, CPM type construction schedule, within 30 days after the date of the Owner's issuance of a Notice to Proceed. Use the categories of work in the schedule to establish the categories in the "Schedule of Values".

As work progresses, mark the schedule to indicate Actual Completion.

Provide notations on the Schedule depicting the consequences on the Work from construction phasing.

Prepare the schedule on sheets of sufficient width to show data for the entire construction period.

Secure commitments for performing critical construction operations from parties involved. Coordinate each activity with other activities and show in proper sequence; include minor elements involved in the construction sequence. Indicate sequences necessary for completion of related portions.

Coordinate the Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests and other schedules.
Schedule completion in advance of the date established for Substantial Completion. Schedule Substantial Completion to allow time for the Architect's procedures necessary for certification of Substantial Completion.

Print and distribute schedule following initial approval to the Architect, Owner, subcontractors and other parties required to comply with scheduled dates. Redistribute after any approved revisions. Post copies in the temporary field office. Submit update schedule with each Pay Application.

1.06 DAILY CONSTRUCTION REPORTS: Prepare a daily construction report, recording information concerning events at the site. Submit duplicate copies to the Architect at weekly intervals. Include the following information:

List of subcontractors at the site.
Work Activities.
High and low temperatures, general weather conditions.
Accidents, stoppages, delays, shortages, losses.
Emergency procedures.
Change Orders received, implemented.
Partial Completions, occupancies.
Substantial Completions authorized.
Other relevant dates.

1.07 SUBMITTALS: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 4 sets plus the number of sets required by the Contractor; maximum eight (8) sets. The Architect will retain four sets and return the others marked with the action taken. **(Note: Architect will mark only one (1) set for return to the Contractor with action taken and/or modifications required.)** Maintain Sample sets at the Project site, for quality comparisons throughout construction phase.

Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

1.08 ARCHITECT'S ACTION: Except for submittals for record, information or similar purposes, where action and return is required, the Architect will review each submittal, mark to indicate action taken, and return. Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Architect will stamp each submittal with a self-explanatory action stamp. The stamp will be appropriately marked to indicate action taken.

1.09 DISTRIBUTION: Furnish copies of final submittal to installers, and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until an applicable copy of Product Data is in the installer's possession. Do not permit use of unmarked copies of Product Data in connection with construction.

1.10 SHOP DRAWINGS: Submit information, drawn to accurate scale. Submittals shall **indicate deviations from Contract Documents**. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Include the following information:

Project Name.
Location.
Suppliers Name.
Date.
Drawing No.

Specification Section Reference.
Dimensions.
Identification of products and materials included.
Compliance with specific standards.
Notation of coordination requirements.
Notation of dimensions established by field measurement.

Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 24" x 36".

Initial Submittal: Submit one correctable translucent print and two blue-line print for review; the reproducible print will be returned.

Final Submittal: Submit four (4) blue or black line prints of the original submittal for use by the Architect/Engineer, Owner and Contractor.

Do not use Shop Drawings without a Architects stamp indicating action taken in connection with construction.

The Contractor shall schedule all shop drawing submittals to allow sufficient time for one initial review and two resubmittal reviews.

1.11 COORDINATION DRAWINGS are a special type of shop drawing depicting relationship and integration of different construction elements requiring coordination during fabrication or installation to fit and function as intended.

Preparation of coordination drawings is described in these Specifications under "Project Coordination" and may include components previously shown on shop drawings or product data.

Submit for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.12 PRODUCT DATA: Collect Product Data into a single submittal for each element or system. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

Manufacturer's printed recommendations.
Compliance with recognized trade association standards.
Compliance with recognized testing agency standards.
Application of testing agency labels and seals.
Notation of dimensions verified by field measurement.
Notation of coordination requirements.

A. Submittals: Submit 3 copies. The Architect will retain two and will return the others. **Note:** The Architect will mark only one set for return to the Contractor with action taken and/or modifications required. The Contractor will be responsible to see that any notes made by the Architect are made on all copies.

Unless noncompliance with Contract Documents, the submittal may serve as the final submittal.

B. Distribution: Furnish copies of final submittal to installers and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until an applicable copy of Product Data is in the installers possession.

1.13 SAMPLES: Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics, and a comparison of these characteristics between the final submittal and the component as delivered and installed. Where variations are inherent in the product, submit multiple units that show limits of the variations.

Refer to other Sections for Samples that illustrate details of assembly, fabrication techniques, workmanship, connections, operation and similar characteristics.

Refer to other Sections for Samples to be returned for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.

Sample sets may be used to obtain final acceptance of the construction associated with each set.

Preliminary submittals: Where Samples are for selection of characteristics from a range of choices, submit a full set of choices for the product. Preliminary submittals will be reviewed and returned indicating selection and other action.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

PART 4 - SCHEDULES

4.01 The following Submittal Schedule is for ***REFERENCE ONLY***. Items listed may or may not be required for this project.

SUBMITTAL SCHEDULE		
SECTION	**TYPE OF SUBMITTAL**	**DESCRIPTION**
000610 - Performance Bond and Labor and Material Bond	Bonds	Performance Bond, Labor and Material Bond
000430 - List of Subcontractors	List	Subcontractors, Suppliers, Principal Manufactures
012900 - Application for Payment	Schedule of Values Application for Payment	Initial and Subsequent Initial and Subsequent
013100 - Project Coordination	List	Staff Names
013300 - Submittals	Construction Schedule Submittal Schedule Daily Construction Reports	
017700 - Project Closeout	Documents Certificate	Record Drawings, Specifications, Submittals, As-Builts, Maintenance Manuals, O & M Instructions OEF Final & Occupancy Inspection
022070 - Selective Demolition	Schedule	Demolition Schedule
313116 - Termite Control	Warranty	Soil Treatment Solution
025100 - Concrete Paving	Shop Drawings	Walkways/Curb Layout
033000 - Concrete	Shop Drawings	Formwork Reinforce Placement/Schedule
042000 - Unit Masonry	Product Data	Grout/Mortar, Joint Reinforcement

SUBMITTAL SCHEDULE		
SECTION	**TYPE OF SUBMITTAL**	**DESCRIPTION**
	Field Mock-Up	Masonry Wall
042113 - Brick Masonry	Product Data Samples Field Mock-Up	Grout/Mortar, Joint Reinforcement Brick, Mortar Brick Wall
055000 - Metal Fabrication	Product Data Shop Drawings Certification	Assembly and Installation Instructions Metal Fabrication Metal and Steel Test Results
052100 – Steel Joists	Shop Drawings	Sizes, Design Information
062000 - Finish Carpentry	Product Data Samples	
064023 - Interior Architectural Woodwork	Shop Drawings Samples	Casework Plastic Laminate, Hardware
071326 - Sheet Membrane Waterproofing	Product Data	Technical Data and Recommendations
072116 - Building Insulation	Product Data	Each Type of Insulation Required
076200 - Flashing and Sheet Metal	Product Data Guarantee	Roofing and Flashing Materials Maintenance Guarantee
074113 – Preformed wall and roof panels	Product Data Samples	Manufacturer=s Information
079200 - Joint Sealers	Product Data Samples Certification	Each Type Sealants Product Test Reports
081113 – Hollow Metal Doors and Frames	Shop Drawings Schedules	Frames
081416 - Flush Wood Doors	Product Data Shop Drawings Schedule	Wood Doors
083113 - Access Doors	Product Data	Doors
087100 - Finish Hardware	Schedule Product Hardware	Hardware
088000 - Glass and Glazing	Product Data Samples	Glass/Glazing Materials Glass
093000 - Tile	Product Data Samples	Tile and Grout Tile
095123 - Acoustical Ceilings	Product Data Samples	Panel/Suspension System
095100 - Acoustical Wall Panels	Product Data Samples	Wall Panels
096513- Resilient Wall Base	Product Data Sample Maintenance Instructions Replacement Material	Tile and Base

SUBMITTAL SCHEDULE		
SECTION	**TYPE OF SUBMITTAL**	**DESCRIPTION**
096816 - Carpeting	Product Data Samples Seaming Plan	Each Carpet Type Each Carpet Type All Carpet Spaces
099100 - Painting	Product Data Samples Mock-Up	Paint Paint Field Application
097200 - Wallcoverings	Product Data Samples	Each Type Wallcovering
101000 - Markerboards, Chalkboards, Tackboards	Product Data Samples	Each Type of Visual Board Tackboard Fabric
101600 - Toilet Partitions	Product Data Shop Drawings Samples	Toilet Partitions Fabrication of Partitions Color and Solid Plastic Selection
089800 - Louvers and Vents	Product Data Shop Drawings Samples	Louvers and Vents Details Color Selection
104400 - Signage	Product Data Schedule Shop Drawings	Signage Sign Layout
105050 - Metal Lockers	Product Data Shop Drawings Samples	Lockers Layout and Details Color and Finish Selection
102800 - Toilet and Bath Accessories	Product Data	Accessories
109900 - Miscellaneous Specialties	Product Data Shop Drawings	Each Item Installation Instructions Fabrication Details (where required)
111320 - Project Screens and T.V. Mounting Brackets	Product Data Shop Drawings	Screens and Monitor Mounts Installation Details
230100 - Mechanical General Provisions		
224000 - Plumbing		
260100 - Electrical General Provisions		

NOTE: Additional Submittals may be requested by the Architect/Engineer.

END OF SECTION 013300

SECTION 014000 - QUALITY CONTROL SERVICES

PART 1 - GENERAL

1.01 GENERAL: This Section specifies requirements for quality control services. Quality control services include inspections and tests performed by independent agencies, governing authorities, as well as the Contractor.

1.02 CONTRACTOR RESPONSIBILITIES: Provide inspections and tests specified or required by governing authorities, except where they are the Owner's responsibility, or are provided by another entity; services include those specified to be performed by an independent agency not by the Contractor. Costs are included in the Contract.

The Contractor shall engage and pay for services of an independent agency, acceptable to the Architect/Engineer to perform inspections and tests specified as Quality Control services.

Retesting: The Contractor is responsible for retesting where results prove unsatisfactory and do not indicate compliance with Contract Documents, regardless of whether the original test was the Contractor's responsibility.

Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

Associated Services: The Contractor shall cooperate with agencies performing inspections or tests and provide auxiliary services as requested. Notify the agency in advance of operations to permit assignment of personnel. Auxiliary services include but are not limited to:

Provide access to the Work and furnish incidental labor and facilities necessary to facilitate inspections and tests.

Take representative samples of materials that require testing or assist the agency in taking samples.

Provide facilities for storage and curing of samples, and deliver samples to testing laboratories. Provide a preliminary design mix proposed for use for material mixes that require control by the testing agency.

Provide security and protection of samples and test equipment at the Project site.

1.03 DUTIES OF THE TESTING AGENCY: The agency engaged to perform inspections and testing of materials and construction shall cooperate with the Architect and Contractor in performance of its duties, and provide qualified personnel to perform inspections and tests.

The agency shall notify the Architect and Contractor promptly of deficiencies observed during performance of its services.

The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.

1.04 COORDINATION: The Contractor and each agency engaged to perform inspections and tests shall coordinate the sequence of activities to accommodate services with a minimum of delay. The Contractor and each agency shall coordinate activities to avoid removing and replacing construction to accommodate inspections and tests.

The Contractor is responsible for scheduling inspections, tests, taking samples and similar activities.

1.05 SUBMITTALS: The testing agency shall submit a certified written report of each inspection and test to the Architect, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible, submit a certified written report of each inspection and test through the Contractor, in triplicate, who shall send two (2) copies to the Architect.

Submit additional copies of each report to the governing authority, when the authority so directs.

Report Data: Written reports of each inspection or test shall include, but not be limited to:

Date of issue.
Project title and number.
Name, address and telephone number of testing agency.
Testing agency qualifications.
Dates and locations of samples and tests or inspections.
Names of individuals making the inspection or test.
Designation of the Work and test method including applicable industry standards and/or codes.
Identification of product and Specification Section.
Complete inspection or test data.
Test results and an interpretations of test results.
Ambient conditions at the time of sample-taking and testing.
Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
Name and signature of laboratory inspector or person reviewing results.
Recommendations on retesting.

1.06 QUALIFICATION FOR SERVICE AGENCIES: Engage inspection and testing agencies which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and specialize in the types of inspections and tests to be performed.

Each inspection and testing agency engaged shall be authorized to operate in the State in which the Project is located.

1.07 REPAIR AND PROTECTION: Upon completion of inspection and testing repair damaged construction and restore substrates and finishes to eliminate deficiencies. Comply with requirements for "Cutting and Patching."

Protect construction exposed by or for quality control service activities, and protect repaired construction.

The Contractor is responsible for repair and protection regardless of the assignment of responsibility for inspection and testing.

END OF SECTION 014000

SECTION 014200 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

1.01 DEFINITIONS: Basic Contract definitions are included in the General Conditions.

A. Indicated refers to graphic representations, notes or schedules on Drawings, or Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference.

B. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Architect", "requested by the Architect", and similar phrases. No implied meaning shall be interpreted to extend the Architect's responsibility into the Contractor's supervision of construction.

C. Approve, used in conjunction with action on submittals, applications, and requests, is limited to the Architect's duties and responsibilities stated in General and Supplementary Conditions. Approval shall not release the Contractor from responsibility to fulfill Contract requirements.

D. Regulation includes laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, and rules, conventions and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.

E. Furnish means "supply and deliver, ready for unloading, unpacking, assembly, installation, and similar operations."

F. Install describes operations at the site including "unloading, unpacking, assembly, erection, anchoring, applying, working to dimension, protecting, cleaning and similar operations."

G. Provide means "furnish and install, complete and ready for use."

H. Installer: "Installer" is the Contractor or an entity engaged by the Contractor, as an employee, subcontractor or sub- subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform. The term "experienced," when used with "Installer" means having a minimum of 5 previous Projects similar in size to this Project, and familiar with the precautions required, and with requirements of the authority having jurisdiction.

I. Project Site is the space available for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings, and may or may not be identical with the description of the land upon which the Project is to be built.

J. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

1.02 SPECIFICATION FORMAT: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTERFORMAT numbering system. Language used in the Specifications is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the context so indicates.

Imperative language is used generally. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

1.03 ASSIGNMENT OF SPECIALISTS: Certain construction activities shall be performed by specialists, recognized experts in the operations to be performed. Specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

1.04 DRAWING SYMBOLS: Where not otherwise noted, symbols are defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., eighth edition.

1.05 MECHANICAL/ELECTRICAL DRAWINGS: Graphic symbols for mechanical and electrical Drawings are defined in a graphic symbol legend on the Construction Documents and are aligned with symbols recommended by ASHRAE. Where appropriate, they are supplemented by symbols recommended by technical associations. Refer instances of uncertainty to the Architect for clarification before proceeding.

1.06 APPLICABILITY OF STANDARDS: Except where the Contract Documents include more stringent requirements, applicable industry standards have the same force and effect as if bound or copied into Contract Documents. Such standards are part of the Contract Documents by reference. Individual Sections indicate standards the Contractor must keep available at the Project Site.

1.07 PUBLICATION DATES: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.

Updated Standards: Submit a Change Order proposal where an applicable standard has been revised and reissued after the date of the Contract Documents and before performance of Work. The Architect will decide whether to issue a Change Order to proceed with the updated standard.

1.08 CONFLICTING REQUIREMENTS: Where compliance with two or more standards that establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced. Refer uncertainties as to which quality level is more stringent to the Architect for a decision before proceeding.

Minimum Quantities or Quality Levels: The quantity or quality shown or specified is the minimum to be provided or performed. Indicated values are minimum or maximum values, as appropriate for the requirements. Refer instances of uncertainty to the Architect for decision before proceeding.

1.09 COPIES OF STANDARDS: Each entity engaged on the Project shall be familiar with standards applicable to that activity. Copies of applicable standards are not bound with the Contract Documents.

Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

Although copies of standards needed for enforcement of requirements may be part of submittals, the Architect reserves the right to require submittal of additional copies for enforcement of requirements.

1.10 ABBREVIATIONS AND NAMES: Where acronyms or abbreviations are used in the Specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

1.11 PERMITS, LICENSES, AND CERTIFICATES: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS: Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.02 SUMMARY: This Section specifies temporary services and facilities, including utilities, construction and support facilities, security and protection. Provide facilities ready for use. Maintain, expand and modify as needed. Remove when no longer needed, or replaced by permanent facilities.

Temporary facilities required include but are not limited to water service and distribution, temporary electric power and light, storage sheds, sanitary facilities and temporary enclosures, barricades, warning signs, lights and environmental protection.

1.03 USE CHARGES: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect, and will not be accepted as a basis of claims for a Change Order.

1.04 REGULATIONS: Comply with all applicable local, state, and federal laws and regulations.

1.05 STANDARDS: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities" and OSHA.

A. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared by AGC and ASC.

B. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

1.06 INSPECTIONS: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.07 CONDITIONS OF USE: Keep facilities clean and neat. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload, or permit facilities to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

1.08 MATERIALS AND EQUIPMENT: Provide new materials and equipment; if acceptable to the Architect, undamaged previously used materials and equipment in serviceable condition may be used. Provide materials and equipment suitable for the use intended.

A. Tarpaulins: Waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

B. Temporary / Construction Fencing: 11-gage, galvanized 2-inch, chain link fabric fencing 6-feet high with galvanized steel pipe posts, 1-1/2" I.D. for line posts and 2-1/2" I.D. for corner posts.

1.09 TEMPORARY UTILITY INSTALLATION: Engage the local utility company to install temporary service or connect to existing service. Arrange for a time when service can be interrupted to make connections. Provide adequate capacity at each stage of construction. Combined use of temporary and existing power and water is anticipated for this project.

A. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction. Sterilize water piping prior to use.

B. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear. Install service underground, if possible.

1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage.

2. Electrical Outlets: Provide properly configured NEMA polarized outlets. Provide outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

3. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to traffic.

C. Lighting: Provide temporary lighting with local switching to fulfill security requirements and provide illumination for construction operations and traffic conditions.

1. Lamps and Light Fixtures: Provide general service incandescent lamps. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

D. Telephones: Provide temporary telephone service for personnel engaged in construction. Post a list of important telephone numbers.

E. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent. If sewers are not available or cannot be used, provide drainage ditches, or similar facilities.

Filter out construction debris and other contaminants that might clog sewers or pollute waterways before discharge. Provide earthen embankments and similar barriers in and around excavations and subgrade construction to prevent flooding by runoff of storm water from heavy rains. **Comply with all City and County requirements for storm water runoff.**

1.10 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION: Locate for easy access. Maintain facilities until Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, if acceptable to the Owner.

A. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads where they do not interfere with construction activities.
Dust Control: If, in the opinion of the Owner or Architect it is necessary to control dust during construction period, the Contractor shall furnish and spread water or calcium chloride at points where dust is a nuisance or as directed by the Architect, at no additional cost to the Owner.

B. Field Offices: Provide field offices of size required to accommodate personnel, including telephone and fax line. In addition provide a 3' x 5' desk, table and stool for use by the Architect. Field office is to be provided with air conditioning. Keep clean and orderly for use for small progress meetings.

C. Storage and Fabrication Sheds: Install sheds, equipped to accommodate materials and/or existing equipment involved. Sheds may be open shelters.

D. Sanitary facilities include temporary toilets and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures. Install where facilities will best serve the Project. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.

E. Toilets: Install self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material. Use of pit-type privies will not be permitted. Under no circumstances will construction personnel use existing toilet facilities.

F. Drinking Water Facilities: Provide containerized tap-dispenser type drinking water units.

G. Dewatering Facilities and Drains: For temporary drainage and dewatering operations not associated with construction, comply with requirements of applicable Division-2 Sections. Where feasible, utilize the same facilities. Maintain excavations and construction free of water.

H. Temporary Enclosures: Provide temporary enclosure for protection of construction from exposure, foul weather, other construction operations and similar activities. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions.

Install tarpaulins securely, with incombustible framing. Close openings through floor or roof decks and horizontal surfaces with load-bearing construction.

I. Collection and Disposal of Waste: Collect waste daily. Comply with NFPA 241 for removal of combustible waste. Enforce requirements strictly. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose in a lawful manner.

1.11 SECURITY AND PROTECTION FACILITIES INSTALLATION: Except for use of permanent fire protection as soon as available, do not change from use of temporary security and protection facilities to permanent facilities until Substantial Completion.

A. Fire Protection: Until fire protection is supplied by permanent facilities, install and maintain temporary fire protection of types needed to protect against predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations." Consideration should be given to existing fire hydrant locations.

B. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers. Locate fire extinguishers where effective for the intended purpose.

Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

Store combustible materials in containers in fire-safe locations.

Provide supervision of welding operations, combustion type temporary heating units, and sources of fire ignition.

C. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of barricades. Paint appropriate warning signs to inform personnel and the public of the hazard being protected against. Where needed provide lighting, including flashing lights. Temporary, portable or metal barricades and structures shall be constructed over all open trench areas intersecting student walkways. Walkway structures over trenches shall be of sturdy construction with handrails and be handicap accessible.

D. Security Enclosure and Lockup: Install temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism and theft. Where materials and equipment must be stored, provide a secure lockup.

E. Enclosure Fence: When excavation begins, install an enclosure fence with lockable entrance gates where indicated, or if not indicated, enclose the entire site or the portion sufficient to accommodate operations. Provide open-mesh, chain-link fencing with posts set in a compacted mixture of gravel and earth.

F. Environmental Protection: Operate temporary facilities and conduct construction by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted. Restrict use of noise making tools and equipment to hours that will minimize complaints.

1.12 OPERATION: Enforce strict discipline in use of temporary facilities. Limit availability to intended use to minimize abuse. Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and the elements.

Maintain operation of enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis to achieve indicated results and to avoid damage.

Prevent piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

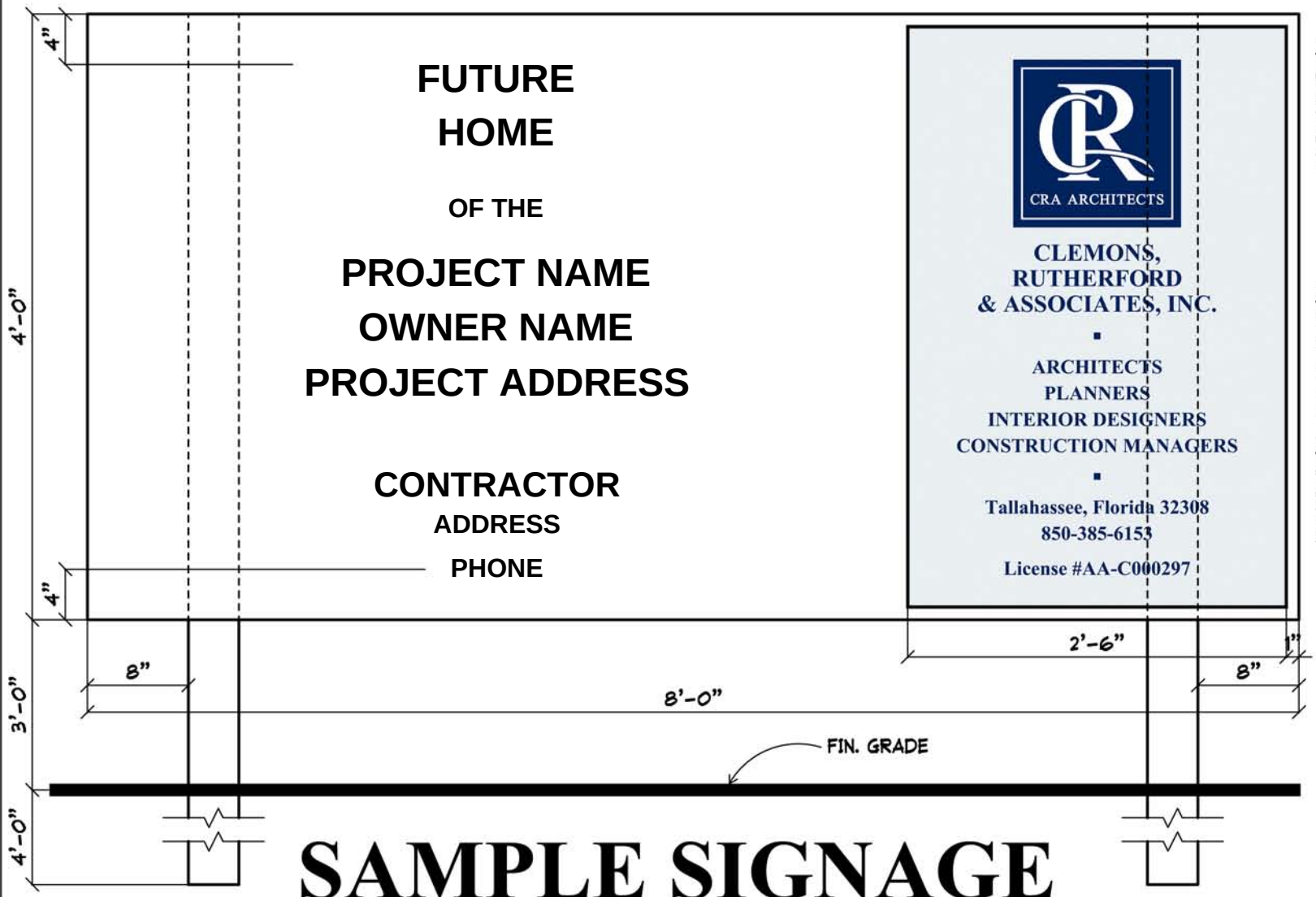
1.13 TERMINATION AND REMOVAL: Remove each facility when the need has ended, or replaced by a permanent facility, or no later than Substantial Completion. Complete or restore construction delayed because of interference with the facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

Temporary facilities are property of the Contractor.

At Substantial Completion, renovate permanent facilities used during the construction period, including but not limited to:

Replace air filters and clean inside of ductwork and housings.
Replace worn parts and parts subject to unusual operating conditions.
Replace burned out lamps.

END OF SECTION 015000



CRA ARCHITECTS

CLEMONS,
RUTHERFORD
& ASSOCIATES, INC.

ARCHITECTS
PLANNERS
INTERIOR DESIGNERS
CONSTRUCTION MANAGERS

Tallahassee, Florida 32308
850-385-6153

License #AA-C000297

NOTE:

CONTRACTOR AND / OR SIGN SHOP TO CONTACT CRA TO REQUEST AN ELECTRONIC COPY OF IMAGE PRIOR TO PRINTING.

FINISH:

ALKYD PRIMER & INDUSTRIAL ENAMEL. PANELS ARE PAINTED ON BOTH SIDES & ALL EDGES. FINISH COAT ON FACE SIDE IS DOUBLED COATED.

COLORS:

GRAY BACKGROUND (PMS 7541U)
NAVY BLUE LOGO & LETTERING (PMS 2767U)

SAMPLE SIGNAGE

CRA ARCHITECTS

CLEMONS, RUTHERFORD & ASSOCIATES, INC.

ARCHITECTS | PLANNERS | INTERIOR DESIGNERS | CONSTRUCTION MANAGERS

2027 Thomasville Road, Tallahassee, Florida 32308

p: 850-385-6153 | f: 850-386-8420 | www.craarchitects.com

NOTES :

1. LETTERING STYLES SHALL BE ARIAL, UNLESS NOTED OTHERWISE.
2. ALL COLORS ARE TO BE SELECTED BY THE ARCHITECT
3. PLYWOOD SHALL BE 3/4" M.D.O. EXTERIOR GRADE
4. CONTRACTOR SHALL FURNISH SIGN.
5. PROVIDE SHOP DRAWING LAYOUT FOR ARCHITECTS' REVIEW PRIOR TO PAINTING SIGN.
6. ARCHITECT TO SELECT LOCATION OF SIGN.

SECTION 015500 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 DEFINITIONS

A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.

B. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

C. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.

D. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

E. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.02 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.

B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.

D. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.

E. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

Name of product and manufacturer.

Model and serial number.

Capacity.

Speed.

Ratings.

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

B. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses; and to prevent overcrowding of construction spaces.

C. Deliver products to the site in undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

D. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

E. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

F. All new installed materials shall be sealed from moisture penetration at the end of each day.

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation. Discontinued items will not be accepted.

1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.

2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures: The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:

1. Semiproprietary Specification Requirements: Where Specifications name two or more products or manufacturers, provide one of the products indicated.

Where Specifications specify products or manufacturers by name, accompanied by the term "**or equal**" or "**or approved equal**", comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

2. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

3. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated.

Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.

4. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.

5. Visual Matching: Where Specifications require matching an established Sample (match existing), the Architect's decision will be final on whether a proposed product matches satisfactorily.

   Where no product is available within the specified category, matches satisfactorily and complies with other specified requirements; comply with provisions of the Contract Documents concerning "substitutions" (Section 016000 - Product Substitutions) for selection of a matching product in another product category.

6. Visual Selection: Where specified product requirements include the phrase "... as selected from manufacturer's standard colors, patterns, textures ..." or a similar phrase, select a product and manufacturer that complies with specified requirements. The Architect will select the color, pattern, and texture from the product line selected. Any selections within the product line which are unavailable, no longer make or superseded by another should be so marked.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.

B. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 015500

SECTION 016000 - PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.01 SUBSTITUTIONS: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following **are not** considered substitutions:

A. Substitutions requested during the bidding period, and accepted prior to award of Contract.

B. Revisions to Contract Documents requested by the Owner or Architect.

C. Specified options of products and construction methods included in Contract Documents.

D. Compliance with governing regulations and orders issued by governing authorities.

1.02 SUBMITTAL: Requests for substitution will be considered if received within 30 days after commencement of the Work. Requests received may be considered or rejected at the discretion of the Architect after review. See mechanical and electrical "General Provisions" section for special substitution requirements.

A. Submit 3 copies of each request for substitution in the form and in accordance with procedures for Change Order proposals.

B. Identify the product, or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Document compliance with requirements for substitutions, and the following information, as appropriate:

1. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.

2. Samples, where applicable or requested.

3. A comparison of significant qualities of the proposed substitution with those specified.

4. A list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will be necessary to accommodate the proposed substitution.

5. A statement indicating the substitution's effect on the Construction Schedule compared to the Schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

6. Cost information, including a proposal of the net change, if any in the Contract Sum.

7. Certification that the substitution is equal-to or better in every respect to that required by Contract Documents, and that it will perform adequately in application indicated. Include Contractor's waiver of rights to additional payment or time, that may be necessary because of the substitution's failure to perform adequately.

C. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information necessary for evaluation. Within 2 weeks of receipt of the request, or one week of receipt of additional information, whichever is later, the Architect will notify the Contractor of acceptance or rejection. If a decision on use of a substitute cannot be made within

the time allocated, use the product specified. Acceptance will be in the form of a Change Order.

1.03 SUBSTITUTIONS: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

A. The request is directly related to an "or approved equal" clause or similar language in the Contract Documents.

B. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

C. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

D. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate contractors, and similar considerations.

E. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

F. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

G. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

1.04 The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

END OF SECTION 016000

SECTION 017700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 SUBSTANTIAL COMPLETION: Before requesting inspection for certification of Substantial Completion, complete the following:

A. Change-over permanent locks and transmit keys to the Owner.

B. Complete start-up testing of systems, and instruction of the Owner's personnel. Remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.

C. Complete final clean up. Touch-up and repair and restore marred exposed finishes.

1.02 INSPECTION PROCEDURES: When the Contractor considers the work substantially complete, he shall prepare and submit a comprehensive list of items to be completed and/or corrected to the Architect. The Contractor shall proceed to promptly complete and/or correct all items on the list.

A. Upon receipt of Contractor's list, the Architect will make an inspection or inform the Contractor of work to be completed before an inspection will be conducted.

B. When the work is substantially complete, the Architect will prepare the Certificate of Substantial Completion which shall establish the date of Substantial Completion.

C. Results of the completed inspection will form the basis of requirements for final acceptance, **including any items discovered at a later date considered necessary to be completed for final**.

1.03 FINAL ACCEPTANCE: Before requesting inspection for certification of final acceptance and final payment, complete the following:

A. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance.

B. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

C. Submit record drawings, maintenance manuals, damage or settlement survey, and similar record information.

D. Refer to Section 012900 - Application For Payment - Final Payment Application.

E. Provide the Architect with “Final Statement of Compliance”, for the Owner.

1.04 REINSPECTION PROCEDURE (if required): The Architect will re-inspect the Work upon receipt of notice that the Work has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

A. Upon completion of re-inspection, the Architect will then prepare a certificate of final acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance. If necessary, re-inspection will be repeated.

1.05 RECORD DRAWINGS: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark-up these drawings to show the actual installation where installation varies from that shown originally. Mark whichever drawing is most capable of showing conditions accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

A. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover.

B. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and lost. Provide access to Project Record Documents for Architect's reference during normal working hours.

B. Upon completion of the Work, submit Record Drawings (red-line field as-builts) to the Architect for Owner's records.

1.06 PROJECT RECORD SPECIFICATIONS: Maintain one copy of the Project Manual, including addenda. Mark-up to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot be readily discerned later by direct observation. Note related record drawing information and Product Data.

A. Upon completion of the Work, submit record Drawings and Specifications to the Architect for the Owner's records.

1.07 PROJECT AS-BUILT DRAWINGS: The Contractor shall, at his own expense, hire Architect of Record (CRA) to prepare as-built drawings. The Contractor shall provide to the Architect record drawings and record specifications. The Contractor is solely responsible for the content of the record drawings and the as-built documents. As-built drawings shall comply with the following:

A. Show the actual locations of all components, including depth below grade, along with any changes and/or modifications to the Contract Drawings.

B. All dimensions and elevations, including invert elevations, shall be verified by field measurements.

C. The Contractor is cautioned to make all necessary measurements and elevations during installation to accurately locate all concealed items.

D. As-Built Survey: Contractor shall provide signed and sealed As-Built Survey of existing grades and structures as required by authorities having jurisdictions.

1.08 MAINTENANCE MANUALS: Organize maintenance data into sets of manageable size. Bind in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following information:

Emergency instructions.
Copies of warranties.
Recommended "turn around" cycles.
Shop Drawings and Product Data.
Spare parts list.
Wiring diagrams.
Inspection procedures.
Fixture lamping schedule.

1.09 OPERATING AND MAINTENANCE INSTRUCTIONS: Arrange for the installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Include a detailed review of the following:

Maintenance manuals.	Spare parts and materials.
Tools.	Lubricants.
Control sequences.	Hazards.
Warranties and bonds.	Maintenance agreements and similar continuing commitments.

As part of instruction for operating equipment, demonstrate the following procedures:

Start-up and shutdown.	Emergency operations.
Noise and vibration adjustments.	Safety procedures.

All operation and training sessions shall be video recorded and two (2) copies provided to Owner. Verify with Owner the appropriate format of taping that should be used.

1.10 FINAL CLEANING: Employ experienced workers for final cleaning. Clean each surface to the condition expected in a commercial building cleaning and maintenance program. Complete the following, as a minimum before requesting inspection for certification of Substantial Completion:

A. Remove labels that are not permanent labels.

B. Clean transparent materials. Remove glazing compound. Replace chipped or broken glass.

C. Clean exposed hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean.

D. Vacuum carpeted surfaces.

E. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

F. Clean the site of rubbish, litter and other foreign substances. Sweep paved areas; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth even-textured surface.

1.11 REMOVAL OF PROTECTION: Remove temporary protection and facilities.

1.12 COMPLIANCE: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION 017700

SECTION 017800 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 STANDARD PRODUCT WARRANTIES are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner. Note: All Standard Product Warranties are to be provided.

1.02 SPECIAL WARRANTIES are written warranties required by or incorporated in Contract Documents, to extend time limits provided by standard warranties or to provide greater rights for the Owner. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.

A. Requirements for warranties for products and installations that are specified to be warranted, are included in the individual Sections of Divisions-2 through -16.

1.03 DISCLAIMERS AND LIMITATIONS: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Subcontractors required to countersign special warranties with the Contractor.

1.04 RELATED DAMAGES AND LOSSES: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

1.05 REINSTATEMENT OF WARRANTY: When Work covered by a warranty has failed and been corrected, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

1.06 REPLACEMENT COST: On determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through part of its useful service life.

1.07 OWNER'S RECOURSE: Written warranties made to the Owner are in addition to implied warranties, and shall not limit duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

A. Rejection of Warranties: The Owner reserves the right to reject warranties and limit selections to products with warranties not in conflict with requirements of the Contract Documents. The Owner reserves the right to refuse to accept Work where a special warranty, or similar commitment is required, until evidence is presented that entities required to countersign commitments are willing to do so.

1.08 SUBMIT WRITTEN WARRANTIES to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties on the Architect's request.

A. When a designated portion of the Work is completed and occupied or used, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.

B. When a special warranty is to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

C. Refer to individual Sections of Divisions-2 through -16 for specific content, and particular requirements for submittal of special warranties.

D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.

E. Provide heavy paper dividers with celluloid covered tabs for each warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.

F. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the Project title or name, and the name of the Contractor.

G. When operating and maintenance manuals are required for warranted construction, provide additional copies of each warranty, as necessary, for inclusion in each required manual.

END OF SECTION 017800

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section requires the selective removal and subsequent offsite disposal of, but not necessarily limited to the following:

Windows, doors, and associated accessories

NOTE: Plans and specifications indicate general locations where demolition is required, but is not intended to show all possible items or areas of demolition. All demolition required to complete work is in contract.

1.02 SUBMITTALS

A. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.

1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.

2. Coordinate with Owner's continuing occupation of existing buildings and with Owner's.

B. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner prior to start of work.

1.03 JOB CONDITIONS

A. Occupancy: The designated project area will be vacated. The Owner will occupy buildings immediately adjacent to the areas being renovated. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities that will affect Owner's normal operations.

B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

C. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.

1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.

2. Erect temporary covered passageways as required by authorities having jurisdiction.

3. Remove protections at completion of work.

Maintain fire egress / exits.

D. Damages: Promptly repair damages caused to adjacent facilities by demolition work.

E. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

F. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.

G. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

2. **Maintain fire protection services during selective demolition operations.**

H. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 PREPARATION

A. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.

1. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.

3.02 DEMOLITION

A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Cut concrete and asphalt at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.

2. Completely fill below-grade areas and voids resulting from demolition work. Provide fill consisting of approved earth, gravel, or sand, free of trash and debris, stones over 6 inches in diameter, roots, or other organic matter.

B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.03 SALVAGED MATERIALS

A. Salvaged Items: Where indicated on Drawings as "Salvage - Deliver to Owner," carefully remove indicated items, clean, store, and turn over to Owner and obtain receipt.

B. Historic artifacts, including cornerstones and their contents, commemorative plaques and tablets, antiques, and other articles of historic significance, remain property of Owner. Notify Owner if such items are encountered and obtain acceptance regarding method of removal and salvage for Owner.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.

1. If hazardous materials are encountered during demolition operations **notify the Architect and Owner**. Comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

Note: Contractor shall comply with the notice requirements of Chapter 62-257.301, F.A.C., Asbestos Program when renovation or demolition of site or facility involving the removal of a threshold amount of regulated ACM (asbestos containing material) regardless of whether or not asbestos is present. "Notice of Asbestos Renovation or Demolition", DEP Form Number 62-257.900(1), effective 2-9-99 shall be filed with FDEP (Florida Department of Environmental Protection) ten (10) working days prior to commencement of work.

2. Burning of removed materials is not permitted on project site.

3.05 CLEANUP AND REPAIR

A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 024119

SECTION 054000 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.02 REFERENCE STANDARDS

A. The following documents of the issue in effect date of material procurement, referred to thereafter by basic designation only form a part of this specification to the extent indicated by reference thereto.

1. American Iron and Steel Institute: Specifications for the Design of Cold-Formed Steel Structural Members.

2. American Society of Testing materials: ASTM A-446 "Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, Physical (Structural) Quality." Grade C, Galvanizing: G-60 coating class.

3. American Welding Society: AWS D1.0 "Code for Welding in Building Construction" and ANSIZ49.1 "Safety in Welding and Cutting".

1.03 DESCRIPTION: Furnish, fabricate, deliver and erect all light gauge metal framing as shown on the drawings, or herein specified.

A. Wind design shall be per ASCE 7-10. See drawings for wind design criteria.

B. All bridging and bracing, including erection bracing, required for the finished product shall be designed and furnished. Bracing required for horizontal wind loads shall be designed for loads indicated on the plans and specifications, and as required by applicable codes

D. All framing connections shall be designed and furnished. Connections shall be designed for all loading conditions; including uplift and reactions from horizontal wind load transfer.

1.04 SUMMARY

A. Types of cold-formed metal framing units include SJ-shaped load-bearing steel studs.

B. Related Work Specified Elsewhere: Interior steel studs for gypsum drywall construction are specified in Section 092900.

1.05 SUBMITTALS:

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data and installation instructions for each item of cold-formed metal framing and accessories.

C. Shop Drawings: Submit shop drawings showing shapes and dimensions of members to be used,

including pitch, span, chamber configuration, and spacing for each type of configuration. Show all bearing and anchorage details. Specify and detail all supplemental framing, strapping, complete bracing, bracing clips, bridging and other required for proper installation and to satisfy all designed requirements. Shop drawings and calculations must prepared by, sealed and dated by, an engineer registered in the project state. Shop drawings bearing the seal, signature and date of the engineer registered in the project state responsible for their preparation shall be submitted for approval.

1.06 QUALITY ASSURANCE:

A. Component Design: Calculate structural properties of studs and joists in accordance with American Iron and Steel Institute (AISI) "Specification for Design of Cold-Formed Steel Structural Members." Calculations shall be signed and sealed by a Specialty Engineer, registered in the project state.

B. Welding: Use qualified welders and comply with American Welding Society (AWS) D1.3, "Structural Welding Code - Sheet Steel."

C. Fire-Rated Assemblies: Where framing units are components of assemblies indicated for a fire-resistance rating, including those required for compliance with governing regulations, provide units that have been approved by governing authorities that have jurisdiction.

PART 2 - PRODUCTS

2.01 MANUFACTURERS: Subject to compliance with requirements, provide products of one of the following:

Alabama Metal Industries Corp.
Dale Industries, Inc.
Dietrich Industries, Inc.
Marino \ Ware.
Wheeling Corrugating Co.
Superior Steel Studs, Inc.
USG Industries
United States Steel
Unimast Incorp.

2.02 DELIVERY AND STORAGE: Protect metal framing units from rusting and damage. Deliver to project site in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade. Store off ground in a dry ventilated space or protect with suitable waterproof coverings.

2.03 METAL FRAMING

A. System Components: Manufacturers' standard load-bearing steel studs of type, size, shape, and gage as indicated. With each type of metal framing required, provide manufacturer's standard, steel runners (tracks), blocking, lintels, clip angles, shoes, reinforcements, fasteners, and accessories for applications indicated, as needed to provide a complete metal framing system.

B. Materials and Finishes:

1. Fabricate metal framing components of commercial quality steel sheet with a minimum yield point of 50,000 psi; ASTM A 446, A 570, or A 611.

2. Provide galvanized finish to metal framing components complying with ASTM A 525 for minimum G 60 coating.

3. Studs: Manufacturer's standard load-bearing steel studs of size, shape, and gage indicated on drawings. Unless indicated otherwise on the drawings, stud flange width shall be 1.625" with flange return lip.

2.04 FABRICATION

A. General: Framing components may be prefabricated into assemblies before erection. Fabricate panels or members plumb, square, true to line, and braced against racking with joints welded. Perform lifting of prefabricated units to prevent damage or distortion.

B. Fastenings: Attach similar components by welding. Attach dissimilar components by welding, bolting, or screw fasteners, as standard with manufacturer.

C. Wire tying of framing components is not permitted.

D. All framing components shall be cut neatly to fit against abutting members.

D. Provide all angles, clips, and other miscellaneous pieces necessary to attach other materials to light gauge framing.

E. All components shall be set square in line and shall be held firmly in position until properly fastened.

F. Finished assemblies shall be free from twist, bends, or open joints with all members straight, square, and true to line.

J. All Light Gage trusses shall be shop fabricated. Field fabrication will not be allowed.

PART 3 - EXECUTION

3.01 INSTALLATION: General: Install metal framing systems in accordance with manufacturer's printed or written instructions and recommendations.

A. The Contractor is responsible for checking dimensions and assuring fit of all members before erection begins.

B. All work shall be erected plumb and level and to dimensions, spacing, and elevations indicated on drawings.

C. Members shall be of size and spacing shown on the approved shop drawings.

D. Provide temporary bracing as required.

E. Install permanent bracing and related components to withstand live and dead loads, wind uplift, material wind loads, and to comply with other indicated requirements.

F. All light gauge steel framing shall be erected by approval methods using equipment of adequate capacity to safely perform the work.

3.02 RUNNER TRACKS: Install continuous tracks sized to match studs. Align tracks accurately to layout at base and tops of studs. Secure tracks as shown on drawings, or if not shown, as recommended by stud manufacturer for type of construction involved. Do not exceed 24 inches o.c. spacing for nail or power-driven fasteners or 16 inches o.c. for other types of attachment. Provide fasteners at corners and ends of tracks.

3.03 SET STUDS PLUMB, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

3.04 WHERE STUD SYSTEM abuts structural columns or walls, including masonry walls, anchor ends of

stiffeners to supporting structure.

3.05 INSTALL SUPPLEMENTARY FRAMING, blocking, and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work requiring attachment to the wall or partition. Where type of supplementary support is not otherwise indicated, comply with stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.

3.06 INSTALLATION OF WALL STUDS: Secure studs to top and bottom runner tracks by either welding or screw fastening at both inside and outside flanges.

3.07 FRAME WALL OPENINGS larger than 2 feet square with double stud at each jamb of frame except where more than two are either shown or indicated in manufacturer's instructions or on drawings. Install runner tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with stud shoes or by welding, and space jack studs same as full-height studs of wall. Secure stud system wall opening frame in manner indicated.

A. Frame both sides of expansion and control joints, as shown for wall system, with a separate stud and do not bridge the joint with components of stud system.

B. Install horizontal stiffeners in study system, spaced (vertical distance) at not more than 4'-0" o.c. Weld at each inter-section.

3.08 INSTALLATION OF JOISTS AND TRUSSES: Install level, straight, and plumb, complete with bracing and reinforcing as indicated on drawings. Provide not less than 1-1/2 inch end bearing.

A. Reinforce ends with end clips, steel hangers, steel angle clips, steel stud section, or as otherwise recommended by joist manufacturer.

B. Where required, reinforce joists at interior supports with single short length of joist section located directly over interior support, snap-on shoe, 30 percent side-piece lapped reinforcement, or other method recommended by joist manufacturer.

C. Secure joists to interior support systems to prevent lateral movement of bottom flange.

3.09 FIELD PAINTING: Touch-up damaged shop-applied protective coatings. Use compatible primer for prime-coated surfaces; use galvanizing repair system for galvanized surfaces.

END OF SECTION 054000

SECTION 055000 - METAL FABRICATION

PART 1 - GENERAL

1.01 STRUCTURAL PERFORMANCE: Provide the following assemblies capable of withstanding loadings indicated:

A. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.02 SUBMITTALS: In addition to product data, submit shop drawings showing details of fabrication, assembly and installation including templates for anchor bolt placement.

A. Samples of materials and finished products as may be requested by Architect.

PART 2 - PRODUCTS

2.01 MATERIALS/FABRICATION: For work exposed to view use materials selected for their smoothness and freedom from surface blemishes.

A. Steel Plates, Shapes, and Bars: ASTM A 36.

B. Structural Steel Sheet: ASTM A 570 or ASTM A 611, Class 1; of grade required for design loading.

C. Galvanized Structural Sheet: ASTM A 446, of grade required for design loading; coating designation G90 or as indicated.

D. Steel Pipe: ASTM A 53, type and grade as required for design loading (if applicable), black finish unless galvanizing indicated; standard weight (Schedule 40) unless otherwise indicated. All handrails shall be 1½" o.d.

E. Aluminum Pipe: Provide 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 properties of alloy and temper designated below for each aluminum form required.
1. Extruded Tubing: ASTM B221, Alloy 6063-T5/T52.
2. Extruded Structural Pipe and Round Tubing: ASTM B 429, Alloy 6063-T6. Provide standard Weight (Schedule 40) pipe, unless otherwise noted.

F. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either galvanized ferrous castings, malleable iron, cast steel; with steel bolts, washers and shims; hot-dip galvanized.

G. Non-Shrink Non-Metallic Grout: CE CRD-C621, non-staining, non-corrosive, non-gaseous; recommended by mfr. for types of applications indicated.

H. Fasteners: Provide bolts, nuts, lag bolts, machine screws, wood screws, toggle bolts, masonry anchorage devices, lock washers as required for application indicated and complying with applicable Federal standards. Hot-dip galvanize fasteners for exterior applications to comply with ASTM A 153.

I. Pipe Guards:
1. Fabricate pipe guards from 3/8" by 12" wide steel plate, bent to fit flat against the wall or column at both ends and to fit around pipe with 2" clearance between pipe and pipe guard. Drill each end for two ¾" anchor bolts.
2. Prime pipe guards with zinc-rich primer.

2.02 SHOP PAINTING: Apply shop primer to surface of metal fabrications except those embedded in concrete or galvanized; comply with SSPC-PA1 and requirements indicated below:

A. Surface Preparation: Comply with SSPC-SP6 "Commercial Blast Cleaning" for exterior work, and with SSPC-SP3 "Power Tool Cleaning" for interior work.

B. Shop Primer: Fabricator's standard, fast-curing, lead-free, "universal" primer complying with performance requirements of FS TT-P-645.

C. Stripe paint edges, corners, crevices, bolts, welds and sharp edges.

2.03 GALVANIZING: ASTM A 386 for assembled products; ASTM A 123 for rolled, pressed and forged steel shapes, plates, bars and strip 1/8" and thicker; galvanizing repair paint: MIL-P-21035 or SSPC-Paint-20.

2.04 FABRICATION, GENERAL: Use materials of size and thickness shown, or, if not shown, of required size, grade and thickness to produce strength and durability in finished product. Shop-paint all items not specified to be galvanized after fabrication.

A. Weld corners and seams continuously; grind exposed welds smooth and flush.

B. Form exposed connections with hairline, flush joints; use concealed fasteners where possible.

2.05 ROUGH HARDWARE: Furnish custom-fabricated bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes for framing and supporting and anchoring woodwork. Galvanize, unless otherwise indicated.

2.06 MISCELLANEOUS FRAMING AND SUPPORTS: Provide as required to complete work. Fabricate of welded construction in as large units as possible; drill and tap as required to receive hardware and similar items. Include required anchors for building into other work; spaced not more than 24" o.c.

PART 3 - EXECUTION

3.01 INSTALLATION: Perform cutting, drilling and fitting required for installation; set work accurately in location, alignment and elevation, measured from established lines and levels. Provide anchorage devices and fasteners where necessary for installation to other work.

3.03 ALL RAILINGS shall be set in non-shrink, non-pourable grout. Grout shall be placed in a dome shape, higher than the surrounding grade.

3.02 TOUCH-UP SHOP PAINT after installation. Clean field welds, bolted connections and abraded areas, and apply same type paint as used in shop. Use galvanizing repair paint on damaged galvanized surfaces.

END OF SECTION 055000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 Lumber, General: Manufacture lumber, S4S and grade stamped, to comply with PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review. Provide seasoned lumber with 19 percent moisture content at time of dressing and shipment, for sizes 2" or less in thickness.

1.02 Blocking: All wood blocking shall be a minimum 3/4" plywood. This applies to backing supporting for millwork, crash rails, toilet accessories, metal lockers, t.v. brackets, etc. or unless otherwise indicated in drawings or by manufacturer of the product being hung.

A. Wood blocking methods shall be approved by manufacturers of all wall supported systems.

PART 2 – PRODUCTS

2.01 Dimension Lumber:

A. Construction grade light-framing lumber (2"-4" thick, 2"-4" wide): Any species graded under WWPA or WCLIB rules or Southern Pine graded under SPIB rules or Western Spruce-Pine-Fir graded under NLGA rules.

B. Studs (2"-4" thick, 2"-6" wide, 10' and shorter): "Stud" or No. 3 Structural Light Framing grade, any species graded under WWPA, WCLIB, SPIB OR NLGA rules.

2.02 Sheathing Materials

A. Plywood, APA rated for use and exposure:

1. Exterior wall sheathing: APA, exterior type.

2.03 Lumber for Miscellaneous Uses: Unless otherwise indicated, provide Standard grade lumber for support of other work, including bucks, nailers, blocking, furring, grounds, stripping and similar members.

2.04 Fasteners and Anchorages: Of size, type, material and finish suited to application shown and of quality equal to products by Simpson Strong Tie Co., Inc. Provide metal hangers and framing anchors of size and type recommended for intended use by manufacturer. Hot-dip galvanize fasteners and anchorages for work exposed to weather, in ground contact and high relative humidity to comply with ASTM A 153.

2.05 Preservative pressure treat lumber with water-borne preservatives to comply with AWPA C2 and C9, respectively, and with AWPB LP-22 (Wood for Ground Contact Use) and AWPB LP-2 (Wood for Above-Ground Use).

A. Treat nailers, blocking, and similar items in conjunction with flashing and treat sills, blocking, furring, and similar items in direct contact with masonry or concrete.

2.06 WALL SUPPORT SYSTEM AND ROUGH-IN REQUIREMENTS: Provide blocking as recommended by the manufacturer for all wall hung items.

2.07 MISCELANEOUS MATERIALS: Adhesives for Gluing Furring to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

PART 3 - EXECUTION

3.01 Install rough carpentry work to comply with "Manual of House Framing" by National Forest Products Assoc. (N.F.P.A.) and with recommendations of American Plywood Association (APA), unless otherwise indicated. For sheathing and other products not covered in above standards, comply with recommendations of manufacturer of product involved for use intended. Set carpentry work to required levels and lines, with members plumb and true and cut to fit.

3.02 Securely attach carpentry work to substrates and supporting members using fasteners of size that will not penetrate members where opposite side will be exposed to view or receive finish materials. Install fasteners without splitting wood; fasten panel products to allow for expansion at joints unless otherwise indicated.

3.03 Provide wood framing members of size and spacing indicated; do not splice structural members between supports.

END OF SECTION 061000

SECTION 071326 SELF-ADHERING SHEET WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.
B. Application of rolled, self-adhering waterproofing membrane system.

1.02 RELATED SECTIONS

A. Section 07 21 00 – Thermal Insulation.
B. Section 07 60 00 – Flashing and Sheet Metal.
C. Section 07 92 00 – Joint Sealants.

1.03 REFERENCES

A. American Railway Engineering & Maintenance of Way Association (AREMA) Specification Chapter 29 - Waterproofing.

B. ASTM D146 - Standard Test Methods for Sampling and Testing Bitumen-Saturated Felts and Fabrics Used in Roofing and Waterproofing.

C. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

D. ASTM D570 - Standard Test Method for Water Absorption of Plastics.

E. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.

F. ASTM D1876 – Standard Test Method for Peel Resistance of Adhesives. (T-Peel Test).

G. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

H. ASTM E96 (Method B) - Standard Test Methods for Water Vapor Transmission of Materials.

I. ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.

1.04 SUBMITTALS

A. Comply with Section 01 33 00 - Submittal Procedures.

B. Submit manufacturer's product data and application instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
B. Store materials in a clean dry area in accordance with manufacturer's instructions.
C. Store adhesives and primers at temperatures of 40°F (5°C) and above to facilitate handling.
D. Store membrane cartons on pallets.
E. Do not store at temperatures above 90°F (32°C) for extended periods.
F. Keep away from sparks and flames.
G. Completely cover when stored outside. Protect from rain.
H. Protect materials during handling and application to prevent damage or contamination.

I. Avoid use of products which contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with waterproofing membrane system.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Product not intended for uses subject to abuse or permanent exposure to the elements.
B. Protect rolls from direct sunlight until ready for use
C. Do not apply membrane when air or surface temperatures are below 40ºF (4ºC).
D. Do not apply to frozen concrete.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. W.R. MEADOWS, Inc., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Web Site www.wrmeadows.com.
B. Or approved equal

2.02 MATERIALS

A. Rolled, Self-Adhering Waterproofing Membrane: Polymeric waterproofing membrane protected by release paper on cross-laminated polyethylene carrier film with exposed polymeric membrane strips on both sides protected by pull-off release strips.

1. Performance Based Specification: Waterproofing membrane shall have the following characteristics:
   a. Compliance: AREMA Specification Chapter 29 - Waterproofing.
   b. Thickness:
      1) Carrier Film: 4 mils.
      2) Polymeric Membrane: 56 mils.
   c. Tensile Strength, ASTM D412, Die C:
      1) Carrier Film: 5,900 psi (40.71 MPa) minimum.
      2) Polymeric Membrane: 460 psi (3.23 MPa) minimum.
   d. Elongation, ASTM D412, Die C: Polymeric Membrane: 971 % minimum.
   e. Peel Adhesion, ASTM D903: 11.8 lbf/in. (2068 N/m).
   f. Lap Adhesion, ASTM D1876: 8.62 lbf/in. (1508 N/m)
   g. Water Vapor Permeability, ASTM E96, Method B: 0.036 perms.
   h. Water Absorption, ASTM D570: 0.1 percent, 72 hours maximum.
   i. Resistance to Hydrostatic Head: Equivalent to 230.9 feet (70.3 m) of water.
   j. Puncture Resistance, ASTM E154: 48.2 lbf (214.6 N).
   k. Exposure to Fungi, Soil Test: Pass, 16 weeks.
   l. Color:
      1) Carrier Film: White.
      2) Polymeric Membrane: Black.

2. Proprietary Based Specification: MEL-ROL Waterproofing System by W.R. MEADOWS.
   a. MEL-ROL: For use at temperatures of 40ºF (4ºC) and above.

2.03 ACCESSORIES

A. Surface Conditioner:
   1. Temperatures Above 40ºF (4ºC): Mel-Prime Water Base Primer.
   2. Temperatures Above 0ºF (-18ºC): Mel-Prime VOC Compliant Solvent Base Primer or Standard Solvent Base Primer.

B. Flashing and Fillets: MEL-ROL LIQUID MEMBRANE.

C. Pointing Mastic: POINTING MASTIC.

D. Corner Tape: DETAIL STRIP.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive self-adhering membrane. Notify Architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

A. Protect adjacent surfaces not designated to receive waterproofing.

B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions.

C. Do not apply waterproofing to surfaces unacceptable to manufacturer.

D. Concrete surfaces must be clean, smooth and free of standing water.

E. Patch all holes and voids and smooth out any surface misalignments.

F. Apply surface conditioner to surfaces that will be covered within one working day according to manufacturer's recommended coverage rates.

G. Install corner tape on all inside and outside corners, including the footing.

H. Apply a 9" (229 mm) strip of self-adhering membrane over construction, control and expansion joints and over cracks greater than 1/16" (1.59 mm) wide.

I. Seal all terminations with pointing mastic.

3.03 APPLICATION

A. Vertical Application
1. Apply waterproofing membrane system in accordance with manufacturer's instructions.
2. Ensure accessory materials are compatible with membrane and approved by membrane manufacturer.
3. Remove release paper on edge and position the membrane.
4. Pull balance of release paper off, running the roll vertically over the top of the corner tape at the footing.
5. Immediately hand-rub the membrane firmly to the surface, removing any bubbles or wrinkles, then pressure roll the complete surface to assure positive adhesion.
6. Overlap all seams and stagger end laps at least 2 ½" (63.5 mm).
7. Seal all terminations with pointing mastic.
8. Inspect membrane before covering and repair as necessary. Cover tears and inadequate overlaps with membrane. Seal edges of patches with pointing mastic.

3.04 PROTECTION

A. Protect membrane on vertical and horizontal applications with immediate application of waterproofing protection course, rolled matrix drainage board.

B. Backfill immediately using care to avoid damaging waterproofing membrane system.

END OF SECTION 071326

SECTION 072100 - BUILDING INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes thermal insulation, acoustical insulation, and exterior wall insulation as indicated and/or specified complete.

1.02 Fire Performance Characteristics: Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per ASTM E 119, ASTM E 84, and ASTM E 136, as applicable, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.

1.03 SUBMITTALS:

A. Submit product data for each form and type of insulation indicated.

PART 2 - PRODUCTS

2.01 MANUFACTURER:

2.02 Faced Mineral Fiber Blanket/Batt Insulation (At Wall Infill): ASTM C 665 for Type II, Class A, (blankets with vapor-retarder membrane facing with flame spread of 25 or less); vapor-retarder membrane on one face; and as follows: (Note: Un-faced batts may be used when in conjunction with a vapor barrier.)

A. Mineral Fiber Type: Fibers manufactured from glass or slag.
B. Combustion Characteristics: Unfaced materials passes ASTM E 136 test.
C. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50, respectively.
D. Perm Rating: 1.0 Perms.
E. Thermal Resistance Value: Per Florida Building Code

PART 3 - EXECUTION

3.01 GENERAL: Comply with insulation manufacturer's instructions for installation of insulation.

A. Support insulation units by adhesive or mechanical anchorage or both as applicable to location and conditions indicated.

3.02 INSTALLATION

A. Batt Insulation: Provide Batt insulation as indicated. Install insulation with edges butted snugly, leaving no open areas. Support securely with staples, clips, tape or fasteners, as required. Install in accordance with the manufacturer's directions and recommendations.
   1. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage, to provide permanent placement and support of units.
   2. Set vapor barrier faced units with vapor barrier to outside of construction, except as otherwise shown.
B. Wall Insulation:
   1. Install as per manufacturer's specifications, using licensed and approved installers.

END OF SECTION 072100

SECTION 07 42 43 - COMPOSITE WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Wall panel assembly consisting of:
a. Metal Composite Material (MCM)
b. Installation System
c. Accessories
2. The extent of the wall panel assembly as indicated in these specifications and in the drawings.

1.2 REFERENCES

A. American Society For Testing And Materials (ASTM)

1.	ASTM B117	Standard Practice For Operating Salt Spray (Fog) Apparatus
2.	ASTM B137	Standard Test Method For Measurement Of Coating Mass Per Unit Area On Anodically Coated Aluminum
3.	ASTM B211	Standard Specification For Aluminum And Aluminum-Alloy Rolled Or Cold Finished Bar, Rod, And Wire
4.	ASTM B680	Standard Test Method For Seal Quality Of Anodic Coatings On Aluminum By Acid Dissolution
5.	ASTM C267	Standard Test Methods For Chemical Resistance Of Mortars, Grouts, And Monolithic Surfacings And Polymer Concretes
6.	ASTM C297	Standard Test Method For Flatwise Tensile Strength Of Sandwich Construction
7.	ASTM C1371	Standard Test Method For Determination Of Emittance Of Materials Near Room Temperature Using Portable Emissometers
8.	ASTM D523	Standard Test Method For Specular Gloss
9.	ASTM D635	Standard Test Method For Rate Of Burning And/Or Extent And Time Of Burning Of Plastics In A Horizontal Position
10.	ASTM D714	Standard Test Method For Evaluating Degree Of Blistering Of Paints
11.	ASTM D968	Standard Test Methods For Abrasion Resistance Of Organic Coatings By Falling Abrasive
12.	ASTM D1308	Standard Test Method For Effect Of Household Chemicals On Clear And Pigmented Organic Finishes
13.	ASTM D1781	Standard Test Method For Climbing Drum Peel For Adhesives
14.	ASTM D1929	Standard Test Method For Determining Ignition Temperature Of Plastics
15.	ASTM D2244	Standard Practice For Calculation Of Color Tolerances And Color Differences From Instrumentally Measured Color Coordinates
16.	ASTM D2247	Standard Practice For Testing Water Resistance Of Coatings In 100% Relative Humidity
17.	ASTM D2248	Standard Practice For Detergent Resistance Of Organic Finishes
18.	ASTM D2794	Standard Test Method For Resistance Of Organic Coatings To The Effects Of Rapid Deformation (Impact)
19.	ASTM D3359	Standard Test Methods For Measuring Adhesion By Tape Test
20.	ASTM D3363	Standard Test Method For Film Hardness By Pencil Test
21.	ASTM D4145	Standard Test Method For Coating Flexibility Of Prepainted Sheet
22.	ASTM D4214	Standard Test Methods For Evaluating The Degree Of Chalking Of Exterior Paint Films
23.	ASTM D5420	Standard Test Method For Impact Resistance Of Flat, Rigid Plastic Specimen By Means Of A Striker Impacted By A Falling Weight (Gardner Impact)
24.	ASTM E84	Standard Test Method For Surface Burning Characteristics

Of Building Materials

25. ASTM E283 Standard Test Method For Determining Rate Of Air Leakage Through Exterior Windows, Curtain Walls, And Doors Under Specified Pressure Differences Across The Specimen
26. ASTM E330 Standard Test Method For Structural Performance Of Exterior Windows, Doors, Skylights And Curtain Walls By Uniform Static Air Pressure Difference
27. ASTM E331 Standard Test Method For Water Penetration Of Exterior Windows, Skylights, Doors, And Curtain Walls By Uniform Static Air Pressure Difference
28. ASTM E903 Standard Test Method For Solar Absorptance, Reflectance And Transmittance Of Materials Using Integrated Spheres

B. American Architectural Manufacturers Association (AAMA)

1. AAMA 2605 Voluntary Specification, Performance Requirements And Test Procedures For Superior Performing Organic Coatings On Aluminum Extrusions And Panels

1.3 DEFINITIONS

A. Metal Composite Material (MCM):
A factory manufactured panel consisting of metal skins bonded to a plastic core, as defined by the International Building Code (IBC) Section 1402.

B. ISO 9001:2008
A set of guidelines set forth by the International Organization For Standardization (ISO) to provide guidance and tools for companies and organizations who want to ensure that their products and services consistently meet customer's requirements, and that quality is consistently improved.

1.4 SYSTEM DESCRIPTION

A. Design Requirements:

1. Barrier System:
Wall panel assembly shall be designed in accordance with manufacturer's guidelines to be sealed at all panel joints, intersections, dissimilar material abutments, and cutouts, thus providing a weathertight barrier system.
2. Expansion And Contraction:
Wall panel assembly shall be designed with provisions for thermal expansion and contraction of the component parts to prevent buckling, failure of joint seals, undue stress on fasteners or other detrimental effects due to accumulation of dead loads and various live loads.
3. Windload:
Wall panel assembly shall be designed to withstand a positive and negative windload pressure acting inward and outward normal to the plane of the wall to meet the requirements of the **Florida Building Code**.

B. General Performance:
Wall panel assembly shall comply with performance requirements, as determined by the following testing performed by a qualified agency.

1.5 SUBMITTALS

A. Product Data:

1. Submit manufacturer's datasheet for specified product.
2. Submit manufacturer's installation guidelines for specified product.

B. Shop Drawings:
Submit shop drawings indicating project layout and elevations, fastening and anchoring methods, dimensions of individual components and profiles, detail and location of joints, sealants and gaskets, flashing and accessories.

C. Samples:
1. Submit two (2) samples 3" x 5" of each product specified.
2. Submit two (2) samples 3" x 5" of each finish specified.

D. Test Reports:
Submit test reports indicating compliance of products with specified performance requirements from an independent testing agency.

E. Warranty:
Submit manufacturer's warranty meeting the requirements of this section.

1.6 QUALITY ASSURANCE

A. Qualifications:
1. Manufacturer:
Manufacturer shall have a minimum of ten (10) years experience in the manufacture of this product, shall be an ISO 9001:2008 Registered Company, and shall be located within the United States of America.
2. Installer:
Installer shall be experienced in performing work of this section and in work of similar scope required by this project.

B. Pre-Installation Meeting:
Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Acceptance At Site:
Materials to be packaged to protect against transportation damage. Examine materials upon receipt to insure that no damage has occured during shipment.

B. Storage And Protection:
1. Storage:
Materials should be stored horizontally on pallets or platforms, covered with a suitable ventiliated and weathertight covering. Do not store materials where accumulation of moisture may occur or in contact with materials that might cause staining, denting, or other damage.
2. Material Handling:
Use care in unloading, storing, and erecting the materials to prevent bending, warping, and twisting. Protect finish and edges from damage. The protective film on the panel surface is to remain in place until installation and shall be removed immediately upon completion.

1.8 PROJECT CONDITIONS

A. Field Measurements:
Verify location and dimension of all elements related to the installation of the wall panel assembly. Indicate those measurements on the shop drawings.

B. Limitations:
Proceed with installation of the wall panel assembly only when existing site conditions

comply with manufacturer's recommendations.

1.9 WARRANTY

A. Metal Composite Material (MCM):
1. Panel:
The integrity of the panel bond will remain intact for a minimum of five (5) years from the Date Of Substantial Completion.

2. Finish:
a. Anodized:
1) The finish will not check, peel, lose adhesion or fracture (other than minute fractures which may develop due to fabrication and which are acceptable by industry standards on the Date Of Substantial Completion).
2) Warranty period shall be twenty (20) years from the Date Of Substantial Completion.

B. Installation System:
1. Fabricator and/or installer standard form in which they agree to repair or replace components of metal-faced composite wall panel assemblies that fail in materials or workmanship within specified warranty period.
2. Weathertight warranties or other such guarantees regarding installation shall be the responsibility of the installing contractor.

C. Accessories:
Warranties or other such guarantees regarding accessories used during installation shall be the responsibility of the installing contractor.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
1. Citadel Architectural Products, Inc.; 3131-A North Franklin Road; Indianapolis, IN 46226 ph: (800) 446-8828; fax: (800) 247-2635; www.citadelap.com; info@citadelap.com
2. Laminators Inc
3. Arconic Architectural Products
4. Altech Panel Systems
5. Or approved equal

B. Subtitutions:
1. Items being submitted for consideration must be of the same function and meet the performance requirements set forth in this section.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Substitutions.
1. Product Data:
Submit product data including testing performed by a qualified agency indicating compliance with performance requirements specified in this section.
2. Samples:
Submit two (2) samples 3" x 5" of each proposed product substitution.

2.2 WALL PANEL ASSEMBLY

A. Metal Composite Material (MCM):

1. Panel:
   Envelope 2000® as manufactured by Citadel Architectural Products, Inc.
   FL Product Approval FL14436.3
   a. Composition:
      Face: .024" (min) prefinished smooth aluminum
      Core: .105" thermoset phenolic resin
      Back: .010" primed smooth aluminum
   b. Thickness: 4mm (nominal)
   c. Weight: 1.25 lbs/ft²
   d. Tolerance:
      Thickness: ±1/32"
      Length / Width: +0, -1/8"
      Squareness: 1/64" per lineal ft
   e. Performance:
      1) Surface Burning Characteristics:
         Panel shall have a Class A rating with a Flame Spread Index less than 25, and a Smoke Developed Index less than 450.
         Testing shall be in accordance with ASTM E84.
      2) Bond Integrity:
         Panel shall have a minimum peel strength of 34.5 lb-in/lb.
         Testing shall be in accordance with ASTM D1781.
      3) Ignition Temperature:
         Panel shall have a minimum self-ignition temperature of 900° F.
         Testing shall be in accordance with ASTM D1929.
      4) Impact Resistance:
         Panel shall not have a deformation measuring larger than 0.186" in diameter or 0.007" in depth after being struck by a falling ball at 24 in-lb.
         Testing shall be in accordance with ASTM D5420.
      5) Rate Of Burning:
         Panel shall have a CC1 Classification indicating a burning extent of 1" (25.4mm) or less when tested at a nominal thickness of .060" (1.5mm) or thickness of intended use.
         Testing shall be in accordance with ASTM D635.
      6) Tensile Strength:
         Panel shall have a mean value of 1650 lbs.
         Testing shall be in accordance with ASTM C297.

2. Finish:
   a. Anodized:
      1) Type:
         AA-C22-A21 (clear)
         AA-C22-A23 (colored)
      2) Color: (To match storefront system)
         As selected by Architect from manufacturer's color guide.
      3) Composition:
         i. Anodized (clear):
            barrier, aluminum oxide, nickel/hydrate seal
         ii. Anodized (colored):
            barrier, aluminum oxide, colorant, nickel/hydrate seal
      4) Performance:
         a) Salt Spray Resistance:
            Testing shall be in accordance with ASTM B117.
         b) Acid Dissolution:
            Testing shall be in accordance with ASTM B680.
         c) Gloss:
            Testing shall be in accordance with ASTM D523.
         d) Coating Mass:

Testing shall be in accordance with ASTM B137.

B. Installation System:
1. Reveal (RV) System:
a. Description:
Field-assembled installation system consisting of metal composite material (MCM), trim moldings, silicone sealant, and accessories to provide a barrier system.
b. Performance:
1) Air Infiltration:
Installation system shall not allow air infiltration in excess of 0.06 cfm/ft² at 1.57 psf.
Testing shall be in accordance with ASTM E283.
2) Structural Performance:
Installation system shall have a design load of 35.0 psf applied in the positive and negative direction. There shall be no deflection in excess of L/175 of the span of any support member nor shall there be any failure of the system. At a structural test load equal to 1.5 times the specified design load, no support member shall have permanent deformation in excess of 1/1000 of its span nor shall there be any failure of the system.
Testing shall be in accordance with ASTM E330.
3) Water Penetration:
Installation system shall not have uncontrolled water penetration to the room side at a static air pressure differential of 15.0 psf.
Testing shall be in accordance with ASTM E331.
c. Trim Moldings:
1) CRAX-1 Horizontal / Vertical (Reveal)
2) CRAX-2 Perimeter J (Reveal)
3) CRAX-3 Perimeter J
4) CRAX-4 Inside Corner
5) CRAX-5 Outside Corner
6) CRAX-6 Horizontal / Vertical (3" Reveal)
7) CRAX-7 Horizontal / Vertical
8) CRAX-8 Outside Corner (Adjustable)
9) CRAX-9 Inside Corner (Adjustable)

C. Accessories:
1. Extrusions:
a. Shall conform with ASTM B211 and the manufacturer's recommendations.
b. Shall be applied in accordance with the panel manufacturer's installation guidelines.
2. Sealants:
a. Selected from the panel manufacturer's approved list of sealants.
b. Shall be applied in accordance with both the panel manufacturer's installation guidelines and the sealant manufacturer's recommendations.
3. Fasteners:
a. Selected by contractor to suit project requirements.
b. Shall be applied using the recommended fastener schedule in accordance with panel manufacturer's installation guidelines.
c. Shall be coated to prevent corrosion and/or reaction with other materials.
d. Shall be concealed except where unavoidable. Exposed fasteners shall be finished to match adjoining metal.
4. Flashing:
a. Selected by contractor to suit project requirements.
b. Shall be installed in such a manner to maintain the integrity of the wall system against moisture intrusion.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrate to receive the work of this section to verify that the conditions are acceptable for installation.
   1. Substrate to receive panels shall be even, smooth, sound, clean, dry, and free from defects detrimental to work. Notify contractor in writing of conditions detrimental to proper and timely completion of the work.
   2. Substrate to receive panels shall be in vertical and horizontal alignment with no more deviation than 1/4" in 20'.

B. Proceed with installation only after all unsatisfactory conditions have been corrected in a manner acceptable to installer. Starting work within a particular area will be construed as installer's acceptance of surface conditions.

3.2 PREPARATION

A. Verify dimensions as required.

B. Protect adjacent work areas and finished surfaces to prevent damage that otherwise might occur during the work of this section.

3.3 INSTALLATION

A. Wall panel assembly shall be installed in accordance with the manufacturer's written installation guidelines and the approved set of shop drawings.

B. Erect wall panel assembly level and true to the intended plane.

C. Maximum deviation from vertical and horizontal alignment of erected wall panel assembly shall be no more than 1/4" in 20'-0".

D. Maximum deviation in panel flatness shall be 0.6% of the assembled units.

E. Seal all joints as required using methods and materials as recommended by the panel manufacturer.

3.4 CLEANING

A. Remove panel masking immediately after installation. Delay will result in difficulty with removal and possibly residue on the panel surface.

B. Remove temporary coverings and protection to adjacent work areas.

C. Remove and legally dispose of construction debris from project site.

END OF SECTION 074243

SECTION 076200 - FLASHING & SHEET METAL

PART 1 - GENERAL:

Conform to profiles and sizes shown on drawings and comply with "Architectural Sheet Metal Manual" by SMACNA, for each general category of work required.

Metal flashing and counter flashing.

Guarantee: Five-year maintenance guarantee stating that all work in this section not guaranteed under the roof warranty, will remain watertight for a period of 5-years from the date of project acceptance, co-signed by the General Contractor.

PART 2 - PRODUCTS:

Solder: For use with steel or copper, provide 50-50 tin/lead solder (ASTM B 32), with rosin flux.

Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.

Bituminous Coating: SSPC-Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.

Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Section 07900 - Joint Sealers.

Epoxy Seam Sealer: 2-part noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior nonmoving joints including riveted joints.

Reglets: Metal or plastic units of type and profile indicated, compatible with flashing indicated, noncorrosive.

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 gage required for performance.

Mill Finish Aluminum: ASTM B 209, 3003-H14, with a minimum thickness of 0.040 inch, unless otherwise indicated.

Fabricated Units

Fabricate sheet metal with flat-lock seams; solder with type solder and flux recommended by manufacturer, except seal aluminum seams with epoxy metal seam cement and, where required for strength, rivet seams and joints.

Provide for thermal expansion of running sheet metal work by overlaps of expansion joints in fabricated work. Where required for water-tight construction, provide hooked flanges filled with polyisobutylene mastic for 1-inch embedment of flanges. Space joints at intervals of not more than 50 feet for steel, 24 feet for copper or stainless steel, or 30 feet for zinc alloy or aluminum. Conceal expansion provisions where possible.

PART 3 - EXECUTION:

Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.

A. Coat side of uncoated aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.

B. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.

C. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.

Anchor work in place with noncorrosive fasteners, adhesives, setting compounds, tapes and other materials and devices as recommended by manufacturer of each material or system. Provide for thermal expansion and building movements. Comply with recommendations of "Architectural Sheet Metal Manual" by SMACNA.

Seal moving joints in metal work with elastomeric joint sealants, complying with requirements specified in Division 7 Section "Joint Sealants."

Clean metal surfaces of soldering flux and other substances which could cause corrosion.

Nail flanges of expansion joint units to substrates at spacing of 6 inches o.c.

Composition Stripping: Cover flanges (edges) of work set on bituminous substrate with 2 courses of glass fiber fabric (ASTM D-1668) set in and covered with asphaltic roofing cement.

Performance: Water-tight and weatherproof performance of flashing and sheet metal work is required.

END OF SECTION 076200

SECTION 079200 - JOINT SEALERS

PART 1 - GENERAL

1.01 PRECONSTRUCTION FIELD TESTS: Prior to installation of joint sealers, field-test their adhesion to joint substrates per field adhesion test in AAMA Aluminum Curtain Wall Series No. 13.

1.02 SUBMITTALS: Submit product data, samples of each type and color of joint sealer required and certified test reports for joint sealers evidencing compliance with requirements.

1.03 COMPATIBILITY: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under service and application conditions, as demonstrated by testing and field experience.

1.04 COLORS: Provide color of exposed joint sealers to match color of adjacent surface.

PART 2 - PRODUCTS

2.01 ELASTOMERIC SEALANT STANDARD: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated, complying with ASTM C 920 requirements.

A. One-Part Nonacid-Curing Silicone Sealant: Type S, Grade NS, Class 25, Uses NT, M, G, A, and O. Additional capability, when tested per ASTM C 719, to withstand 35 percent movement in both extension and compression for a total of 70 percent movement as measured at time of application and still comply with other requirements of ASTM C 920.

B. One-Part Nonsag Urethane Sealant for Use NT: Type S; Grade NS; Class 25; and Uses NT, M, A, and O.

2.02 ACRYLIC SEALANT: Manufacturer's standard one-part nonsag, solvent-release-curing, acrylic terpolymer sealant complying with ASTM C 920 for Type S; Grade NS; Uses NT, M, G, A and O; except for selected test properties which are revised as follows:

Heat-aged hardness: 40-50
Weight loss: 15 percent
Max. cyclic movement capability: plus or minus 7.5 percent

2.03 SILICONE-EMULSION SEALANT: Manufacturer's standard one part, nonsag, mildew-resistant, paintable, silicone-emulsion sealant complying with ASTM C 834.

2.04 ACOUSTICAL SEALANT FOR CONCEALED JOINTS: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

2.05 FIRESTOP CAULKING AND PUTTY: Provide Firestop Putty or Adhesive Firestop Caulking/Sealant for fire sealing rated partitions at penetrations, junctions with roofing panels, and intersections at dissimilar materials. Firestop putty shall be Nelson FSP Firestop Putty as manufactured by Hevi-Duty/Nelson, OR Approved Equal. Adhesive Firestop caulking/sealant shall be Nelson CLK Adhesive Firestop Sealant as manufactured by Hevi-Duty/Nelson, OR Approved Equal. Materials furnished for firestopping shall comply with ASTM E-84 and ASTM E-814. Comply with manufacturer's instructions for installation and suitability for application.

A. Rated Partitions: Fire caulk shall be tooled at floor and ceiling/roof connections at all rated partitions.

B. Penetrations: All penetrations at rated partitions shall be tooled fire caulk.

2.06 FOAMED-IN-PLACE FIRE-STOPPING SEALANT: Two-part, foamed-in-place, silicone sealant for use as part of a through-penetration fire-stop system for filling openings around cables, conduit, pipes and similar penetrations through walls and floors, with fire-resistance rating indicated, per ASTM E 814; listed by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

2.07 ONE-PART FIRE-STOPPING SEALANT: One part elastomeric sealant formulated for use as part of a through-penetration fire-stop system for sealing openings around cables, conduit, pipes and similar penetrations through walls and floors, listed by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

2.08 SEALANT BACKINGS, GENERAL: Nonstaining; compatible with joint substrates, sealants, primers and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

A. Elastomeric Tubing Joint-Fillers: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, capable of remaining resilient at temperatures down to -26 deg F (-15 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth and otherwise contribute to optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back of joint.

2.09 PRIMER: As recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated.

2.10 ACCESSORY MATERIALS FOR FIRE-STOPPING SEALANTS: Forming, joint-fillers, packing and other accessory materials as required for installation of fire-stopping sealants.

PART 3 - EXECUTION

3.01 GENERAL: Comply with joint sealer manufacturers' instructions applicable to products and applications indicated.

3.02 INSTALLATION:

A. Elastomeric Sealant Installation Std: Comply with ASTM C 962.

B. Latex Sealant Installation Standard: Comply with ASTM C 790.

C. Acoustical Sealant Application Standard: Comply with ASTM C 919 for use of joint sealants in acoustical applications.

D. Installation of Fire-Stopping Sealant: Install sealant, including forming, packing and other accessory materials to fill openings around mechanical and electrical services penetrating floors and walls to provide fire-stops with fire resistance ratings indicated.

END OF SECTION 079200

SECTION 081113 – HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 STANDARDS: In addition to other specified requirements, comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" (SDI-100), for the following classifications:

A. Exterior Doors: SDI-100, Grade III, extra heavy-duty, Model 2, minimum 16-gage faces.

1.02 SUBMITTALS: With manufacturer's standard details and specifications for steel doors and frames, submit shop drawings showing application to project, as required.

1.03 FIRE-RATED ASSEMBLIES: Provide units that display appropriate UL or FM labels for fire-rating indicated.

1.04 THERMAL INSULATED ASSEMBLIES: Provide thermal insulating door and frame assemblies tested in accordance with ASTM C 236, with U factor of 0.24 Btu/(hr x sq ft x deg. F) or better at all exterior locations.

PART 2 - PRODUCTS

2.01 MANUFACTURER: One of the following OR Approved Equal:

Amweld Building Products, Inc.
Ceco Door Products.
Curries Co.
Mesker Door, Inc.
Pioneer Industries, Inc.
Steelcraft / Division of Ingersoll Rand.
Republic Builders Products.

2.02 MATERIALS: Steel doors and frames; hot-rolled, pickled and oiled per ASTM A 569 and A 568; cold-rolled per ASTM A 366 and A 568.

A. Galvanized sheets: ASTM A 526 with ASTM A 525, A 60 zinc coating, mill phosphatized. (At exterior doors and frames).

B. Anchors and Accessories: Manufacturer's standard units. Use galvanized items for units built into exterior walls, complying with ASTM A 153.

C. Doors: Comply with SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details.
1 Provide top cap at all exterior doors.
2. Large Missile Impact per FBC
3. Design wind speed per ASCE 7
4. Florida Product Approval or Miami Dade NOA

D. Door Frames: All frames shall be 16 gage and comply with SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details.
1. Provide standard hollow metal frames for doors, transoms, sidelights, borrowed lights, and other openings as indicated.
2. Prepare frames to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames.
3. Provide 26-gage steel plaster guards or mortar boxes, welded to frame, at back of hardware cutouts where installed in concrete, masonry or plaster openings.
4. All fire rated frames shall be labeled with a permanently affixed raised metal tag located on the hinge side of frame. Stenciled or paper labels shall not be used.

2.03 FABRICATION: Fabricate units to be rigid, neat in appearance, and free from defects, warp or buckle. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible.

A. Prepare steel doors and frames to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling and tapping, complying with ANSI A 115 "Specifications for Door and Frame Preparation for Hardware".

B. Reinforce units to receive surface-applied finish hardware to be field applied.

C. Locate finish hardware as indicated or, if not indicated, per DHI "Recommended Locations for Builder's Hardware".

2.04 Shop paint exposed surfaces of doors and frame units, including galvanized surfaces, using manufacturer's standard baked-on rust inhibitive primer.

PART 3 - EXECUTION

3.01 INSTALLATION: Install hollow-metal units in accordance with manufacturer's instructions and final shop drawings (if any). Fit doors to frames and floors with clearances specified in SDI-100.

A. Install fire-rated units in accordance with NFPA Std. No. 80.

B. Finish hardware is specified in another Division-8 section.

END OF SECTION 081113

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes: Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.
   1. Kawneer Inc. - Aluminum Storefront System
      a. IR 501T Framing – 2-3/4" x 5" (69.8 mm x 127 mm) nominal dimension; Thermal; Center Plane, Screw Spline Fabrication.
      b. IR 501T Framing – Impact Glazing
      c. Storefront Flushline Impact Entrance Door

B. Related Sections:
   1. 079200 “Joint Sealants”
   2. 088000 “Glazing”

1.3 DEFINITIONS

A. Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG).

1.4 PERFORMANCE REQUIREMENTS

A. Storefront System Performance Requirements:
   1. Wind loads: Provide storefront system; include anchorage, capable of withstanding wind load design pressures as per requirements of the Florida Building Code 2017 6th edition

   2. Air Leakage: The test specimen shall be tested in accordance with ASTM E 283. Air Leakage rate shall not exceed 0.06 cfm/ft2 (0.3 l/s · m2) at a static air pressure differential of 6.2 psf (300 Pa) with interior seal, or, rate shall not exceed 0.06 cfm/ft2 (0.3 l/s · m2) at a static air pressure differential of 1.6 psf (75 Pa) without interior seal.

   3. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 15 psf (720 Pa) as defined in AAMA 501.

   4. Uniform Load: A static air design load of 30 psf (1436 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.

   5. Energy Efficiency:
      a. Thermal Transmittance (U-Factor): When tested to AAMA specification 507 or NFRC100 the thermal transmittance (U-Factor) shall not be more than:

      IR 501T:
         1) (With 2-Piece Mullion) Provide aluminum windows simulated for thermal performance according to AAMA 507 and NFRC 100 with a thermal transmittance (U-Factor) of 0.27 to 0.57 BTU/hr/sf/°F. (Based on center of glass U-Factor range 0.10 to 0.48).
         2) (With 3-Piece Mullion) Provide aluminum windows simulated for thermal performance according to AAMA 507 and NFRC 100 with a thermal transmittance (U-Factor) of 0.24 to 0.55 BTU/hr/sf/°F. (Based on center of glass U-Factor range 0.10 to 0.48).
      b. Thermal Transmittance (U-Factor): When tested to AAMA Specification 1503, AAMA Specification 507 or NFRC 100 the thermal transmittance (U-Factor) shall not be more than;

6. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than:
   IR 501UT:
   a. 68 $_{frame}$ and 70$_{glass}$ (low-e).
7. Condensation Resistance (I): When tested to CSA A-440, the condensation index shall not be less than:
   IR 501UT:
   a. 59 $_{frame}$ and 65$_{glass}$ (low-e).
8. Sound Transmission Class (STC) and Outdoor-Indoor Transmission Class (OITC): When tested to AAMA Specification 1801 and in accordance with ASTM E1425 and ASTM E90, the STC and OITC Rating shall not be less than:
   IR 501UT:
   a. 38 (STC) and 33 (OITC).
9. Windborne-Debris-Impact Resistance Performance: Shall be tested in accordance with ASTM E 1886, information in ASTM E 1996 and TAS 201/203.
   a. Large-Missile Impact: For aluminum-framed systems located within 30 feet of grade.
   b. Small-Missile Impact: For aluminum-framed systems located above 30 feet of grade.

1.5 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum-framed storefront system indicated.

B. Shop Drawings: Include plans, elevations, sections, details, hardware, and attachments to other work, operational clearances and installation details.

C. Samples for Initial Selection: For units with factory-applied color finishes including samples of hardware and accessories involving color selection.

D. Samples for Verification: For aluminum-framed storefront system and components required.

E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each type, of aluminum-framed storefront.

F. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12" lengths of full-size components and showing details of the following:
   1. Joinery, including concealed welds.
   2. Anchorage.
   3. Expansion provisions.
   4. Glazing.
   5. Flashing and drainage.

G. Other Action Submittals:
   1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications: A manufacturer capable of providing aluminum-framed storefront system that meet or exceed performance requirements indicated and of documenting this performance by inclusion of test reports, and calculations.

C. Source Limitations: Obtain aluminum-framed storefront system through one source from a single manufacturer.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum-framed storefront system and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements". Do not modify size and dimensional requirements.
   1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Build mockup for type(s) of storefront elevation(s) indicated, in location(s) shown on Drawings.

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination".

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of aluminum-framed storefront openings by field measurements before fabrication and indicate field measurements on Shop Drawings.

1.8 WARRANTY

A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.
   1. Warranty Period: **Four (4) years** from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Kawneer Company Inc. IR 501T Framing – Impact Glazing FL#15404 (Basis of Design)
   2. Kawneer Company Inc. Flushline Entrance Door Impact FL#20102 (Basis of Design)
   3. YKK AP Inc.
   4. EFCO Corp.
   5. Or Approved Equal

B. Substitutions: Refer to Substitutions Section for procedures and submission requirements.
   1. Pre-Contract (Bidding Period) Substitutions: Submit written requests ten (10) days prior to bid date.
   2. Post-Contract (Construction Period) Substitutions: Submit written request in order to avoid storefront installation and construction delays.
   3. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.
   4. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for storefront system performance criteria, and (2) has been engaged in the design, manufacturer and fabrication of aluminum storefront for a period of not less than ten (10) years. (Company Name)
   5. Test Reports: Submit test reports verifying compliance with each test requirement required by the project.
   6. Samples: Provide samples of typical product sections and finish samples in manufacturer's standard sizes.

C. Substitution Acceptance: Acceptance will be in written form, either as an addendum or modification, and documented by a formal change order signed by the Owner and Contractor.

2.2 MATERIALS

A. Aluminum Extrusions: Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" wall thickness at any location for the main frame and complying with ASTM B 221: 6063-T6 alloy and temper.

B. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim hardware, anchors, and other components.

C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

E. Sealant: For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

F. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 STOREFRONT FRAMING SYSTEM

A. Thermal Barrier:
   1. IR 501T - Kawneer SINGLE IsoLock™ Thermal Break with one (1) 1/4" (6.4 mm) separations consisting of a two-part chemically curing, high-density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections.
      a. Thermal Break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.

B. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposes shall be stainless steel.

C. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

D. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

E. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

2.4 GLAZING SYSTEMS

A. Glazing: As specified in Division 08 Section “Glazing”.

B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.

C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

E. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type, and as follows:
   1. Structural Sealant: ASTM C 1184, single-component neutral-curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in aluminum-framed systems indicated.
      a. Color: Black
   2. Weatherseal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.
   3. Color: Matching structural sealant.

2.5 ENTRANCE DOOR SYSTEMS

A. Entrance Doors:
   1. Kawneer Company Inc. Flushline Entrance Door Impact FL#20102 (Basis of Design)

B. Entrance Door Hardware: As specified in Section 087100 “Door Hardware”.
   1. Provide manufacturers standard hardware fabricated from aluminum, stainless steel, or other corrosion resistant material compatible with aluminim; designed to smoothly operate, tightly close, and securely lock aluminum framed flush entrance doors.

2.6 ACCESSORY MATERIALS

A. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

B. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 07 Section “Joint Sealants”.

C. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30 mil (0.762 mm) thickness per coat.

2.7 FABRICATION

A. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
   1. Profiles that are sharp, straight, and free of defects or deformations.
   2. Accurately fit joints; make joints flush, hairline and weatherproof.
   3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
   4. Physical and thermal isolation of glazing from framing members.
   5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
   6. Provisions for field replacement of glazing.
   7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

B. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

C. Storefront Framing: Fabricate components for assembly using manufacturer’s standard installation instructions.

D. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:
   1. Kawneer Permanodic™ AA-M10C21A41, AAMA 611, Architectural Class I Clear Anodic Coating (Color #14 Clear).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight sliding door installation.
   1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
   2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (76 mm) of opening.

3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum framed storefront system, accessories, and other components.

B. Install aluminum-framed storefront system 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.

C. Set sill members in bed of sealant or with gaskets, as indicated, for weather tight construction.

D. Install aluminum-framed storefront system and components to drain condensation, water penetrating joints, and moisture migrating within aluminum-framed storefront system to the exterior.

E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 FIELD QUALITY CONTROL

A. Field Tests: Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
   1. Testing: Testing shall be performed by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements. Testing Standard per AAMA 503, including reference to ASTM E 783 for Air Infiltration Test and ASTM E 1105 Water Infiltration Test.
      a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft^2, whichever is greater.
      b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.2 psf (300 Pa).

B. Manufacturer's Field Services: Upon Owner’s written request, provide periodic site visit by manufacturer’s field service representative.

3.4 ADJUSTING, CLEANING, AND PROTECTION

A. Clean aluminum surfaces immediately after installing aluminum-framed storefronts. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 084113

SECTION 08 71 00 – DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware for:

a. Swinging doors.

2. Field verification, preparation and modification of existing doors and frames to receive new door hardware.
3. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

1.2 REFERENCES

A. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Key Systems and Nomenclature

B. ANSI - American National Standards Institute

1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.3 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.
2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article.

B. Action Submittals:

1. Product Data: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Samples for Verification: If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.

a. Samples will be returned to supplier in like-new condition. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

3. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:

    a. Door Index; include door number, heading number, and Architects hardware set number.
    b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
    c. Type, style, function, size, and finish of each hardware item.
    d. Name and manufacturer of each item.
    e. Fastenings and other pertinent information.
    f. Location of each hardware set cross-referenced to indications on Drawings.
    g. Explanation of all abbreviations, symbols, and codes contained in schedule.
    h. Mounting locations for hardware.
    i. Door and frame sizes and materials.
    j. Name and phone number for local manufacturer's representative for each product.

4. Key Schedule:

    a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
    b. Use ANSI/BHMA A156.28 “Recommended Practices for Keying Systems” as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
    c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
    d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
    e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
        1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.

    f. Prepare key schedule by or under supervision of supplier, detailing Owner’s final keying instructions for locks.

5. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory prepared for door hardware installation.

C. Informational Submittals:

1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
2. Product Certificates for electrified door hardware, signed by manufacturer:

    a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

3. Certificates of Compliance:

    a. Certificates of compliance for fire-rated hardware and installation instructions if requested by Architect or Authority Having Jurisdiction.
    b. Installer Training Meeting Certification: Letter of compliance, signed by Contractor, attesting to completion of installer training meeting specified in “QUALITY ASSURANCE” article.
    c. Electrified Hardware Coordination Conference Certification: Letter of compliance, signed by Contractor, attesting to completion of electrified hardware coordination conference, specified in “QUALITY ASSURANCE” article.

4. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by qualified testing agency, for door hardware on doors located in accessible routes.

5. Florida Building Code; Windload: Submit certified independent lab test or NOA report on each type of exterior opening. All exterior opening submittals shall include door number, door and frame elevations and all finish hardware as tested as an assembly. These reports are to be forwarded to the building department.
6. Warranty: Warranty specified in this Section.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:

a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
b. Catalog pages for each product.
c. Name, address, and phone number of local representative for each manufacturer.
d. Parts list for each product.
e. Final approved hardware schedule, edited to reflect conditions as-installed.
f. Final keying schedule
g. Copies of floor plans with keying nomenclature
h. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.4 QUALITY ASSURANCE

A. Product Substitutions: Comply with product requirements stated in Division 01 and as specified.

1. Where specific manufacturer's product is named and accompanied by "No Substitute," including make or model number or other designation, provide product specified. (Note: Certain products have been selected for their unique characteristics and particular project suitability.)

a. Where no additional products or manufacturers are listed in product category, requirements for "No Substitute" govern product selection.

2. Where products indicate "acceptable manufacturers", provide product from specified manufacturers, subject to compliance with specified requirements and "Single Source Responsibility" requirements stated.

B. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.

1. Warehousing Facilities: In Project's vicinity.
2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
4. Coordination Responsibility: Coordinate installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.

a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

C. Installer Qualifications: Qualified tradesmen, skilled in application of commercial grade hardware with record of successful in-service performance for installing door hardware similar in quantity, type, and quality to that indicated for this Project.

D. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:

1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC).
2. Can provide installation and technical data to Architect and other related subcontractors.
3. Can inspect and verify components are in working order upon completion of installation.
4. Capable of producing wiring diagrams.
5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.

E. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.
2. Manufacturers that perform electrical modifications and that are listed by testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.

F. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

G. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

H. Hurricane and Windload tested Hardware: Provide hardware that meets the hurricane and windload test requirements in accordance with the Florida Building code and are in compliance with the local authority having jurisdiction. All openings required to meet either the impact test or windload test as indicated by the architect shall be tested as systems with the finish hardware, hollow metal doors, and frames.

I. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

J. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release latch. Locks do not require use of key, tool, or special knowledge for operation.

K. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in “REFERENCES” article, herein.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of wrist and that operate with force of not more than 5 lbf (22.2 N).
2. Maximum opening-force requirements:

   a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
   b. Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch.
   c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

3. Bevel raised thresholds with slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.

4. Adjust door closer sweep periods so that, from open position of 70 degrees, door will take at least 3 seconds to move to 3 inches (75 mm) from latch, measured to leading edge of door.

L. Keying Conference: Conduct conference at Project site

1. Attendees: Owner, Contractor, Architect, Installer, and Supplier's Architectural Hardware Consultant.
2. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:

a. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
b. Preliminary key system schematic diagram.
c. Requirements for key control system.
d. Requirements for access control.
e. Address for delivery of keys.

M. Pre-installation Conference: Conduct conference at Project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Inspect and discuss preparatory work performed by other trades.

N. Coordination Conferences:

1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.

a. Attendees: Door hardware supplier, door hardware installer, Contractor.
b. After meeting, provide letter of compliance to Architect, indicating when meeting was held and who was in attendance.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

1. Deliver each article of hardware in manufacturer's original packaging.

C. Project Conditions:

1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
2. Provide secure lock-up for door hardware delivered to Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

D. Protection and Damage:

1. Promptly replace products damaged during shipping.
2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

E. Deliver keys to Owner by registered mail or overnight package service.

1.6 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

E. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

F. Direct shipments not permitted, unless approved by Contractor.

1.7 WARRANTY

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

1. Warranty Period: Years from date of Substantial Completion, for durations indicated.

a. Exit Devices:
1) Mechanical: 3 years.

2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.8 MAINTENANCE

A. Maintenance Tools:

1. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The Owner requires use of certain products for their unique characteristics and particular project suitability to insure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: “No Substitute.”

1. Where “No Substitute” is noted, submittals and substitution requests for other products will not be considered.

B. Approval of manufacturers and/or products other than those listed as ”Scheduled Manufacturer ” or “Acceptable Manufacturers” in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article.

C. Approval of products from manufacturers indicated in “Acceptable Manufacturers” is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer’s product.

D. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

E. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

A. Fasteners

1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
4. Install hardware with fasteners provided by hardware manufacturer.

B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.

1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
2. Use materials which match materials of adjacent modified areas.
3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.

C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.3 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage 22 series
2. Acceptable Manufacturers and Products: As approved equal

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1, and UL listed for Panic Exit or Fire Exit Hardware. Cylinders: Refer to "KEYING" article, herein.
2. Provide touchpad type exit devices, fabricated of aluminum and factory painted.
3. Provide deadlatching feature for security and for future addition of alarm kits or other electrical requirements.
4. Provide manufacturer's standard strikes.
5. Provide exit devices cut to door width and height. Locate exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
6. Mechanism Case: Mount flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
7. Non-fire-rated exit devices shall have hex key dogging.
8. Provide UL labeled fire exit devices for fire rated openings.

2.4 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer: Schlage
2. Acceptable Manufacturers: No substitute

B. Requirements:

1. Provide permanent cylinders/cores to match Owner's existing Schlage Primus key system, compliant with ANSI/BHMA A156.5; latest revision, Section 12, Grade 1; permanent cylinders; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.

2.5 KEYING

A. Provide cylinders/cores keyed into Owner's existing Schlage Primus factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.

    a. Master Keying system as directed by the Owner.

2. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements shall be cause for replacement of cylinders/cores involved at no additional cost to Owner.
3. Provide keys with the following features:

    a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
    b. Patent Protection: Keys and blanks protected by one or more utility patent(s).

4. Identification:

    a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication "Keying Systems and Nomenclature" for identification. Blind code marks shall not include actual key cuts.
    b. Identification stamping provisions must be approved by the Architect and Owner.

c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
d. Failure to comply with stamping requirements shall be cause for replacement of keys involved at no additional cost to Owner.
e. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.

5. Quantity: Furnish in the following quantities.

a. Change (Day) Keys: 3 per cylinder/core.
b. Master Keys: 6.

2.6 THRESHOLDS, SEALS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer: Zero International
2. Acceptable Manufacturers: National Guard, Reese

B. Requirements:

1. Provide thresholds, weather-stripping (including door sweeps, seals, and astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Size of thresholds:

a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width

3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.7 FINISHES

A. General: Refer to the Hardware Groups.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Existing Door and Frame Compatibility: Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.

C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Where on-site modification of doors and frames is required:

1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
2. Field modify and prepare existing door and frame for new hardware being installed.
3. When modifications are exposed to view, use concealed fasteners, when possible.
4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:

a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.3 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

G. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

H. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

3.4 FIELD QUALITY CONTROL

A. Architectural Hardware Consultant: Engage qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.

1. Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

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.

B. Occupancy Adjustment: Approximately six months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.6 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.7 DEMONSTRATION

A. Provide training for Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.8 DOOR HARDWARE SCHEDULE

A. Locksets, exit devices, and other hardware items are referenced in the following hardware sets for series, type and function. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.

B. Hardware Sets:

Hardware Group No. 01

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	TRIM	210-NL	689	VON
1	EA	PRIMUS RIM CYLINDER	20-710	626	SCH
1	EA	GASKETING	328AA-S	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER

BALANCE OF EXISTING HARDWARE TO REMAIN AND BE REUSED.

Hardware Group No. 02

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	GASKETING	328AA-S	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER

BALANCE OF EXISTING HARDWARE TO REMAIN AND BE REUSED.

Hardware Group No. 03

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	PANIC HARDWARE	22-EO	689	VON
1	EA	GASKETING	328AA-S	AA	ZER
1	EA	THRESHOLD	65A-223	A	ZER

BALANCE OF EXISTING HARDWARE TO REMAIN AND BE REUSED.

END OF SECTION 087100

SECTION 08 80 00 - GLAZING

PART 1 -GENERAL

1.1 SECTION INCLUDES

A. Glass and glazing units for the following products and applications, and glazing requirements referenced by other sections:
   1. Storefront framing.

B. Glazing accessories.

1.2 REFERENCES

A. American Architectural Manufacturers Association:
   1. AAMA 800 - Voluntary Specifications and Test Methods for Sealants.

B. ASTM International (ASTM):
   1. **ASTM C 509 -** Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.
   2. **ASTM C 864** - Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
   3. **ASTM C 920** - Specification for Elastomeric Joint Sealants.
   4. **ASTM C 1036 -** Specification for Flat Glass.
   5. **ASTM C 1048 -** Specification for Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
   6. **ASTM C 1087 -** Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems.
   7. **ASTM C 1115 -** Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories.
   8. **ASTM C 1172 -** Specification for Laminated Architectural Flat Glass.
   9. **ASTM C 1281 -** Specification for Preformed Tape Sealants for Glazing Applications.
   10. **ASTM C 1330 -** Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
   11. **ASTM C 1376 -** Specification for Pyrolytic and Vacuum Deposition Coatings on Glass.
   12. **ASTM E 774 -** Specification for the Classification of the Durability of Sealed Insulating Glass Units.
   13. **ASTM E 1300 -** Practice for Determining Load Resistance of Glass in Buildings.
   14. **ASTM E** 2190 **-** Standard Specification for Insulating Glass Unit Performance and Evaluation.

C. Code of Federal Regulations:
   1. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.

D. Glass Association of North America (GANA):
   1. Glazing Manual.
   2. Laminated Glass Design Guide.
   3. Engineering Standards Manual.

E. The Insulating Glass Manufacturers Alliance (IGMA):
   1. IGMA TB-3001 - Sloped Glazing Guidelines.
   2. IGMA TM-3000 - Glazing Guidelines for Sealed Insulating Glass Units.

F. Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; Building Technologies Department; Windows & Daylighting Group, windows.lbl.gov/software:
   1. **"LBNL Window 5.0 (or higher) - A PC Program for Analyzing Window Thermal and Optical Performance.**

G. National Fenestration Rating Council (NFRC):
   1. NFRC 100 - Procedure for Determining Fenestration Product Thermal Properties.
   2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficients at Normal Incidence.
   3. NFRC 300 - Procedures for Determining Solar Optical Properties of Simple Fenestration Products.

H. National Fire Protection Association (NFPA):
1. NFPA 80 - Fire Doors and Windows.
2. NFPA 252 - Fire Tests of Door Assemblies.
3. NFPA 257 - Fire Test for Window and Glass Block Assemblies.

1.3 DEFINITIONS

A. Manufacturers of Primary Glass: Firms that produce primary glass, as defined in referenced industry publications.

B. Manufacturers/Fabricators of Glass Products: Firms that utilize primary glass in the production of glass products that may include coated glass, laminated glass, and insulating glass.

C. Sealed Insulating Laminated Glass Unit Surfaces:
1. Surface 1: Exterior surface of outer lite.
2. Surface 2: Interspace-facing surface of outer lite.
3. Surface 3: Interspace-facing surface of inner lite 1.
4. Surface 4: Interior surface of inner lite 1.
5. Surface 5: Interspace-facing surface of inner lite 2.
6. Surface 6: Interior surface of inner lite 2.

D. OPACI-COAT-300® Spandrel glass: Glass that has been rendered opaque with a water-based silicone elastomeric spandrel coating for non-vision applications.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide glazing systems that will withstand indicated loads and normal thermal movement without failure, including loss or glass breakage resulting from defective manufacture, fabrication, or installation; failure of glazing systems to remain watertight and airtight; or deterioration of glazing materials.

B. Glass Design: Glass thicknesses indicated are minimums. Select actual glass lite thicknesses by analyzing loads and conditions. Provide glass lites in the thicknesses and in strengths required to meet or exceed the following criteria:
1. Glass Thicknesses: Comply with ASTM E 1300, as follows:
a. Specified Design Wind Loads: As indicated.
b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set within 15 degrees of vertical and under wind load for a load duration of 3 seconds.
c. Probability of Breakage for Sloped Glazing: 1 lite per 1000 for lites set more than 15 degrees off vertical and under wind and snow loads for a duration of 30 days.
d. Thickness of Tinted Glass: Provide the same thickness for each tint color for all applications.

C. Thermal Movements: Allow for thermal movements of glazing components and glass framing members resulting from a temperature change range of 120 deg F ambient and 180 deg F material surfaces.

D. Thermal and Optical Performance Properties: Provide glass meeting specified performance properties, based on manufacturer's published test data for units of thickness indicated, and the following:
1. Center-of-Glass Values: Per LBNL Window 5.0 (or higher) analysis, as follows:
a. U-Factors: NFRC 100 expressed as Btu/sq. ft. x h x deg F.
b. Solar Heat Gain Coefficient: NFRC 200.
c. Solar Optical Properties: NFRC 300.

1.5 SUBMITTALS

A. Product Data: Manufacturer’s data sheets for each glass product and glazing material.

B. Samples: 12-inch-square, for each type of glass product, other than monolithic clear float glass [or clear float glass only set in insulated glass units].

C. Glazing Schedule: Prepare schedule using designations used on Drawings.

D. Product Certificates: Signed by manufacturers/fabricators of glass products certifying that products furnished comply with project requirements.

E. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer, based on submitted samples or acceptable data from previous testing of current formulations with similar products.

F. Qualification Information: For Installer firm and Installer's manufacturer/fabricator-trained field supervisor.

G. Warranties: Submit sample meeting warranties requirements of this Section.

1.6 QUALITY ASSURANCE

A. Manufacturer/Source: Obtain each type of glass product from a single primary glass manufacturer and a single manufacturer/fabricator for each glass product type.
   1. For glass sputter-coated with solar-control low-e coatings, obtain glass products in fabricated units from a manufacturer/fabricator certified by the primary glass manufacturer.

B. Installer Qualifications: Experienced Installer with minimum of 5 successful completed projects of similar materials and scope, approved by glass product manufacturer/fabricator.

C. Preconstruction Adhesion and Compatibility Testing: Submit glass units, glazing materials, and glass-framing members with applicable finish to elastomeric glazing sealant manufacturer for determination of sealant compatibility, priming, and preparation requirements for optimum adhesion and performance.

D. Glazing for Fire-Rated Door and Window Assemblies: Glazing tested per NFPA 252 and NFPA 257, as applicable, for assemblies complying with NFPA 80 and listed and labeled per requirements of authorities having jurisdiction.

E. Safety Glazing Products: Comply with size, glazing type, location, and testing requirements of 16 CFR 1201 for Category I and II glazing products, and requirements of authorities having jurisdiction.

F. Glazing Industry Publications: Comply with glass product manufacturers' recommendations and the following:
   1. GANA Publications: GANA Laminated Division's 'Laminated Glass Design Guide' and GANA's 'Glazing Manual.'
   2. IGMA Publication for Insulating Glass: IGMA TM-3000, 'Glazing Guidelines for Sealed Insulating Glass Units.'

G. Insulating-Glass Certification Program: Indicate compliance with requirements of Insulating Glass Certification Council on applicable glazing products.

H. Mockups: Prior to installing glazing, build mockups to demonstrate materials and workmanship. Coordinate with mockup requirements of related sections.

I. Preinstallation Conference: Conduct conference at Project site in compliance with Division 01 requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials during shipping, handling, and storage to prevent breakage, scratching, damage to seals, or other visible damage. Deliver, unload, store, and erect glazing materials without exposing panels to damage from construction operations.
   1. Comply with manufacturer's venting and sealing recommendations for shipping and handling of insulating glass units exposed to substantial altitude change.

1.8 WARRANTY

A. Warranty for Coated-Glass Products: Manufacturer's standard form, agreeing to replace coated-glass units that display peeling, under normal weather conditions when assembled with the coated surface toward the airspace of its customer's flat insulating glass units, when such insulating glass units have been assembled according to Manufacturer's recommendations and when the hermetic seal of such insulating glass units has not failed. The warranty on the Product shall extend for a period of 10 years, excepting any as noted in standard warranty, after the date of sale.

B. Warranty for Laminated Glass: Manufacturer's standard form, signed by laminated-glass product manufacturer/fabricator, agreeing to replace laminated-glass units that display edge separation, delamination, and blemishes exceeding those allowed by ASTM C 1172, within 5 years of date of Substantial Completion.

C. Warranty for Insulating Glass: Manufacturer's standard form, signed by insulating-glass product manufacturer/fabricator, agreeing to replace insulating-glass units that exhibit failure of hermetic seal under normal use evidenced by the obstruction of vision by dust, moisture, or film on interior surfaces of glass, within 10 years of date of Substantial Completion.

D. Installer's Warranty: Form acceptable to Owner, signed by glass product Installer, agreeing to replace glass products that deteriorate, or that exhibit damage or deterioration of glass or glazing products due to faulty installation, within 2 years of date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Glass product selections are based upon the primary glass manufacturer below. Provide basis of design product, or comparable product of a listed manufacturer approved by the Architect prior to bid:
1. Vitro Architectural Glass, Cheswick, PA, 1-855-887-6457, Email: archservices@vitro.com, http://www.vitroglazings.com.
2. Approved Equal

2.2 GLASS PRODUCTS

A. Annealed Float Glass, General: ASTM C 1036, Type I, Quality-Q3, class indicated.
1. Basis of Design Product: Vitro Architectural Glass , [Starphire®, Acuity™]

B. Heat-Treated Float Glass, Heat-Strengthened: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; Kind HS, of class and condition indicated: where indicated, where needed to resist thermal stresses and where required to comply with performance requirements.

D. Heat-Treated Float Glass, Fully Tempered: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; Kind FT, of class and condition indicated: where safety glass is indicated. Safety glazing must comply with ANSI Z97.1 and CPSC 16CFR-1201

E. Laminated Glass: ASTM C 1172, with manufacturer's standard polyvinyl butyral or cured resin interlayer.

F. Insulating-Glass Units: Factory-assembled units consisting of dual-sealed lites of glass separated by a dehydrated interspace, with manufacturer's standard spacer material and construction, per ASTM E 2190.

G. Silicone-Coated Spandrel Glass: ASTM C1048, Type I, Condition C, Quality-Q3.
1. Basis-of-Design Product: Subject to compliance with requirements, provide:
ICD High Performance Coatings; OPACI-COAT-300®. 13911 NW 3rd CT, Vancouver, WA 98685, USA.
2. Or Approved equal

2.3 GLAZING ACCESSORIES

A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

B. Glazing Tape: Butyl-based elastomeric tape with integral resilient tube spacer, 10 to 15 Shore A durometer hardness, black color, coiled on release paper; widths required for specified installation, complying with ASTM C 1281 and AAMA 800 for application.

C. Glazing Tape: Closed cell polyvinyl chloride foam, maximum water absorption by volume 2 percent, designed for 25 percent compression percent for air barrier and vapor retarder seal, black color, coiled on release paper over adhesive on two sides; widths required for specified installation, and complying with AAMA 800.

D. Glazing Gaskets:
1. Dense Compression Gaskets: ASTM C 864, neoprene or EPDM, or ASTM C 1115, silicone or thermoplastic polyolefin rubber, as recommended by glazing product manufacturer for application, molded or extruded shape to fit glazing channel retaining slot; black color.
2. Soft Compression Gaskets: ASTM C 509, Type II, black, molded or extruded, neoprene, EPDM, silicone or thermoplastic polyolefin rubber, of profile and hardness required to maintain watertight seal.

E. Setting Blocks: ASTM C 864, neoprene, 80 to 90 Shore A durometer hardness; length 4 inches, width of glazing rabbet space less 1/16 inch, height required for glazing method, pane weight, and pane area.

F. Spacer Shims: ASTM C 864, neoprene, 50 to 60 Shore A durometer hardness; length 3 inches, one half height of glazing stop, thickness required for application, one face self-adhesive.

G. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

H. Glazing Sealants: ASTM C 920, type recommended by glazing product manufacturer for application indicated, complying with requirements of Division 07 Section 'Joint Sealants,' color as selected by Architect.

I. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

J. Smoke Removal Unit Targets: Adhesive targets for application to glass, identifying glass units designed for removal for smoke control.

2.4 FABRICATION OF GLAZING UNITS, GENERAL

A. Fabricate glazing units in dimensions required, with edge and face clearances, edge and surface conditions, and bite in accordance with glazing product manufacturer/fabricator's instructions and referenced glazing publications.

2.5 INSULATING-GLASS UNIT(S)

A. Double Glazed Tinted Solar Control Laminated Insulating Glass Unit [Solarban® 70XL on Solarblue® 6mm (2) | Air 1/2" (12.7mm) | 6mmClear_090PVB_6mmClear]

1. Conformance: ASTM E 2190
2. Outdoor Lite: Solarblue® Tinted Float Glass as manufactured by Vitro Architectural Glass
   a. Conformance: ASTM C 1036, Type 1, Class 2, Quality q3.
   b. Glass Thickness: 6mm (1/4")
   c. Magnetic Sputter Vacuum Deposition Coating (MSVD): ASTM C 1376.
   d. Coating: Solarban® 70XL on Surface # 2
   e. Heat-Treatment: [Heat-strengthened, ASTM C 1048, Kind HS] [Tempered; ASTM C 1048, Kind FT; Safety Glazing meets ANSI Z97.1 and CPSC 16CFR-1201]*Specifier Notes: Specify the method of heat treatment. Vitro recommends that heat strengthened glass be specified and used, except where tempered glass is mandated for safety or other purposes by code.*
3. Interspace Content: Air 1/2" (12.7mm)

4.1. Indoor Lite: Laminate
   a. Conformance: ASTM C1172 and complying with testing requirements

4.2. Laminate Outboard Lite: Clear float glass as manufactured by Vitro Architectural Glass .
   a. Conformance: ASTM C 1036, Type I, Class 1, Quality q3
   b. Thickness: 6mm (1/4")
   c. Heat-Treatment: [None] [Heat-strengthened, ASTM C 1048, Kind HS] [Tempered; ASTM C 1048, Kind FT; Safety Glazing meets ANSI Z97.1 and CPSC 16CFR-1201]*Specifier Notes: Specify the method of heat treatment. Vitro recommends that heat strengthened glass be specified and used, except where tempered glass is mandated for safety or other purposes by code.*

4.3. Interlayer:
   1) Type: PVB
   2) Thickness: 0.090" (2.29 mm)
   3) Color: Clear

4.4. Laminate Inboard Lite: Clear float glass as manufactured by Vitro Architectural Glass
   a. Conformance: ASTM C 1036, Type I, Class 1, Quality q3
   b. Thickness: 6mm (1/4")
   c. Heat-Treatment: [None] [Heat-strengthened, ASTM C 1048, Kind HS] [Tempered; ASTM C 1048, Kind FT; Safety Glazing meets ANSI Z97.1 and CPSC 16CFR-1201]*Specifier Notes: Specify the method of heat treatment. Vitro recommends that heat strengthened glass be specified and used, except where tempered glass is mandated for safety or other purposes by code.*

5. Performance Requirements:
   a. Visible Light Transmittance: 41 percent minimum.

b. Winter Nighttime U-Factor: 0.28 (Btu/hr*ft^2*°F) maximum.
c. Summer daytime U-Factor: 0.26 (Btu/hr*ft^2*°F) maximum.
d. Shading Coefficient: 0.26 maximum.
e. Solar Heat Gain Coefficient: 0.23 maximum.
f. Outdoor Visible Light Reflectance: 8 percent maximum.

6. Monolithic OPACI-COAT-300® Spandrel Glass Coating.
    1. The OPACI-COAT-300® opacifying coating shall have a minimum thickness of 4-5 mils dry (0.004”/0.10mm to 0.005”/0.127mm). For fallout protection a minimum thickness of 6.50 mils dry (0.0065”/0.17mm) is required.
    2. Location: See drawings for location
    3. Spandrel Coating Orientation: Surface #6 (Interior facing surface of Laminated Lite 2)
    4. OPACI-COAT-300® Color Name and Number: ICD 6-2492 Lake Michigan

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that glazing channels are clean and ready to accept glazing installation, and that weeps are unobstructed. Confirm that minimum required face and edge clearances will be maintained. Do not proceed with glazing until unsatisfactory conditions have been corrected.

B. Examine glazing units prior to setting. Reject units that display edge or face damage that may impede performance of unit or that will be visible when installed.

3.2 PREPARATION

A. Clean glazing channels with recommended solvent and wipe dry. Apply primers to joint surfaces to ensure adhesion of sealants, unless preconstruction sealant-substrate testing indicates no primer is required.

3.3 GLAZING INSTALLATION

A. General: Install glass and glazing materials in accordance with instructions of manufacturers and requirements of GANA Glazing Manual.
    1. Install setting blocks of size and in location required by glass manufacturer. Set blocks in bed of approved sealant.
    2. Provide spacers for glass lites as recommended, based upon size of glass unit.
    3. Comply with glass manufacturer’s limits on edge pressures.
    4. Ensure that glazing units are set with proper and consistent orientation of glass units toward interior and exterior.
    5. Provide edge blocking where recommended.
    6. Install sealants in accordance with requirements of Division 07 Section 'Joint Sealants.'

B. Tape Glazing: Place tapes on fixed stops positioned to be flush or protrude slightly when compressed by glass. Install tapes continuously. Form butt joints at corners and where required, and seal tape joints with approved sealant.
    1. Apply heel bead of glazing sealant along intersection of permanent stop and frame for continuity of air and vapor seal.
    2. Set glass lites centered in openings on setting blocks.
    3. Install removable stops, and insert dense compression gaskets at corners, working toward centers of lites, compressing glass against tape on fixed stops.
    4. Apply cap bead of elastomeric sealant over exposed edge of tape or gasket on exterior of glass unit.

C. Sealant Glazing: Install continuous spacers between glass lites and glazing stops. Install cylindrical sealant backing where recommended, in width and depth recommended to provide proper depth and width of sealant bead. Ensure sealant cannot block weep system.
    1. Install sealant under pressure to completely fill glazing channel without voids, with full bond to glass and channel surfaces.

2. Tool sealant bead to proper profile providing wash away from glass.

D. Gasket Glazing: Fabricate gaskets to fit openings exactly. Allow for stretching of gaskets during installation.
1. Set soft compression gasket against fixed stop or frame, secure, with bonded miter cut joints at corners.
2. Set glass lites centered in openings on setting blocks.
3. Install removable stops, and insert dense compression gaskets at corners, working toward centers of lites, compressing glass against soft compression gaskets and to produce a weathertight seal. Seal joints in gaskets. Allow gaskets to protrude past face of glazing stops.

3.4 CLEANING AND PROTECTION

A. Protect installed glass from damage. Attach streamers or warning tape to framing members, away from contact with glass. Remove nonpermanent labels.

B. Protect glass from contact with contaminating substances during construction. Immediately clean glass exposed to contamination using methods recommended by glass manufacturer.

C. Within 5 working days prior to inspection for Substantial Completion, clean all exposed glass surfaces using methods recommended by manufacturer. Remove glazing compounds from framing surfaces.

D. Remove and replace broken or damaged glass.

END OF SECTION 088000

SECTION 092900 - GYPSUM DRYWALL

PART 1 - GENERAL

1.01 Fire-Resistance Ratings: Provide gypsum drywall construction fire-resistance ratings indicated, conforming to assemblies tested per ASTM E 119 by inspecting and testing organization acceptable to authorities having jurisdiction.

A. **All fire and/or smoke barriers or walls shall be effectively and permanently identified with stenciling above any decorative ceiling and/or in concealed space with letters a minimum of two (2) inches high on a contrasting background spaced a maximum of twelve (12) feet on center with a minimum of one per wall or barrier. The hourly fire rating shall be included on all rated barriers or walls. Wording shall be as follows: "(__) Hour Fire and Smoke Barrier-Protect All Openings."**

B. **Storage rooms which are sprinklered shall have permanently stenciled, eighteen (18) inches below sprinkler heads, a designation line (red) with the following wording: "NO STORAGE ABOVE LINE." Requirements for stenciling shall be as noted above.**

1.02 SUBMITTALS

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

B. Provide light gauge framing shop drawings stamped by a Florida registered engineer.

PART 2 – PRODUCTS

2.01 Manufacturers: Subject to compliance with requirements, provide gypsum board and related products by one of the following:

Georgia-Pacific Corp.
Gold Bond Building Products Div.
National Gypsum Co.
United States Gypsum Co.

2.02 Steel Framing for Walls and Partitions: Comply with ASTM C 754 and the following:

A. Steel Studs and Runners: ASTM C 645, 14 gauge (or as required by FBC for wind resistance) base metal thickness unless otherwise indicated.

1. Height for which is insufficient per manufacturer's "Limiting Height Tables", shall be accomplished in the gauge of material required by these tables. **If 3-5/8" metal studs shown on the floor plans will not meet the "Length Heights Table", brace each metal stud or use 6" metal stud instead.** Such materials to be provided at no additional cost to the Owner.

B. Base Track: ASTM C 645, 14 gauge (or as required by FBC for wind resistance) for exterior.

C. Top Track: Slip Track, (14 gauge or as required by FBC for wind resistance) for exterior.

2.04 Gypsum Board: Provide gypsum board of types indicated in maximum lengths available to minimize end joints:

A. Exposed Gypsum Board: ASTM C 36, 5/8" thickness, Type 'X'. For fire-rated-assemblies refer to Drawings for UL Design Numbers.

B. Moisture & Mold Resistant Gypsum Board: ASTM C 1396, 5/8" thickness, regular type except where Type X Fire-resistant type is indicated or required to meet UL assembly types. Edges shall be tapered. Provide Sheetrock brand Mold Tough Firecode Gypsum Panels by USG OR approved equal. **Note: All wet areas to receive Moisture & Mold Resistant Gypsum Board. Wet areas include walls and ceilings where gypsum board is specified. Areas include, but are not necessarily limited to, bathrooms, gang toilets, showers, janitor closets, kitchens and laundry areas.**

C. Mineral Board: Provide 1/2" gypsum sheathing board core in accordance with ASTM C 1177 with glass mats both sides and long edges. Provide Dens-Glass Gold by Georgia-Pacific Corp. OR approved equal.

2.05 Trim Accessories: ASTM C 840; manufacturer's standard trim accessories, including cornerbead and edge trim of beaded type with face flanges for concealment in joint compound.

2.06 Gypsum Board Joint Treatment Materials: ASTM C 475 and ASTM C 840, and as follows:

A. Joint Tape: Paper reinforcing tape, unless open-weave glass fiber tape is recommended by gypsum board manufacturer.

B. Setting-Type Joint Compound: Factory-prepackaged, job-mixed chemical-hardening powder products formulated for uses indicated.

C. Drying-Type Joint Compounds: Factory-prepackaged -premixed vinyl-based products. Taping compound formulated for embedding tape and first coat over fasteners and flanges of corner beads and edge trim. Topping compound formulated for fill (2nd) and finish (3rd) coats.

2.07 Miscellaneous Materials: As recommended by gypsum board manufacturer:

A. Gypsum Board Screws: ASTM C 1002.

B. Concealed Acoustical Sealant: Comply with requirements specified in Division-7 Section "Joint Sealers."

PART 3 - EXECUTION:

3.01 Install steel framing to comply with ASTM C 754 and ASTM C 840.

A. Do not bridge building expansion joints with support systems, frame both sides of joints with furring and other supports as indicated.

B. Secure hangers to structural support by connecting directly to structure where possible, otherwise connect to inserts, clips other anchorage devices or fasteners as indicated.

C. Install direct-hung grid suspension system, including perimeter wall track or angle, with members spaced and installed to comply with mfr's instructions.

D. Install steel studs with bottom and top runner tracks anchored to substrates. Isolate system from building structure to prevent transfer of loading and deflections into metal support system, both vertically and horizontally.

E. Install supplementary framing, runners, furring, blocking and bracing at openings and terminations in gypsum drywall and where required for support of other work which cannot be adequately supported on gypsum board alone.

3.02 Install and finish gypsum board to comply with ASTM C 840 and as follows:

A. Isolate drywall construction from abutting structural and masonry work; provide edge trim and acoustical sealant as recommended by manufacturer.

B. Screw gypsum board to metal supports.

C. Do not bridge building expansion joints. Leave space of the width indicated between boards, and trim both edges for installation of sealant or gasket.

3.03 Install water-resistant backing board where indicated to receive thin-set tile.

3.04 Drywall Finishing:

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

A. Prefill open joints and damaged surface areas.

B. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:

1. Level 4: (For all surfaces unless otherwise noted)

a. All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. Note: It is recommended that the prepared surface be coated with a drywall primer prior to the application of final finishes. (See Section 099000 – Painting.)

3.05 Install compound in 3 coats (plus prefill of cracks where recommended by manufacturer); sand between coats and after last coat.

A. Embedding and First Coat: Ready-mix drying type all-purpose of taping compound.

B. Fill (Second) Coat: Ready-mix drying type all-purpose or topping compound.

C. Finish (Third) Coat: Ready-mix drying-type all-purpose or topping compound.

END OF SECTION 092900

SECTION 098453 - SOUND BARRIER MULLION TRIM CAP

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section includes sound barrier mullion trim caps providing sound transmission control at curtain wall.

1.03 ACTION SUBMITTALS

A. Product Data:

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for sound barrier wall end cap system.

B. Shop Drawings:

1. Include typical dimensioned cross-section(s) at the location where drywall partition terminates at the perimeter curtain wall, indicating:

a. Dimensions
b. Finish

C. Samples: For each exposed product and for each color and texture specified.

1. Size: 6 inch (152 mm) sound barrier mullion trim cap sample and 2” x3-1/2” (51 mm x 89 mm) custom color paint sample.

1.04 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each sound barrier mullion trim cap assembly, for ASTM E 90 tests performed by a qualified third party testing agency.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of aluminum extrusions and anodizing shall be ISO-9001 certified.

B. Installer Qualifications: An entity that employs installers and supervisors who are approved by manufacturer.

C. Testing Agency Qualifications: ASTM E 90 testing to be performed by laboratory accredited by IAS as complying with ISO/IEC Standard 17025.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver sound barrier mullion trim caps until spaces to receive them are clean, dry, and ready for their installation.

B. Store sound barrier mullion trim caps in original undamaged packaging inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.07 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace sound barrier mullion trim caps that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Ten years limited warranty from date of Substantial Completion.
2. Limited warranty does not cover adjacent products or improper installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide the following:

1. MULL-it-OVER Products**;** Sound barrier mullion trim cap systems.
   a. Tel: (616) 730-2162
   b. url: www.mullitoverproducts.com
2. Approved equal

2.02 SYSTEM DESCRIPTION

A. General: Provide sound barrier mullion trim caps of design, basic profile, materials, and operation indicated. Provide units with capability to accommodate variations in adjacent surfaces.

1. Furnish units in lengths of sufficient additional length to allow for field trimming to required length to match variations in construction tolerances of adjacent systems.

2.03 PERFORMANCE REQUIREMENTS

A. Sound Transmission:

1. Single Sided Installations: STC 50 or higher.
2. Double-Sided Installations: STC 55 or higher.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Mullion trim cap to be sized to accommodate thermal movement.

2.04 SOUND BARRIER MULLION TRIM CAP

A. Sound Barrier Mullion Trim Cap:

1. Products: MULL-it-OVER Products**;** Mullion Trim Cap.

B. Profile: 55 Classic Mullion Trim Cap, 55 Flush Mullion Trim Cap, 55 Wide Mullion Trim Cap.

2.05 COMPONENTS

A. Aluminum Extrusions:

1. Thickness: 0.125 inches.
2. Profile: As selected and approved by Architect to allow solid attachment and fastening to the partition wall framing.

B. Sound Absorbing Foam:

1. Resistant to smoke, flame, and microbial growth.
2. Fire Rating: ASTM E 84 Class 1.
3. Fungi Resistance: Zero rating per ASTM G 21.

C. Compressible Foam: Between edge of extrusion and interior face of curtain wall glass.

1. Thickness: Standard 1/2 inch (12.7 mm), or 1 inch (25.4 mm) to accommodate a larger mullion deflection.

2. Color: **Light gray**

D. Fasteners:

1. Self Tapping or appropriate threaded fastener.
2. Compatible with all materials fasteners will contact with and not causing galvanic corrosion.

E. Snap Cover: Snap-on fastener cover.

F. Acoustical Sound Sealant: Acrylic latex based.

2.06 ACCESSORIES

A. Provide necessary and related parts and tools to complete installation.

2.07 FABRICATION

A. Extrusions and generic profiles to be shipped in custom lengths as required to meet project requirements or shipped in standard incremental foot lengths and cut to exact length on jobsite.

2.08 FINISHES

A. Exposed surfaces of exposed aluminum extrusion:

1. Standard Finish: Supplied in clear anodized finish.
2. Custom Finish: Custom anodized finishes and painted finishes available upon request.

B. Finishes:
1. Aluminum - clear anodize:

a. Clear anodized finish in accordance with AA-M10 C22 A41 Class I (0.7 to 1.0 thick anodic coating)

2. Aluminum - color anodize or painted:

a. Color Choice with matte or bright finish. Select from manufacturer's custom color offering.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine walls and adjacent curtain wall for suitable conditions where sound barrier wall end cap will be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Measure and cut sound barrier wall end cap to proper lengths.

B. Notch around horizontal mullions, sills, or other obstructions leaving appropriate gap for differential movement between the sound barrier wall end cap and the obstruction.

C. Apply continuous bead of acoustical sealant to the unexposed side of extruded aluminum surface that will be in contact with the drywall edge.

D. Place sound barrier wall end cap on the vertical surface of the drywall partition wall and loosely install fasteners in the top and bottom slotted holes of the wall end cap.

E. Plumb the wall end cap leaving recommended gap spacing between the interior glass surface and the wall end cap. Foam gasket to be in contact with glass.

F. Tighten top and bottom fasteners to secure end cap.

G. Install additional fasteners at 12 inches on center, minimum.

H. Install snap cover to conceal fasteners.

I. Apply color matched sealant at joints of dissimilar materials as desired.

3.03 CLEANING

A. After work is complete in adjacent areas, clean exposed surfaces with suitable cleaner that will not harm or attack the finish.

3.04 PROTECTION

A. Protect sound barrier wall end caps from damage during installation, general construction activities, and until turnover of structure.

END OF SECTION 098453

SECTION 099100 – PAINTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and Division 1 Specification Sections, apply to this section.

1.02 DESCRIPTION OF WORK

A. Painting and finishing of interior and exterior items and surfaces, unless otherwise indicated.

B. Includes field painting of bare and covered pipes and ducts (including color coding), and hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work.

C. Paint exposed surfaces, except as otherwise indicated, whether or not colors are designated. If not designated, colors will be selected by Architect from designer colors available for the coatings required.

1.03 WORK NOT INCLUDED: Unless otherwise indicated, shop priming of ferrous metal items and fabricated components are included under their respective trades. Pre-finished items, are not included.

A. Unless otherwise indicated, painting not required on surfaces of concealed areas except for piping, equipment and other such items within concealed spaces. Finished metals such as anodized aluminum, stainless steel, bronze, and similar metals will not be painted. Do not paint any moving parts of operating units, or over any equipment identification, performance rating, name or nomenclature plates or code-required labels.

1.05 FLAME SPREAD RATING

A. Class A (0-25) over non-combustible surfaces.

1.06 SUBMITTALS: In addition to manufacturer's data, application instructions, and label analysis for each coating material, submit samples for Architect's review of color and texture only. Resubmit samples if requested until required sheen, color and texture is achieved.

A. On 8" x 8" hardboard, provide samples of each color and material, with texture to simulate finish conditions.

B. On actual wall surfaces and other building components, duplicate painted finishes of acceptable samples, as directed by Architect. Final acceptance of paint color and texture shall be from wall sample.

1.07 PROJECT CONDITIONS

A. Do not apply paint in rain, fog or mist or when relative humidity exceeds 85%. Do not apply paint to damp or wet surfaces or before the building is weathered in.

1.08 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner. Furnish Owner with 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Provide specified paint by Sherwin-Williams Company OR approved equal by one of the following paint manufacturers:
   1. PPG.
   2. Benjamin Moore.

2.02 PAINT MATERIALS – GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates recommended by manufacturer.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

2.03 PAINT SCHEDULE

A. **Exterior Surfaces:**
   1. **Galvanized Metal (Exterior): Semi-Gloss Finish**
      1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
      2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
      (2.5-4 mils dry per coat; VOC 0 g/L)

   2. **Ferrous Metal (Exterior) (Shop Primed Metal):**
      1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
      2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
      (2.5-4 mils dry per coat; VOC 0 g/L)

   3. **Galvanized Metal (Exterior):** Metal framing for aluminum sunshades
      1st Coat: S-W ProCryl Universal Metal Primer, B66-300 series
      2nd Coat: S-W BondPlex aluminum finish B71S200

B. **Interior Surfaces**:
   1. **Gypsum Drywall (Interior):**
      1st Coat: S-W ProMar 200 Zero VOC Latex Primer, B28W2600
      (4 mils wet, 1.5 mils dry; Zero VOC)
      2nd Coat: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series
      3rd Coat: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series
      (4 mils wet, l.6 mils dry per coat; Zero VOC)

   2. **Gypsum Drywall (Wet Areas or where EP-Epoxy Paint is scheduled on the Finish Plans)**:
      Semi-Gloss Finish
      1st Coat: S-W ProGreen 200 Interior Latex Primer, B28W600
      (4 mils wet, 1.5 mils dry; VOC 49 g/L, 0.36 lb/gal)
      2nd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
      3rd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
      (4.0 mils wet, 1.5 mils dry per coat; VOC 155 g/L, 1.29 lb/gal)

3. **Concrete Masonry Units and Concrete (Interior)**:
Semi-Gloss Finish

1st Coat:	S-W PrepRite Blockfiller , B25W25 (VOC , 50 g/L)
2nd Coat:	S-W ProMar 200 Zero VOC Latex Semi-gloss, B31-2600 Series
3rd Coat:	S-W ProMar 200 Zero VOC Latex Semi-gloss, B31-2600 Series (4 mils wet, l.6 mils dry per coat; Zero VOC)

4. **Concrete Masonry Units (Where EP-Epoxy Paint is scheduled on finish plans)**:

1st Coat :	S-W Loxon Block Surfacer, A24W200 (50-100 sq ft/gal; VOC 81 g/L, 0.68 lb/gal)
2nd Coat:	S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
3rd Coat:	S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46 (4.0 mils wet, 1.5 mils dry per coat; VOC 155 g/L, 1.29 lb/gal)

5. **Concrete Floor (Where SC-Sealed Concrete is scheduled on finish plans)**:
Properly prepare concrete surface for stain/sealer.
See manufacturer's surface preparation guidelines

1st Coat:	S-W H&C Concrete Stain, Solid Color, Water Based
2nd Coat:	S-W H&C Concrete Stain, Solid Color, Water Based (100-150 sq/ft per gallon)

6. **Galvanized Metal (Interior)**:

Primer:	S-W Pro-Cryl Universal Primer, B66-310 Series (5.0-10.0 mils wet, 2.0-4.0 mils dry; VOC <100 g/L, <0.93 lb/gal)
1st Coat:	S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
2nd Coat:	S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series (2.5-4 mils dry per coat; VOC 0 g/L)

7. **Ferrous Metal (Interior)**:

Primer:	S-W Pro-Cryl Universal Primer, B66-310 Series (5.0-10.0 mils wet, 2.0-4.0 mils dry; VOC <100 g/L, <0.93 lb/gal)
1st Coat:	S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
2nd Coat:	S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series (2.5-4 mils dry per coat; VOC 0 g/L)

8. **Painted Woodwork - Trim, Doors, Windows (Interior)**:

1st Coat:	S-W PrepRite ProBlock Interior/Exterior Latex Primer Sealer, B51 Series (4 mils wet, 1.4 mils dry; 96 g/L, 0.80 lb/gal)
2nd Coat:	S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
3rd Coat:	S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series (2.5-4 mils dry per coat; VOC 0 g/L)

9. **Wood – Transparent Finish (Interior)**:
Polyurethane System

1st Coat:	S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series
2nd Coat:	S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series (400-500 sq ft/gal; VOC 311 g/L, 2.50 lb/gal)

10. **Wood – Semi-Transparent Finish (Interior)**:
Polyurethane (topcoat)

1st Coat:	S-W Minwax Wood Finish 250 VOC Stains (500 sq ft/gal; VOC <250 g/L)
2nd Coat:	S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series
3rd Coat:	S-W WoodClassics Waterborne Polyurethane Varnish, A68 Series (400-500 sq ft/gal; VOC 311 g/L, 2.50 lb/gal)

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.
1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
3. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.02 PREPARATION

A. Remove hardware and accessories, machined surfaces, plates, lighting fixtures and similar items in place and not to be finish-painted or provide surface-applied protection. Reinstall removed items and remove protective coverings at completion of work.

B. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer=s written instructions for each particular substrate condition and as specified.
1. Cementitious Surfaces: Prepare concrete, concrete masonry, cement plaster and surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation. Determine alkalinity and moisture content of surfaces to be painted. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

2. Wood: Clean surfaces of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth, and dust off.
a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After primer, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand
b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
c. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.

C. Ferrous Metals: Clean non-galvanized ferrous metal surfaces that have not been shop-coated; remove oil, grease, dirt, loose mill scale and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council. Touch-up shop-applied prime coats that have been damaged, and bare areas. Wire-brush, clean with solvents and touch-up with the same primer as the shop coat.

D. Galvanized Surfaces: Clean galvanized surfaces with non-petroleum based solvents so that surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock, by mechanical methods.

E. Material Preparation: Mix and prepare paint materials according to Manufacturer's written instructions.

3.03 APPLICATION:

A. Apply painting and finishing materials in accordance with manufacturer's directions. Use applicators, and techniques best suited for materials and surfaces to which applied.

B. Apply additional coats when undercoats, stains or other conditions show through final paint coat, until paint film is of uniform finish, color and appearance.

C. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before equipment is installed.

D. Paint interior surfaces of ducts, where visible through registers or grilles, flat, non-specular black.

E. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.

F. Sand lightly between exceeding enamel or varnish coats.

G. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise specified.

H. Apply prime coat to material which is required to be painted or finished, and which has not been prime coated by others.

I. Apply each material at not less than manufacturer's recommended spreading rate, to provide a total dry film to thickness of not less than 4.0 mils for entire coating system of prime and finish coats for 3-coat work.

J. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

3.05 PROTECTION:

A. Protect work of other trades. Correct any painting related damages by cleaning, repairing or replacing, and refinishing, as directed by Architect.

3.06 COORDINATION:

A. Provide finish coats which are compatible with prime paints used. Provide barrier coats over incompatible primers where required. Notify Architect in writing of anticipated problems using specified coatings with substrates primed by others.

3.07 COMPLETED WORK

A. Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

END OF SECTION 099100